B.A. Khabibov

PERFORMANCE INDICATORS FOR WATER SUPPLY AND SANITATION SERVICE IN THE REPUBLIC OF TAJIKISTAN: Regulatory and Statutory Requirements

Reference Guide

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Author: B.A. Khabibov

This publication is intended to assist water supply organizations to apply basic requirements of the current legislation for providing water supply and sanitation services. It has integrated main regulatory and statutory instruments, standards and regulations in the given area.

The publication does not contain a full and detailed service provision procedure, and just describes key responsibilities of water supply and sanitation service providers towards consumers. It is intended to define main performance indicators, in the author's opinion, that would enable both providers and consumers to determine requirements for the quality, safety and reliability of services in the given area.

The publication is not of a regulatory nature. The text attached comprises some of the basic regulatory and statutory instruments described herein.

The publication is intended for a wide range of readers

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Introduction

On July 26, 2010, the United Nations General Assembly announced access to drinking water as human right. As is stated in the adopted resolution: "General Assembly announces the right to safe and pure drinking water as a human right that is of vital importance for a productive life and fully exercising all human rights". This resolution is now pivotal for shaping state policies in socioeconomic areas, with an emphasis on sustainable development of the water supply sector in the provision of fair and equal access to water supply and sanitation services.

The policy of the Republic of Tajikistan has been focused on practical implementation of public access to pure drinking water and sanitation services. By its own example, the country reveals the necessity and urgent nature of addressing issues in the given area, and has actively participated in shaping international policy and decisions in the water supply and sanitation sector. An example of the country's sectoral commitment is the consistent work on the promotion of international initiatives, such as, The World Decade of Actions "Water for Life" through 2005-2015.

At the same time, Tajikistan is now facing a number of challenging issues in the sector. These were highlighted at the high level International Conference, following the results of the World Decade of Actions "Water for Life", by the Head of the State, Emomali Rakhmon.

As stated in his presentation: "the provision of pure drinking water to the population is the topmost priority in the water sector of the country, despite significant achievements over the last decade in this area, the implementation of this task has considerably fallen behind set plans".

Challenging issues in the sector are of an economic and financial nature, as well as social and institutional nature. Water supply organizations, for further formation and sustainable development,

must radically reconsider their strategies, financial management and relationships with all categories of water consumers. In particular, they must be more market-oriented by setting service fees based on full recovery of their costs and targeted social assistance with state support for low-income and vulnerable social groups.

In the water supply and sanitation sector of Tajikistan, women have a traditionally important role as mother and domestic goddess. From an economic standpoint, women assume the main burden of child rearing, and manage both household and domestic issues. It is therefore important to provide economic, social and educational support to women, especially in rural settings, and the provision of clear sector information.

This publication proposes feasible solutions to address these and other issues currently facing the sector in order to facilitate the creation of new and fair market relations.

CHAPTER 1. Water Supply and Sanitation Services: Regulatory and Engineering Requirements

Specific Features and Context

Water supply and sanitation services include a broad range of various production operations. The scope of this publication will cover select aspects of that range concerning regulatory, statutory and engineering requirements, in particular:

- ***Drinking Water.*** The end product of water supply activity is safe drinking water. As such, water must meet requirements to ensure consumer life and health as outlined in public health and engineering regulations and standards.
- ***Water Supply Services***. Central water supply, as it's known, implies a direct supply of water to consumption sites. The water supply service features the whole production process of supply from water source to consumer. Requirements are designed with safety considerations for drinking water in order to prevent production processes from having undesirable impacts on the end product. Subsequently, features relating to services emerge such as: water pressure in pipes, uninterrupted supply, reliability, timely repairs and replacement of water supply system elements, damage control and recovery, leakage control, and many others. All of these have regulatory purview. Drinking water and water supply requirements will further be considered jointly and separately, depending on the nature of an applicable indicator.
- ***Sanitation.*** The term "sanitation" has different definitions in different communities and scientific areas. For the purposes of this publication, the fittest definition is one, provided by the World Health Organization: “Sanitation generally refers to the provision of facilities and services for the safe disposal of human urine and faeces”[1]. The word "sanitation" is also applied in relation to the maintenance of hygienic conditions

[1] Source: http://www.who.int/topics/sanitation/en/

assisted by services such as garbage collection and wastewater utilization. Such "sanitation", as is commonly used by our utilities sector, is referred to as "water disposal" or "sewage disposal". Water supply services are traditionally considered jointly with water disposal services, as these services are technologically interrelated and often provided by the same organizations. Requirements for water disposal – sanitation – also include: safety, reliability of a service as such, provision for reliability, timely repairs, and care and maintenance of infrastructural elements.

The abovementioned main aspects of water supply and sanitation services are the focus of this publication.

The water supply and sanitation sector is considered economically stable. It is not susceptible to rapid and frequent changes, therefore making it less adaptable to streamlined production methods. As a result, regulatory and engineering requirements are rarely modified in the sector. Considering the public nature of these services and their high degree of potential impact on the health, property, and welfare of citizens, the main task of water supply organizations should be the knowledge and observance of the basic rules and standards providing for reliable and safe water supply and sanitation services. Therefore, it is important to define, in detail, the main regulatory and statutory requirements for water supply organization services. These standards, regulations and rules, laws, industry documents, and orders and decisions of relevant authorities contain industrial, process and sanitary requirements for the most important products – drinking water and its supply services. In different sources, these requirements are generally referred to as water supply and sanitation indicators or indices. Hereinafter, they will be referred to as ***water supply and sanitation service performance indicators.***

Customers – Water Consumers

Many regulatory and statutory requirements for water supply services are equally applicable to all categories of customers, but some standards only pertain to individual categories. For example, there are different approaches to the arrangement of water supply for individuals – citizens and legal persons. As there are different types of contracts and goals, as well as modalities, the standards also differ. The emphasis of this publication is citizens, or individuals, who use water solely for personal, family and domestic needs. They, as distinct from legal persons, are less protected, do not possess relevant knowledge and are generally subject to unequal conditions by water supply service providers. Therefore, out of concern for customers – citizens, regulations must be refined in a number of laws. Such legislation not only covers water supply, but other areas of goods, works and service purchases and sales, better known as: ***consumer protection legislation***. Citizens – individuals, who purchase, have intention to purchase or use goods, works or services to meet personal, family and domestic needs not related to entrepreneurial activity – are referred to as ***consumers***.

Water Supply and Sanitation Service Performance Indicators

Current requirements for water supply services in Tajikistan, in general, are the legacy of the Soviet Union, since the water supply system was built during that time. A large number of standards and regulations, construction codes and state standards shaped the requirements for the unified construction, operation and provision of water supply services. As was stated above, the water supply sector is not susceptible to rapid and abrupt changes, but the economic set-up and business milestones have undergone significant changes and requirements to water supply and sanitation services should follow suit. Requirements should be more flexible, be oriented towards market conditions, and readily understandable for consumers, all while ensuring the quality and safety of these services.

To review, streamline and generalize the current requirements for water supply services, implementers of the "Tajikistan - Water -

Improving Social Accountability Project" (TWISA) invited local and foreign experts. The group comprised representatives of relevant ministries and departments of the Republic of Tajikistan, public organizations and partners of the project.

Legislative requirements for water supply and sanitation services were studied and defined in terms of the following performance indicator groups:

1) Quality and safety of water supply services
2) Reliability of water supply services
3) Water consumption norms
4) Requirements for sanitation services

The first three performance indicator groups only deal with requirements for water supply services, while the fourth indicator is dedicated to regulations and standards for sanitation services.

The set of performance indicators considered in this publication, as per the abovementioned groups, is intended to assist water supply organizations in the provision of proper drinking water supply and sanitation service.

Water Supply and Sanitation Legislation of the Republic of Tajikistan

Water supply service indicators are binding, as they are either specified in the relevant laws of the Republic of Tajikistan or have direct references in separate laws with other regulatory documents - statutory instruments, standards, regulations, etc.

As is customary in the hierarchy of statutory standards, the ruling legal instrument is commonly believed to be the fundamental law of the country – the Constitution. The Constitution cannot regulate all subtleties, but it sets the underlying principles with which all other laws, statutory instruments, standards and regulations, and other regulatory documents must comply. That is why the water supply and sanitation sector is governed by

regulatory and statutory instruments that have common and special standards governing the water supply and sanitation sector.

Examples of these governing laws include:
LAWS:

- **Civil Code of the RT** (Part I, as of June 30, 1999, Part II, as of November 11, 1999, and Part III, as of March 1, 2005) – one of the main codified legal instruments governing a broad range of relations between citizens, between citizens and legal persons, and general principles of relations for drinking water supply.
- **Water Code of the RT** as of November 10, 2000 – a general codified law governing a range of relationships in water resource use areas: from ground water to glaciers, to water supply to irrigation.
- **Law of the RT "On the Drinking Water and Water Supply",** as of December 29, 2010 – a special law aimed at the regulation of relations arising in the drinking water supply area.
- **Law of the RT "On the Protection of Consumer Rights"**, as of December 9, 2004 – a law that regulates relations arising from the purchase and use of goods, works and services. This law does not contain special standards for the drinking water supply area, but sets basic principles, common for all types of goods, works and services.

The abovementioned laws can be divided into special and common ones. As was already stated, the most specific law is the Law of the RT "On the Drinking Water and Water Supply". The Water Code is also more specific than others, as it regulates relations in the water sector, not only for drinking water and water supply, but extends to irrigation and many other issues. The Civil Code and the Law "On the Protection of Consumer Rights" regulate entirely different legal relations.

OTHER REGULATIONS AND BY-LAWS

Individual requirements, not specified in laws, are indicated in annexes to laws within statutory instruments. If it is necessary to add regulations or details to one or another area, various rules may be adopted. These regulatory and statutory documents are usually approved by resolution of the government, and thus have the force of the law. A particular feature of such regulatory and statutory instruments is that they may neither contradict nor override the law.

Statutory instruments and rules that regulate the drinking water area include:

- **"Public Utility Network Connection Rules",** the current version was approved by resolution of the Government of the RT as of June 3, 2014, №354. These rules not only apply to drinking water supply services, but to other types of public utilities: electric power, heat and gas supplies.
- "**Public Water Supply and Sewer Usage Rules in the Republic of Tajikistan",** the current version was approved by resolution of the Government of the RT as of April 30, 2011, №234. These rules regulate, in greater detail, different aspects of drinking water supply and sanitation areas.

GOSTs, SNiPs and SanPiNs

Drinking water, first of all, is a chemical element; therefore, it should meet a number of specific engineering requirements generalized and issued in accordance with GOSTs (State Standards), SNiPs (Construction Standards) and SanPiNs (Sanitary Regulations and Standards). These standards and codes are approved by the relevant authorities that most commonly develop them: GOSTs – by the Agency for Standardization, Certification, Metrology and Trade Inspection under the Government of the Republic of Tajikistan; SNiPs – by the Agency for Construction and Architecture under the Government of the Republic of Tajikistan; SanPiNs – by the Ministry of Health (State Sanitary and Epidemiological Surveillance Service under the MOH). Following their development and approval, such regulatory and statutory instruments shall be registered with the Ministry of Justice to

become legally valid[2]

These types of documents are of a regulatory nature and binding for the area, and thus they may not contradict statutory provisions of laws of the Republic of Tajikistan. Standards are industry documents; most commonly, they are international standards (at the level of CIS countries) or being developed on the basis of international standards. As with laws, standards may have direct relations to drinking water supply services or only deal with common issues for other types of public utilities.

CONTRACT

In accordance with Article 8, Part 1, of the Civil Code of the RT[3] "Civil rights and responsibilities arise from grounds specified by law and other legal instruments", as well as from "contracts and other transactions, although not specified by law, but not contradicting it". For this reason, a ***contract*** between a provider and consumer is considered a legal instrument that has legal force for the concerned parties, and as such should not contradict statutory provisions of the RT.

GOODS OR SERVICE

Before further addressing regulatory and statutory instruments, it is necessary to define the legal meaning of "drinking water supply services through a connected network". In civil law, the legal nature of centralized water supply still stirs up disputes. The essence of such disputes is whether drinking water supplied through a network constitutes goods or a service. The importance of such disputes is that once having defined the legal nature of a water supply contract; one would be able to apply various statutory provisions to regulate relations arising from a drinking water supply contract. For example, purchase and sale of goods are regulated by a "purchase-

[2] **In accordance with Regulations of the Ministry of Justice of the Republic of Tajikistan (approved by Resolution of the Government of the Republic of Tajikistan, as of December 28, 2006, №587**

[3] **Part I, Civil Code of the RT, as of June 30, 1999**

&-sale contract", while services are regulated by a "fee-based service contract". These regulations have independent provisions under the Civil Code of the RT. Considering that the Civil Code has the highest legal force with regard to other laws regulating civil law relations, it is very important to define the legal basis for water supply.

Drinking water is considered as goods, because it is supplied through a connected network; a consumer receives a certain amount of drinking water that exhibits all properties of goods, specifically its composition, quantity, quality and physical properties. At the same time, it is a service; a service of "supplying water" to a water consumption site.

For this reason, drinking water supply has a special type of purchase and sale contract – ***supply contract through a connected network.*** In civil law, such contracts are regulated by provisions of Section 5 "Energy Supply", Chapter 29 "Purchase-&-Sale", Part II, of the Civil Code of the RT. Although an "energy supply contract" provision regulates the section, these provisions also apply to water supply through a connected network, in accordance with provisions of Article 579 "Application of Energy Supply Contract Rules to Other Relations for Supply Through a Connected Network". These provisions have laid the foundation for other laws regulating drinking water supply, and they may be applied similarly for the settlement of disputes on drinking water supply through a connected network. Another, more commonly used name in the RT is the "Centralized Drinking Water Supply".

CHAPTER 2. Water and Water Supply Quality and Safety

One of the most important drinking water supply service performance indicators is water quality and safety. The daily use of these terms can undermine their importance, while in fact, they have deeper meaning than may appear at first view.

Terms and definitions

QUALITY. There is a wide variety of quality definitions, from traditional ones related to production of goods, works and services to philosophical categories. We will consider the classical definition[4] and its two principal aspects:

Quality of Conformance: This refers to the quality at the production stage of goods, works or services as they conform to other applicable products being produced to existing standards and regulations. In our example, water taken from a source, having passed through its respective production process and having reached a consumer, should meet all the current requirements imposed on its composition. If water does not meet one of the sanitary requirements, then that drinking water is ***low-quality***. If it relates to a service, then a water supply service provided to a consumer should also meet all standards. For example, the RT legislation stipulates that drinking water should be supplied uninterruptedly, except in accidental situations. If water supply is interrupted for a reason not specified in the law
– it is a ***low-quality*** service.

Functional Quality. This aspect of quality "means an extent to which a work or performance of proprietary services or goods meets the actual needs of consumers". It is the aspect of quality that directly relates to the needs of the people. For example, water is necessary for consumption, as well as domestic needs such as cooking and washing. If water or a water supply service fails to meet these needs, then water or a water supply service, respectively, are ***low-quality***. This aspect of quality, although more informal, is critical, and has provided the basis

[4] **Michael H. *Mescon*, Michael Albert, Franklin Khedouri., "Basics of Management", Publishing Office "DELO", Moscow 1997**

for the development of requirements for drinking water supply services.

These aspects have provided the basis for defining quality in line with ISO[5] standards, according to which **"quality is a set of features and properties of a product or a service that renders them a capacity to meet conventional or anticipated needs".**

SAFETY. The safety of goods, works and services, in a broad sense, is the status of goods or a service in their usual conditions of consumption, usage, storage, transportation and utilization under which there is no risk of inflicting damage to the life, health or property of a consumer. An important point in the "Safety" category is that, firstly, of the three described aspects of drinking water supply – drinking water, water supply and sanitation services – safety is considered separately. Secondly, all of these aspects should be safe for the health of a consumer, as well as for a consumer's property. For example, drinking water should not cause diseases or various health disorders. Additionally, low quality maintenance of a water supply or sewerage system should not inflict damage to the property of a consumer, for example, by flooding a consumer's apartment.

Water Quality and Safety in Laws

As was stated in the previous chapter, safety and quality indicators are reflected differently in a number of regulatory and statutory instruments, in particular:

Civil Code of the RT

The Civil Code of the RT does not have explicit provisions regulating drinking water supply services, except for energy supply contract provisions applicable in a similar manner. The following provisions of

[5] International Standardization Organization (ISO) is one of the important agencies dealing with the development of international standards. International standards are of a voluntary nature, and they contain updated specifications for products, services and advanced practices, as well as facilitate increased efficiency of production and active growth of industrial capacity. – **Source** http://www.iso.org/iso/ru

the chapter from the Civil Code of the RT "Energy Supply Contract" are applicable for some aspects of drinking water supply service quality and safety:

Article 573. Quality of Energy.
1. The quality of energy supplied by an energy-supplying organization should meet requirements set by a state standard and other regulatory documents on standardization, or as provided for by a contract.
Indicators (requirements) of water[6] quality, which a provider should observe, are to be reflected in a contract and meet requirements set by relevant standards. Essentially, it is a reference provision to SanPiNs and GOSTs that defines appropriate features of drinking water. The right for safety of drinking water is not explicitly stated
in these provisions.

Law of the RT "On the Protection of Consumer Rights"

The right for the quality and safety is one of the so-called basic consumer rights. The following provisions of law reflect requirements for the quality and safety of drinking water:
Article 6. Quality and Quantity of Goods (Works, Services)
A vendor (producer) shall hand over goods to a consumer (execute a work, provide a service), the quality and quantity of which conform to contract.
...
If a standard provides obligatory requirements for the quality of goods (works, services), the vendor (implementer) shall hand over to the consumer goods (execute a work, provide a service) which conform to those requirements.

Article 8. Right of a consumer for the safety of goods (works, services)
A consumer has the right to goods (works, services) subject to set rules for their usage, storage, transportation and utilization, safe for the life and health of a consumer, not

[6] **Hereinafter, by implication of comments and analogously, the word "energy" is replaced by the word "water" or "drinking water"**

harmful to the environment nor damaging to the property of a consumer.

The law fixes the responsibility of a provider to ensure quality and safety of drinking water in accordance with set requirements, as well as with SanPiNs and GOSTs. The law also gives a definition of safety: "Goods…. should be safe for the ***life, health of a consumer, environment***, and should not inflict damage to the ***property of a consumer"***.

Water Code of the RT

The Water Code is the more specific regulatory and statutory instrument for the drinking water area, where there is a number of provisions regulating relations for ensuring the quality and safety of drinking water.

Article 2 of the Code defines a number of important definitions:

- Drinking Water – Water, the quality of which in its natural state or after treatment (purification, decontamination or addition of missing substances) meets regulatory requirements for human drinking, domestic needs or manufacturing of food products;

- Drinking Water Quality Standards (Regulatory Requirements)

- A set of admissible indicators, of both chemical and microbiological composition and organoleptic properties of drinking water, determined by research methods and regulated by sanitary

rules to ensure water *safety and harmlessness* for human health;

- Drinking Water Supply - Activity aimed at satisfying the needs of individuals and legal persons for drinking water.

The abovementioned definitions are fundamental in the drinking water supply area, and they define important features of drinking water quality and safety definitions.

Other quality and safety requirements are specified in Articles 53 and

54 of the Water Code.

Article 53. Water and Water Bodies Provided for Public Drinking, Domestic and Other Needs.

For drinking, domestic water supply, as well as other public needs, water bodies shall be provided whose *water quality* meets established sanitary requirements.

Article 54. Centralized Public Water Supply.

1. Legal persons shall:

- observe all *process conditions*, with supply of drinking water to consumers;

- provide for the supply of drinking water that meets established *quality* standards, keep records of withdrawn water and regularly monitor the quality of water at withdrawal points;

These articles define a procedure for ensuring the quality and safety of a drinking water supply and its respective water bodies (water sources), whose water quality meets sanitary standards. Thereafter, ensuring the water quality and safety is the duty of the provider who is furnished with a water body for centralized water supply.

Law of the RT "On the Drinking Water and Water Supply"

The provisions of this law explicitly regulate the drinking water supply area. The law also provides important definitions:

Article 1. Basic Definitions

- Drinking Water – Water, the quality of which in its natural state by its quality or after treatment (purification, decontamination or addition of missing substances) meets regulatory requirements for human drinking, domestic needs, or the manufacturing of food and medical products;

- Drinking Water Quality Standards (Regulatory Requirements)

– A set of admissible indicators of chemical and microbiological

composition and organoleptic properties of drinking water (taste, colour, odour, temperature), determined by research methods and regulated by sanitary rules to ensure water safety and harmlessness for human health;

- Drinking Water Supply - Activity aimed at satisfying the needs of individuals and legal persons for drinking water;
These definitions essentially repeat those provided in the Water Code, but with more detail.

The law further describes the obligatory measures for ensuring the quality of drinking water, which include:

Article 16. Ensuring the Quality of Drinking Water
The quality of drinking water supplied to consumers should meet regulatory requirements and be ensured by the following measures:

- **Appropriate selection of water supply sources and water purification technologies;**
- **Continuous control of the quality of drinking water in drinking water supply systems;**
- **Use of equipment, materials and reagents in drinking water supply systems, the safety of which is confirmed by established certificates;**
- **Establishing and reviewing (every 5 years) regulatory requirements for drinking water and water supply sources in accordance with present-day scientific achievements;**
- **Protection of centralized and non-centralized drinking water supply systems (establishing sanitary protection zones and other protection measures against unintended and malicious contamination of drinking water);**
- **Development of demo programs for the operation and control of drinking water quality in centralized and non-centralized water supply systems with respect to local conditions;**
- **Provision of tough control measures (on the part of state sanitary and epidemiological surveillance authorities) for the quality of drinking water in situations endangering the health of people in connection with deterioration of water quality**

Legislation does not specify whose responsibility it is to follow these measures, but context indicates that these are general objectives for different actors in the sector, which are sometimes collaborative.
For example, allocation of land for sanitary protection zones is the objective of the State, while the protection of a zone and observance of sanitary conditions is the objective of a provider. The objective specified in Bullet 4 of the list, **"Establishing and reviewing (every 5 years) regulatory requirements for drinking water and water supply sources in accordance with present-day scientific achievements"** is the responsibility of the State, while the responsibility of a provider is to be aware and fulfill requirements as they are modified. Nevertheless, legislation does not clearly specify the regulatory requirements.

Quality and Safety in By-laws

Public Utility Network Connection RULES

These rules regulate the public service provision area in more detail. Quality and safety are reflected in the following provisions:

37) An implementer shall provide services to a consumer that meet quality-related obligatory requirements of regulations and standards, sanitary regulations and standards, a contract's provisions, as well as information on services provided by the implementer.

Paragraph 37 of the Rules repeats provisions of the abovementioned regulatory and statutory instruments that place responsibility for ensuring the quality of services and their conformance to statutory provisions on water supply organizations.

38) Consumer properties and service provision conditions should meet the following set standards:

….

- **For cold water supply – properties and composition of water supplied, as well as the design water flow rate at the water draw off point should meet hygienic requirements.**

Paragraph 38 of the Rules introduces the definition "Draw off Point"; it is a "Check Point" to ascertain the quality of services and drinking

water. It is noteworthy that the Rules do not specify the exact location of the "Draw off Point" in question. Language in similar legal documents of other countries also provides contradictive judgements of where such a point is located. Ultimately, the “Draw off Point” is where consumers receive the end product – drinking water. It is this point where conformance of water to hygienic requirements should be measured. Therefore, it is logical to assume that this point is a water faucet/tap in a kitchen or bathroom, or more accurately, a water mixer (if available) before hot and cold water are combined.

Furthermore, there is another consideration that deals with the requirements for the quality of drinking water supply services – water head or supply pressure. For example, in a house with additional "split-offs" of water supply to a kitchen and bathroom, the supply pressure will be different when two faucets are in use. Therefore, to measure water head, a possible "Draw off Point" would be a pipe branch right before the entrance to an apartment (before indoor distribution).

39) Local state executive authorities that exercise safety control have the right to order their regional units to clarify consumer property parameters, service provision conditions and establish a guaranteed level of quality, taking into account the capacity of public utility facilities, wear and tear of capital stock, climatic and other local conditions of a populated area.

An implementer shall notify consumers of decisions made and respective adjustments to payment for services one month before implementation of such a decision. Notification shall be made through mass media.

This paragraph of the Rules defines a measure by which local executive authorities that exercise service safety control "have the right" to clarify consumer property parameters and service provision conditions, taking into account the wear and tear of capital stock.

The provision has limitations, however, as the local executive authority may *not* lower the current quality parameters and legally established

service provision conditions. "Clarifications" may only serve to provide detailed elaborations or more rigorous quality requirements. Consequently, the key issue is that if local executive authorities make any decision dealing with quality requirements, then a water supply organization shall notify consumers to that end, one month before implementation of such a decision. Again, notification shall be made through mass media.

42) A contract shall cover:

- Quality of services, service provision conditions and standard consumption rates.

A contract between a consumer and water supply organization must specify the quality, service provision conditions and consumption rates. It can be difficult to provide detailed technical aspects of quality, therefore, contracts usually contain paragraphs stating that "services should be of an established quality" (i.e., they should meet set regulations and standards).

52) A consumer has the right to:

- receive services of an established quality, safety for the life and health of the consumer, and not have damage inflicted on their property .

Quality and safety of drinking water supply services are the right of a consumer. This provision repeats the rights specified in the abovementioned regulatory and statutory instruments.

54) A consumer is not allowed to:

…

- connect and use household appliances or equipment (e.g., individual water purification devices) that have no manufacturer's specifications (certificates) or fail to meet operational safety requirements, or sanitary and hygienic standards.

A consumer is not allowed to affect the quality and safety of drinking water supply services, for example, by installing additional water purification devices that do not meet set standards. This restriction is also applicable to any other appliances or equipment that may somehow affect the quality and safety of both drinking water and water

supply services.

56) An implementer shall:

…

- provide services of an established quality (consumer properties and service provision conditions);

…;

- take prompt measures to prevention and reestablish quality services for a consumer;

- notify consumers, in a timely manner, of modifications to service quality;

- prevent process flow disruption and service quality degradation, plan measures for enhanced consumer properties and quality service provision, as well as use water and energy resources in a sustainable manner.

Responsibilities of a drinking water supply service provider also include the abovementioned measures to ensure the proper level of quality and safety of services being provided.

58) An implementer is responsible for the quality of service provision in accordance with legislation of the Republic of Tajikistan, these Rules and contract.

Upon failure to conform to drinking water supply service quality and safety, a service provider shall be held liable for the resulting damage inflicted. Grounds for release from such liability include force majeure circumstances (e.g., a natural disaster, etc.)

Public Water Supply and Sewer Usage RULES in the Republic of Tajikistan

The previous Rules focused on ensuring the proper consumer rights protection level; rather, these Rules are distinct and have a more technical character that target regulating relations between a consumer and provider.

The following provisions of these Rules deal with quality and safety issues:

3) The Rules provide for consumer rights to use public water supply and sewer systems under the terms stipulated by

contract with the public utility company.
The Rules repeat the provisions of the previous regulatory and statutory instruments, but also enforce the consumer safety rights when using public water supply and sewer systems.

34) Prior to operation, waterworks facilities are subject to flushing and decontamination until positive water quality test results for bacteriological indicators are achieved in accordance with requirements established by the State Sanitary and Epidemiological Surveillance Service of the Ministry of Health of the Republic of Tajikistan. To that end, a special statement is drawn up.
As outlined in this paragraph of the Rules, waterworks facilities and networks should be flushed and decontaminated before starting operation to prevent the impact of any potential negative environmental factors.

35) Waterworks facilities pending connection, with the involvement of a representative of the public utility company, shall be flushed and decontaminated by the construction company at its own expense. The quantity of water – Q, spent for flushing and decontamination, is measured by the formula:
$Q = 2,65 \times F \times t \times SQRT (H), (m^3)$, where: F
- flushing pipe cross area, m^2;
H - water head before valve in flushing pipe, m;
t - flushing time, sec.
SQRT (H) - square root of H.
The Rules also contain calculations for flushing and decontamination.

36) Information on the duration of flushing, diameter of the flushing standpipe and water head is reported in a statement by representatives of the public utility company and the organization involved in flushing.
37) A statement on the decontamination of built water supply networks and structures is a document that authorizes their connection or tying in to existing water supply systems and start of operation. The statement shall be signed by representatives of the public utility company, customer (water

consumer) and regional branch of the State Sanitary and Epidemiological Surveillance Service of the Ministry of Health of the Republic of Tajikistan.

Each incidence of flushing and decontamination should be reported in a statement. Apart from requiring the signatures of a provider and customer, the statement should also be signed by the relevant regional office of the State Sanitary and Epidemiological Surveillance Service.

39) Tying in, flushing and decontamination of customer service pipes, and connection of customer sewer outlets shall be carried out by the end user (customer) or Company at the expense of the end user.

Paragraph 39 addresses flushing and decontamination of a water supply network that has been tied into a water grid and, as such, is under the supervision of the customer. Further actions carried out by either the customer or water supply organization will be at the expense of the customer.

114) A public utility company shall:

….

- keep thorough records and notify regional offices of the State Sanitary and Epidemiological Surveillance Service of the Ministry of Health of the Republic of Tajikistan and structural units of the Environment Protection Committee under the Government of the Republic of Tajikistan of accidents at waterworks and sewerage facilities, cases of nonconforming quality of drinking water and increased concentration of wastewater discharge to sewer systems which pose a hazard to public health;

Among their many responsibilities, water supply organizations must provide timely notifications to regional offices of the State Sanitary and Epidemiological Surveillance Service and units of the Environment Protection Committee regarding any accidents or failure to conform to set standards of water quality control.

Water Supply Quality and Safety Specifications

The abovementioned regulatory and statutory instruments enforce various aspects of drinking water supply quality and safety, but they

do not contain specifications. These specifications are the main indicators of drinking water supply quality and safety. Most often this information is intended for specialists and references exact chemical, biological and other engineering requirements for drinking water supply services. Due to their technical nature, these specifications may not be clear to consumers who are not specialists.

Drinking water supply is a technically sophisticated process, therefore, many standards and sanitary regulations have been developed to cover a broad range of the sector's issues. The main standards and regulations are the following:

GOST 2874-82 DRINKING WATER
Hygienic requirements and quality control

Hygienic requirements for the quality of water are defined by GOST 2874-82 "Drinking Water. Hygienic Requirements and Quality Control". GOST has been applicable since the Soviet era. It was originally approved and put into operation by Resolution of the Standards Committee of the USSR on 18.10.82, №3989, and it is still enforced within the territory of Tajikistan. In accordance with this document, hygienic indicators of water quality are divided into:

§ **Microbiological** – *defined by the total count of microorganisms and the count of coliform bacteria;*

§ **Toxicological** – *they feature the harmlessness of water's chemical composition and include regulatory standards for substances occurring in natural waters; reagents added to water during a treatment process and reagents appearing as a result of industrial, domestic or other sources of water supply contamination;*

§ **Organoleptic** – *indicators that provide favourable organoleptic properties of water. They include regulatory standards for substances occurring in natural waters; reagents added to water during a treatment process and reagents appearing as a result of industrial, agricultural or domestic contamination of water supply sources.*

The second part of the document aims to ensure the **internal control of drinking water quality.** Institutions and organizations in charge of centralized drinking and utility water supply systems and waterworks facilities (used for drinking, utility and industrial purposes) permanently control the piped water quality at draw-off points before entry to the network, as well as network distribution according to requirements of the second section of GOST. GOST provides specific methods, timeframes and other control requirements.

This document, in turn, refers to a number of other GOSTs which apply sampling and testing methodologies.
Sanitary regulations and standards set forth in a number of SanPiNs were developed separately for centralized and non- centralized water supply. Differences between these types of water supply are clearly established in the Law of the RT "On the Drinking Water and Water Supply":

- **Centralized Drinking Water Supply System (Public Water Supply)** – facilities and structures for the withdrawal, treatment, storage and supply of drinking water to consumption sites open for common use by individuals and/or legal persons;
- **Non-Centralized Drinking Water Supply System, Common-Use** – facilities and structures for the withdrawal (with or without treatment) and treatment of drinking water with *no* supply of water to consumption sites open for common use by individuals and/or legal persons.

In the general sense, these system definitions differ in whether they **supply water to consumption sites** and, hence, the availability of a distribution network. Because production processes within these types of water supply also differ, so do their sanitary regulations, respectively.

SanPiN 2.1.4.004-07 DRINKING WATER. Hygienic Requirements for Water Quality of Centralized and Non-Centralized Drinking Water Supply Systems. Quality Control.

This document was developed and approved on February 28, 2007, by

the State Sanitary and Epidemiological Surveillance Service of the Republic of Tajikistan. These Rules are intended to ensure the safety of drinking water supply in centralized water supply systems. SanPiN consists of three parts and two mandatory annexes:

- **1. General Provisions.**

  This section describes the application of the Rules, their legal justification and other common details. An important provision in this section is that the "quality of drinking water provided by a water supply system" should meet all requirements of *these* Rules, Paragraph 1.7.1. Another important provision is Paragraph 1.8, because it sets the guidelines for ceasing the supply of poor quality drinking water.

- **2. Hygienic Requirements and Drinking Water Quality Standards.**

  The second section contains requirements for the quality and safety of drinking water in terms of water epidemic and radiation features, and requirements for water chemical composition and organoleptic properties.

- **3. Drinking Water Quality Control**

  This section defines internal production control procedures to be fulfilled by the provider, as well as state controlled procedures.

- **Annex 1 "Regulations for establishing controlled drinking water quality indicators and creation of a work program for drinking water quality production control".**
- **Annex 2 "Hygienic standards for concentration of harmful substances in drinking water".**

  These annexes, mandatory in SanPiN, detail regulations for establishing quality indicators, draw up work programs for production control and standards for maximum concentrations of harmful substances in drinking water.

Later in the same year, requirements for the quality and safety of drinking water from a non-centralized water supply were developed and specified in **SanPiN 2.1.4.005-07 "Requirements for the Quality of Water for Non-Centralized Water Supply. Sanitary Protection of Sources".** Apart from the requirements for water, these

rules included sanitary protection of water supply sources that considered their proximity to consumption sites with non-centralized water supply.

Specific requirements for the protection of water supply sources with centralized water supply are set forth in **SanPiN 2.1.4.006-07 "Sanitary Protection Zones of Water Supply Sources, Utility and Drinking Waterworks Facilities"**.

The abovementioned engineering standards primarily regulate the quality and safety of ***drinking water***, and only partially regulate the quality and safety issues for ***drinking water supply services***. As previously stated, these requirements may deal with aspects of service quality such as ***uninterrupted*** supply, water ***head*** in system and others. Quality and safety indicators can be found in construction standards – Construction Codes (SNiP). These documents usually specify the maximum and minimum admissible water head values depending on site elevation, number of storeys, type of distribution system, diameter of pipes and other technicalities.

SNiPs contain the following parameters for drinking water supply:

SNiP of RT (МКС ЧТ) 40.01-2008 Water Supply. Outdoor Networks and Structures.

This SNiP was developed on the basis of SNiP 2.04.02- 84 "Water Supply. Outdoor Networks and Structures" and introduced changes and amendments in accordance with legislation of the Republic of Tajikistan. SNiP was approved by the Board of the Agency for Construction and Architecture under the Government of the RT on May 25, 2009, and registered by the Ministry of Justice on August 24, 2009, under №541. Once SNiP 40.01-2008 was ratified, the previous SNiP 2.04.02-84 was nullified.

The current SNiP is a comprehensive document of more than 200 pages. It contains detailed recommendations and standards on a range of issues including water head in network design, average daily water consumption rate in different apartments, production processes

of water conditioning and purification, selection of water sources and many other things. SNiP is replete with tables, figures and values. Based on the nature of standards in SNiP, requirements have direct relation to construction of utility and drinking water supply networks. These standards define design indicators for construction – required water head and anticipated quantity of water to be consumed with corresponding number, type of pumps, diameters of pipes, etc.

The main drinking water quality indicators (for the purposes of this publication) may be standards featuring free head and specific water consumption rates:

In accordance with provisions of Chapter 2 (Para 8) of SNiP 40.01-2008, while designing water supply systems for populated areas, the **specific average daily (for 1 year) water consumption for utility and drinking needs of a population** should be accepted on the basis of design data in the following table (in the Annex № 16 of SNiP):

Specific average daily (for 1 year) water consumption for utility and drinking needs of population (in litres)	
Construction of buildings equipped with domestic water supply and plumbing system:	
without baths	125-160
with baths and local water heaters	160-230
with centralized hot water supply	230-350

Notes: 1. For districts with erected buildings using water from standpipes, the acceptable specific average daily (for 1 year) water consumption per one resident should be as much as 30-50 l/day.

2. Specific water consumption includes water spent for utility and drinking needs in public buildings (by classification adopted in МКС ЧТ 31.02.2007). The exceptions include water spent for recreation facilities, sanatoriums, tourist zones and pioneer camps, which should be accepted according to the current standards, rules and process data.

3. Selection of specific water consumption, within the limits provided in Table 1, should depend on climatic conditions; capacity of water supply source and water quality; as well as the degree of land improvement, number of storeys and local conditions.

4. The undocumented use of water by an industry to provide a population with food products may be justified, if the amount does not exceed 10-20% of the total water consumption for utility and drinking needs of the populated area.

5. For districts (townships) with buildings using centralized hot water supply systems, hot water should be taken directly from the district heating network. An average daily use of 40% of the total water consumption for utility and drinking needs, and upwards of 55% during maximum water intake hours is permitted. With mixed housing construction, one should take into account the number of residents in those buildings.

6. Specific water consumption in populated areas, where the number of residents exceeds 1 million people, may be increased on an individual case basis if agreed upon by inspection authorities.

Chapter 2 of SNiP also contains detailed information for the calculation of specific utility and drinking water consumption, depending on the proposed number of residents and a range of various coefficients.

A water supply network should provide for water delivery to all water consumption sites, not only with the required quantities, but also with an appropriate **free head** – measured as the height of water column above the ground surface. Parameters for such a system's water head/pressure are provided in the same Chapter 2, Paragraph 3 "Free Heads". The sub-section key standards state: "The minimum free head in a water supply network of a populated area with maximum utility and drinking water consumption, as well as a building entrance facility above the ground surface, should be **no less than 10m for a single-storey building.** With multi-storey housing, **one should add 4m for each storey**". The section also contains other details and additions regarding pressure in a water supply network.

SNiP 2.04.01-85* Domestic Water Supply and Plumbing System. Requirements set forth in SNiP of the RT (МКС ЧТ) 40.01-2008 regulate construction rules and standards for outdoor water supply networks. The inside of buildings and structures are regulated by SNiP 2.04.01-85* "Domestic Water Supply and Plumbing System" as approved by resolution of Gosstroy USSR on October 4, 1985, №189. As of the writing of this publication, SNiP has not been updated, and the revisions from November 28, 1991, and July 11, 1996, are still effective and applicable.

These standards and rules apply to designing indoor cold and hot water supply, plumbing and storm-water systems, and their subsequent erection and reconstruction. The Rules define domestic

water supply system – “a system of pipelines and facilities for delivery of water to plumbing fittings, fire hydrants and process equipment which serve one building or a group of buildings and structures...".

Like in the previous SNiP, requirements are provided to ensure water consumption standards during the construction and reconstruction of indoor water supply systems. These standards are provided in Annex №3 of SNiP, with specifications for more than 30 various categories of water consumers. The provided standards also range, like in the SNiP of the RT (МКС ЧТ) 40.01-2008, from 90 to 400 litres/day/person depending on the degree of land improvement and season of water consumption.

Application of SNiP’s provisions as indicators of drinking water supply quality.

In order to ensure the necessary water volume when designing and constructing water supply systems, one should first take into account construction standards and rules. These standards also apply to the reconstruction of water supply systems.

These two SNiPs not only apply as technical guidelines for water supply quality, but in practical matters. For example, during one judicial dispute on the quality of drinking water supply services, these standards were taken into consideration when making a legal inquiry[7]. A consumer put a claim forward for resettlement of their accounts with referrence to specific water consumption rates (Annex №16, SNiP of the RT (МКС ЧТ) 40.01-2008) and water consumption design in water supply systems (Annex №3, SNiP 2.04.01-85* "Domestic Water Supply and Plumbing System").

Water consumption rates are also regulated by other regulatory and statutory instruments. For more details, refer to Chapter 4 of this publication.

[7] **Case of the Consumer Union of Tajikistan against the SUE "Khujandvodokanal", Court of Khujand**

CHAPTER 3. Reliability of Water Supply Services

Reliability is widely assumed as a characteristic of quality, meaning that proper quality service or goods should be reliable. Nevertheless, reliability has deeper meaning than quality, since it is defined by a time during which goods or services maintain their primary use and continue operating.

Terms and Definitions

The traditional definition of reliability is provided in GOST 27.002-89 as developed by the Academy of Sciences of the USSR[8]. Reliability is defined as **"the property of a facility to maintain with time, within the prescribed limits, the values of all parameters that feature a capacity to perform required functions in a given operating mode, specified application, maintenance, storage and transportation conditions"**. This definition of reliability relates to engineering facilities, but is also applicable to drinking water supply services in terms of engineering aspects. For example, reliability of a water supply system is the property of said system to maintain set operating parameters within a certain period of time.

Distinct from quality and safety, a more recent definition of reliability is explicitly provided in the relevant Law "On the Drinking Water and Water Supply". This version of reliability does not apply to service as a whole, but rather, the reliability of a drinking water supply system.

Article 1 "Reliability of a drinking water supply system is the property of a system to maintain a certain mode (uninterrupted, hour-based or scheduled) of drinking water supply to consumers in accordance with established water supply standards and regulatory requirements for the quality of drinking water".

[8] **Revised for GOST 27.002-2015**

Along with the definition of reliability, the following basic definitions are commonly used and provide additional explanation for this term:

- **Faultless Performance** - the property of a facility to continuously maintain operating conditions within a certain period of time; the probability of failure-free performance within a certain period of time;
- **Longevity -** the property of a facility to maintain operating condition until the occurrence of a marginal state with an established maintenance and repair system;
- **Maintainability** - the property of a facility to be adaptable to maintenance and rehabilitation conditions while continuing operation.

Reliability Performance Indicators are quantitative characteristics of one or a few properties that constitute the reliability of a facility.

All the mentioned characteristics relate to engineering parameters of water supply systems, but these definitions may also apply to drinking water supply services. For example, ***faultless performance*** of drinking water supply is characterized by ***uninterrupted*** supply, i.e., a service should be provided according to the established mode of supply. ***Maintainability*** may be characterized by the number and ***duration of breaks in drinking water supply*** in connection with accident resolution and preventative repairs in a water supply system.

Water Supply Reliability Indicators in Laws

Reliability of drinking water supply services is enforced differently for regulatory and statutory instruments in Tajikistan. Statutory provisions deal with various aspects of drinking water supply service reliability. They do so primarily by establishing a drinking water supply mode and a schedule of breaks in water supply, while providing consistent drinking water supply service quality to set standards.

Civil Code of the RT

Article 577. Modification and Termination of Energy Supply Contract

2. A break in supply, cease of supply or restriction of supply is allowed with the agreement of all parties. Examples include cases when the poor status of a customer's power units, as certified by the energy inspection authority, creates a pre-emergency situation or endangers human life or health. The energy supply organization should notify a customer of the break in supply, cease of supply or restriction of supply.

3. A break in supply, cease of supply or restriction of supply, not agreed on with a customer and without appropriate notification, is allowed in cases of necessity to take immediate measures for accident prevention or resolution in a the system of an energy supply organization; provided that the customer receives immediate notification.

The abovementioned articles of the Civil Code of the RT describe potential cases when a break in supply, cease of supply or restriction of drinking water (energy[9]) supply are allowed. According to these standards, drinking water supply may be interrupted with or without customer agreement. In the first case, interruption may occur after an agreement between parties for various reasons specified in a number of regulatory and statutory instruments below. If a customer agreement is not reached, any type of water supply interruption is only acceptable during accidents or in cases of necessity to prevent an accident. In all other cases, a service provider shall ensure an adequate level of ***reliability*** and uninterrupted water supply.

Water Code of the RT

The Water Code, in terms of drinking water supply service reliability, regards uninterrupted water supply of paramount importance:

Article 54. Centralized Public Water Supply

…

[9] **Provisions of the Civil Code of the RT, Section "Energy Supply Contract", also apply in respect to drinking water supply, with comments provided in the previous chapter of this publication; *author's note***

2. Legal persons shall:

…

- provide for, first of all, a continuous mode of drinking water supply to meet the needs of a population and food industry companies;

Thus, provisions for the continuous operating mode of water supply is the responsibility of drinking water suppliers.

Law of the RT "On the Drinking Water and Water Supply"

The Special Law of the RT on drinking water supply, as was stated above, contains the term "reliability of a drinking water supply system", according to which:

Article 1 "Basic Terms"

…

Reliability of a drinking water supply system is the property of a system to maintain a certain mode (uninterrupted, hour- based or scheduled) of water supply to consumers in accordance with established standards of drinking water supply and regulatory requirements for the quality of drinking water.

This definition adds that a water supply mode may be uninterrupted, hour-based or scheduled. Neither the Civil Code nor the Water Code specifies such supply modes for water supply systems. Furthermore, any interpretation and possibility of such a supply are absent from the law. Rather, the definition has a technical character which describes the notion of reliability as "the property of a system" to maintain a "supply mode" in accordance with "regulatory requirements" for quality.

Article 4. Basic Principles of Drinking Water Supply. Basic principles of drinking water supply are:

…

- ensuring the safety, reliability and manageability of drinking water supply systems, with consideration of their process features and selection of water source, in accordance with common regulations and standards effective in the territory of the Republic of Tajikistan.

Reliability, in accordance with provisions in Article 4 of the law, is one of the basic principles of drinking water supply.

Article 21. Rights and Obligations of the Owners of Drinking Water Supply Systems and Water Supply Organizations.

2. Water supply organizations and owners of drinking water supply systems, who directly operate them, shall:
- Enforce uninterrupted drinking water supply standards, as a matter of priority, to meet the needs of a population, as well as the needs of food industry companies and health facilities;

…
Allocate funds for routine and major repair of water supply systems.

Provisions in Article 21 of the law repeat provisions of the Water Code, and primarily charge providers with "continuous" or uninterrupted drinking water supply.

Article 21 also obliges owners of water supply systems and/or water providers to allocate funds for routine and major repairs of water supply systems. This condition serves as an indicator of system reliability from a financial and economic point of view.

Reliability Indicators in By-laws and Regulations

Public Utility Network Connection RULES

These Rules introduce exceptions that allow the restriction of drinking water supply on the part of providers, in particular:

36. Customer service provision systems should be permanently operational, except in the following cases:
- during repair and preventive works (established by the implementer in accordance with current construction rules and standards, operating and maintenance rules, regulations for carrying out routine and major repairs, and other regulatory documents);
- during non-heating season breaks for heating systems. Breaks are established by the implementer in response to climatic conditions;
- during natural disasters or emergency situations beyond reasonable control of the implementer.

Requirements for the reliability of water supply systems ensure their permanent readiness, with exception to the specified instances – repair, preventative works and force majeure circumstances.

42. Contract reflects:
…
- procedure and timeframes for elimination of troubles and accidents within the usage liability limits;
-…
- conditions for termination of service provision.

Essential criteria for drinking water supply service reliability are efficient and timely procedures in the event of accidents or any system problems. According to the provisions of this paragraph, solutions must respect the contract between provider and consumer. Said contract should also specify conditions for the termination of services, including a procedure for disconnection with indebtedness.

48. If service quality deviates from the requirements established by contract, a consumer's payment shall consequently reduce.
49. Deviation list, value, reduction range and handling procedure, as well as recommended payment reduction terms associated with the deterioration of consumer service quality are established by local executive authorities with their regional offices.

The provisions set forth in Paragraphs 48 and 49 are not exercised in practice, with exception to the "hour-based" schedules of drinking water supply that deviates from quality as decided by local authorities.

Chapter 7. Rights and Obligations of Service Consumers and Service Implementers.

52) A consumer has the right:
…
- to the resolution (within timeframes set by contract) of troubles detected in services on the part of the implementer.

Paragraph 52 of the Rules enforces the rights of consumers to have

services repaired within a specified timeframe set by the contract.

Public Water Supply and Sewer Usage RULES in the Republic of Tajikistan

As the main criteria of drinking water supply service reliability is to ensure an ***uninterrupted*** supply, it is important to set conditions for when and why water supply services may be temporarily restricted or ceased. Public Water Supply and Sewer Usage Rules specify circumstances under which various restrictions may be introduced.

88) With failure to pay a bill upon expiry of ten days, a public utility company will disconnect customer premises equipment and structures for connection, and cease water supply and wastewater collection.

89) Drinking water supply and wastewater collection will resume in order of priority after debt repayment by the customer.

Provisions in Paragraphs 88 and 89 establish a procedure for the disconnection and reconnection of consumers in debt. However, these provisions do not provide timeframes or detailed procedures for the termination of drinking water supply services. In reference to Paragraph 43 of the Public Water Supply and Sewer Usage Rules, as described in the sub-section above, one may conclude that such a procedure be stipulated in the contract between consumer and provider.

104) Drinking water supply and wastewater collection shall be carried out uninterruptedly, as specified by a contract concluded with the public utility company and customer, except for cases specified in Paragraph 106 of these Rules.

105) Restrictions on drinking water supply to customers and regulation of drinking water supply mode are applied according to the contract concluded with the public utility company and customer, except for cases specified in Paragraphs 106 and 107 of these Rules.

Like in all the previous regulatory and statutory instruments, the main criterion for quality and reliable drinking water supply services is uninterrupted supply. However, exceptions are necessary as described in Paragraphs 106 and 107 of the Rules.

106) A public utility company has the right, without securing prior approval of local executive authorities or prior notification of the customer, to cease or restrict the water supply and wastewater collection if it does not affect the quality of water supply and sanitation services to other customers in the following cases:

- **poor engineering condition of water supply and sanitation facilities served by or under the economic control of a customer; failure to meet requirements of the public utility company assumed by the customer for the elimination of misuses detected by representatives of the company;**
- **failure to fulfil obligations before a public utility company on the development, reconstruction or replacement of networks and structures of water supply and sanitation systems;**
- **customer prevention of an official person from the public utility company to inspect a water metering unit, water supply and sanitation facilities, and their respective equipment and structures, in order to exercise control and take the readings of metering instruments, make in-situ measurements, take wastewater samples, install tamper- evident seals and execute other types of work as assigned by the company;**
- **when a public utility company carries out scheduled preventive repairs and works for the maintenance of water supply and sanitation networks and equipment to which a customer is connected; also, for connecting new customers;**
- **when unauthorized facilities and structures are detected, for the connection of a customer to water supply and sanitation systems or networks being served by or under the economic control of the customer, and when a customer has not concluded or extended a contract with the public utility company;**
- **failure of a customer to pay a bill within the established timeframes;**
- **when a customer denies a connection of sub-customers, who received authorization from the Company for connection to water supply and sanitation systems under the economic control of the customer; also, in the case of an order issued by regional offices of the State Sanitary and Epidemiological Surveillance Service of the Ministry of Health of the Republic of Tajikistan;**
- **failure of a customer to observe the terms of a contract concluded with the Company for prescribed limits of drinking water supply, and failure of a customer to observe the terms for quantity and composition of wastewater being discharged.**

This paragraph supplements the standards specified in Paragraph 2

of Article 577 of the Civil Code of the RT. It lists potential cases for the break, cease or restriction of drinking water supply subject to prior approval and prior notification of consumers.

In particular, a series of various circumstances are highlighted where a water supply organization has the right to disconnect (interrupt/ cease/restrict) drinking water supply. These rules were developed for all categories of customers; however, particular cases of potential service termination may not be applicable to individual categories of customers.

For example, individual consumers enjoy services to meet personal, domestic, family and utility needs; consequently, they shall not have sub-customers. Therefore, standards regarding a relationship with sub-customers have no relevance to individual consumers. Otherwise, in accordance with provisions of Paragraph 106, a provider has the right to stop water supply without securing approval of local executive authorities, provided that the customer receives prior notification.

Once again, neither a timeframe for such breaks in supply nor a consumer notification procedure on forthcoming disconnections are specified in this paragraph or in the Rules as a whole.

108) A Company shall have the right to cease, in full or in part, the supply of drinking water and collection of wastewater, without prior notification of the customer, in the following cases:

- **power supply shutdown in the Company;**
- **natural disasters and big accidents, including abrupt deterioration of water quality in the water source because of pollution and contamination;**
- **necessity to increase drinking water supply to fire origin points.**

This paragraph adds to the provisions specified in Paragraph 3 of Article 577 of the Civil Code of the RT, and identifies potential cases of break, cease or restriction of drinking water supply without prior approval or prior notification of consumers. Such disconnections, primarily take place in force majeure circumstances.

Paragraph 108 stipulates, among other things, disconnections from a ***power supply shutdown in company***. It is necessary to point out that if a water supply organization incurs debt before a power supply organization shutdown, the law will not release the water supply organization from liability. Provisions of this paragraph shall apply with respect to accidents, force majeure circumstances or prescribed limits for power supply.

Water Supply Reliability Specifications

Reliability, as was defined in the beginning of the chapter, is the property of a facility to maintain prescribed parameters within a certain period of time.

Likewise, for drinking water supply services, reliability is the property of services to maintain prescribed quality and safety parameters with time conformance. As stated in previous chapters of this publication, there are certain regulations and standards for drinking water supply service quality and drinking water; conformance to them through time constitutes a criterion of service reliability.

In any production or technological process, small deviations from prescribed parameters may emerge. When these deviations fall within admissible limits, a process is considered to function with a high degree of reliability. In the drinking water supply service provision area, such deviation parameters are frequently absent in regulatory and statutory instruments of the country; consequently, deviations in drinking water quality and safety parameters are not allowed in Tajikistan.

Exemptions may be allowed for breaks in public drinking water supply specified in **SNiP of the RT (МКС ЧТ) 40.01-2008**. In accordance with Annex 52 of SNiP, centralized water supply systems are divided by the rate of water supply into **three**

categories:

I - it is allowed to decrease water supply for utility and drinking needs by no more than 30% of design consumption, and for production needs - within a limit prescribed by a company's emergency schedule of work; the duration of decreased water supply should not exceed 3 days. A break in water supply or decrease in water supply beyond a prescribed limit is allowed for no more than 10 minutes to disconnect damaged system elements or connect backup system elements (equipment, fittings, structures, pipelines, etc.);

II – the allowable rate of decrease in water supply is the same as with Category I; the duration of decreased water supply should not exceed 10 days. A break in water supply or decrease in water supply beyond a prescribed limit is allowed for no more than 6 hours to disconnect or repair damaged system elements, or connect backup system elements;

III – the allowable rate of decrease in water supply is the same as with Category I; the duration of decreased water supply should not exceed 15 days. A break in water supply or decrease in water supply beyond a prescribed limit is allowed for no more than 24 hours to conduct repairs.

Note

1. Joint utility, drinking and production water supply lines in populated areas where the number of residents exceeds 50'000 people should be considered Category I; from 5'000 to 50'000 people - Category II; less than 5'000 people - Category III.

2. The category for agricultural group water supply lines should be defined by a populated area with the largest number of residents.

In accordance with the provisions of this annex, acceptable deviation periods are established for both head(30 percent) and water supply shutoff times. They differ by category. Categories are specified by the number of residents in populated areas. For example, Category II is a drinking water supply system that feeds 5 to 50 thousand residents. For this category, a decrease in water supply (head by 30 percent) is only allowed for 10 days, and a complete interruption of supply for no more than 6 hours. Thus, decreases or breaks in drinking water supply that exceed their specified time periods may be deemed ***unreliable***. The specified water supply shutoff periods are intended to enable accident recovery work.

CHAPTER 4. Water Consumption Norms and Other Indicators

In defining the quality of a drinking water supply service, the amount of water being supplied must be considered. The question of how much water a human requires to meet utility and drinking needs is addressed among a number of laws, standards and regulations of the Republic of Tajikistan.

Terms and Definitions

To define water consumption norms, one must first determine citizens' use of water for utility and drinking needs. These needs differ by nature and degree of improvement of residential premises: apartment, house, availability of bath, shower, water heaters, irrigable household plots, gardens, and other service buildings and amenities. Such needs may be conveniently classified into the following elements:

- **Drinking water consumption:** a human consumes an average of 2-3 litres/day;
- **Water for food preparation:** water consumption for making food is approximately 3 litres/day/person;
- Various daily **hygienic needs:** (tooth brushing, hand washing, etc.) require up to 6-8 litres/day/person;
- Available **bath or shower** in a house or apartment: consumption increases up to 150 litres/person. For showers, common usage estimates are 15-20 litres/minute or up to 200 litres/day/person;
- **Daily kitchenware washing: water** consumption of 7-12 litres/day/person;
- **Available sewerage system:** on average, a lavatory pan washout requires at least 15 litres/day/person;
- **Laundry**: water consumption reaches100 litres/wash, but may not happen daily.

Other consumption: available household plot or garage (water may be spent on watering or car washing); there are many other possible

design indicators for water consumption.

These water consumption needs have provided the design basis for water consumption norms per person per day. The latter, in turn, underlie a number of construction standards and rules that establish requirements for water supply system construction, and depend on the degree of improvement of a citizen's residential premises.

Water Consumption Norms in Laws

Amount of drinking water, water consumption norms, as well as procedures for the regulation of relations concerning them are included in various regulatory and statutory instruments of the Republic of Tajikistan:

Civil Code of the RT

As was stated earlier, the Civil Code of the RT does not have explicit statutory provisions regulating the drinking water supply service provision area. Exceptions to the provisions come from Section 5 of the "Energy Supply Contract" and are applied respectively to the water supply area.

In accordance with these provisions, the ***amount*** of water received by individuals ***shall not be subject to any restriction.***

Article 571. Amount of Energy

1. An energy supply organization shall provide energy to a customer through the connected network, as much as stipulated by contract, and in observance of a supply mode agreed upon by all parties. The amount of energy supplied by an energy supply organization and received by the customer is defined by readings of metering instruments, and if they are not available - by calculation.

...

3. In cases when a customer, under an energy supply contract, is a citizen who uses energy for domestic consumption, the citizen has the right to use it in sufficient amount. The amount of energy supplied by the energy supply organization and received by the customer is defined by readings of metering instruments.

In accordance with the provisions of Article 571 of the Civil Code

of the RT, the amount of water and supply mode should be stipulated in contract. The amount of water received is measured by metering instruments, and if they are not available - by calculation.

Paragraph 3 of Article 571 points to special provisions for "citizens using energy(water) for domestic consumption" - consumers. Consumers (citizens using water for personal, family and domestic needs) may consume a sufficient amount of water. The essence of this provision is that contracts with consumers shall not specify a particular amount of water to be supplied. For example, if 5 people reside in an apartment and require as much as 190 litres/person/day according to water consumption norms, their contract should not specify that a provider may stop water supply after 950 litres/day to the consumer's apartment. In this case, the 190 litre norm only serves as a design indicator for a provider to supply sufficient water to their consumer.

Law of the RT "On the Protection of Consumer Rights"

This law further defines provisions for regulating the quantity of all types of goods, works and services, including drinking water. In particular:

Article 6. Quality and Quantity of Goods (Works, Services)
A vendor (manufacturer) shall hand over goods (execute a work, provide a service) to a consumer; the quality and quantity of which will conform to contract.
…
A consumer shall only pay for the quantity of goods (works, services) received.
…
If a vendor (manufacturer, implementer) has handed over goods (works, services) to a consumer in an amount less than stipulated by contract, the vendor (manufacturer, implementer) shall, except if otherwise provided by contract, fully cover the consumer's losses.

This article regulates the provider-consumer relationship concerning the amount of drinking water. The provider is obliged to 'hand over' the specified amount of drinking water and review calculations when there is insufficient water supply.

Water Code of the RT

The Water Code of Tajikistan does not contain explicit provisions relating to water consumption norms and amount of water being supplied.

Law of the RT "On the Drinking Water and Water Supply"

The Law "On the Drinking Water and Water Supply", unlike the Water Code, contains a number of provisions regulating various aspects of water consumption norms and the amount of drinking water being supplied.

Article 1 "Basic Definitions".

…

- Drinking Water Consumption Norms - design amount of drinking water necessary to satisfy the physiological and domestic needs of a single person per day in a particular populated area, at an individual facility or in vehicle with normal

- operation of drinking water supply systems, with disturbed operation or in emergency situations;

Article 1 provides a definition for "drinking water consumption norms" that is used throughout the law. In accordance with this definition, norm is the amount of drinking water necessary to meet physiological and domestic needs. This amount of water is usually referred to as the design amount since it is used during construction of water supply systems. Design amount is calculated by multiplying water consumption norms by the expected population of a facility or facilities under construction.

Article 6. Terms of Reference for Authorized State Agency in the Drinking Water Supply Area.

The terms of reference for an authorized state agency in the drinking water supply area include:

…

- implementation of common state scientific and engineering policies for consumer supply with drinking water according to drinking water quality standards and consumption norms;

By resolution of the Government of the RT on December 31, 2011, under №679, the State Unitary Enterprise "Khojagii Manziliyou Kommunali" (SUE KMK) was designated as the

authorized agency for drinking water supply in Tajikistan. This organization is responsible for both the scientific and engineering components of drinking water consumption norms as specified in Article 6.

Article 7. Terms of Reference for Local Executive Authorities in the Drinking Water Supply Area.

…

- implementation of organizational work for the supply of legal persons and individuals with drinking water in accordance with drinking water consumption norms.

Organizational work for the supply of drinking water in accordance with drinking water consumption norms is under the control of local executive authorities. However, legislation does not specify what is meant by organizational work.

Article 15. State Guarantees for the Supply of a Population with Drinking Water.

1. The State guarantees the supply of each person with drinking water that meets prescribed quality and quantity standards.

The above article guarantees that the State will supply its citizens with drinking water in line with set standards. It must be noted that guarantees by the State do not mean direct financial contribution to such supply. Rather, the State, through its legislative and executive authorities, creates conditions for the supply of each person with quality drinking water by developing laws and statutory instruments, regulating the activity of water supply organizations, and performing social functions to assist vulnerable segments of the population.

2. Water supply organizations and owners of drinking water supply systems, who directly operate them, shall:

…

- ensure uninterrupted drinking water supply standards, as a matter of priority, to meet public needs, as well as the needs of food industry companies and health facilities;

Water supply organizations and owners of drinking water supply systems shall ensure that water supply standards prioritize the needs of a population over other categories of customers.

Article 22. Rights and Obligations of Drinking Water Consumers.

1. **Consumers of drinking water shall have the right:**

- for a consumer supply of drinking water, in accordance with quality standards and water consumption norms, from centralized and non-centralized drinking water supply systems;

…

- Individuals shall have the right to top-priority supply of drinking water, from centralized and non-centralized drinking water supply systems, in accordance with quality standards and water consumption norms.

Article 22 "mirrors" the obligation of providers and states that the supply of quality drinking water is a consumer ***right***. Provisions in the article further emphasize that the drinking water needs of individuals - population - must be met.

Water Consumption Norms in regulations

Public Utility Network Connection RULES

The Rules rarely reference water consumption norms, except for the provisions in Paragraph 42:

Contract reflects: quality of services, service provision mode and standard consumption norms.

In accordance with the provisions of this paragraph, standard consumption norms should be specified in the consumer's contract.

Public Water Supply and Sewer Usage RULES in the Republic of Tajikistan

Keeping in mind the engineering and sectoral nature of these Rules, this regulatory and statutory document contains detailed provisions regulating relationships with respect to water consumption norms.

1) Basic definitions used in these Rules

…

Drinking Water Consumption Norms – design amount of drinking water necessary satisfy the physiological and domestic needs of one person per day in a particular populated area, at an individual facility with normal operation of drinking water supply systems, with disturbed operation or in emergency situations.

Although the Rules contain their own definition of "water consumption norms", it closely resembles the one provided in the

Law of the RT "On the Drinking Water and Water Supply", except for its application in transport.

14) Increasing or decreasing water consumption or amount of wastewater discharge by a customer; increasing the concentration of contaminants in wastewater discharges, in excess of norms as specified by contract; reconstruction or operation of new water supply and sanitation networks, equipment and structures; connection of new sub- customers; modification of a water metering unit's layouts and fittings or the replacement of metering instruments are only allowed with permission of the public utility company. Expected modifications and respective supplements must be added to a previously concluded contract or conclusion of a new contract.

In accordance with the provisions of this paragraph, a consumer is obliged to agree upon an increase or decrease in water consumption; such as, the installation of an improvement element (bath or additional lavatory pan) that results in increased water consumption.

5. Keeping Records of Drinking Water Supplied and Wastewater Received.

72) The amount of drinking water spent by a customer and wastewater received in a sanitation system is defined by readings of metering instruments. In cases when metering instruments are not available for domestic customers, the amount of drinking water spent and wastewater received in a sanitation system is defined in accordance with the current standards.

The amount of water consumed is defined in two ways: by readings of a metering instrument – water meter, or in accordance with current norms when a meter is unavailable. Norms – water consumption norms – are provided later in this chapter.

73) If a water meter is not operational and the seals of a water metering unit have been tampered with either by fault or negligence of a customer, the amount of drinking water spent and wastewater received is defined in accordance with Paragraphs 74 and 79 of these Rules.

If water meter is not operational by fault or negligence of the Public Utility Company, the amount of drinking water spent and wastewater received is defined by a customer's average consumption for the last three months.

74) In cases of reluctance to install a metering instrument and in other cases stipulated by these Rules, the amount of drinking water spent is defined by the throughput capacity of the pipe connected to a public water supply system, with water velocity equal to 1,5 m/s and actual time of the customer's water supply from the date of the last check by the Company. Hereby, the amount of wastewater received is considered to be equal to the amount of drinking water supplied that is calculated in accordance with this paragraph.

75) If a customer prevents a representative of the Company from having access to a metering instrument, the amount of drinking water spent and wastewater received is defined in accordance with Paragraphs 74 and 79 of these Rules.

Paragraphs 73-75 of the Rules specify methods for calculating the amount of water consumed in various cases: non-operational metering instrument, customer's refusal to install a meter and inability to access a metering instrument.

ANNEX №1 to Public Water Supply and Sewer Usage RULES in the Republic of Tajikistan

Annex №1 to the Rules contains a table with water consumption norms. The table notes that **"norms of water consumption from the public water supply and sewer system; with consideration of warm and dry climates of districts, may be increased or decreased by 10-20%".** The figures provided in the table correspond to values outlined in SNiPs 40.01-2008 "Water Supply. Outdoor Networks and Structures" and 2.04.01-85* "Domestic Water Supply and Plumbing System".

A section of the table below provides water consumption norms for a population of houses with different degrees of improvement and street standpipes.

List of Consumers	Types of Consumption	Unit of Consumption	CR, litre
Common-use standpipes (street)	1.Consumption from street Standpipes	1 person/day	50
	2.Consumption from yard taps and standpipes (multi-family houses)	1 person/day	95
Houses	1. With water supply and system (without bath)	1 person/day	130
	2. With water supply and system (with bath and gas)	1 person/day	150
	3. With water supply and system, baths, solid-fuel heaters	1 person/day	180

	4. The same, with instantaneous gas and electric heaters that have multiple-point water draws-off	1 person/day	300
	5.Houses with centralized hot water supply equipped with wash stands, kitchen sinks and showers	1 person/day	270
	6. The same as in Para 4, but with sitting baths.	1 person/day	320
	7.The same as in Para 4, but with baths, L = 1500-1700 mm, equipped with showers	1 person/day	360
	8.The same as in Para 4, more than 12-storey buildings with exclusive standards for their improvement	1 person/day	480

Water consumption norms vary from 130 to 480 litres/day/person, depending on the degree of improvement of residential premises.

Water Consumption Specifications

As was discussed in Chapter 2 of this publication, water consumption norms are laid down in two technical documents: SNiP RT (МКС ЧТ) 40.01-2008 and SNiP 2.04.01-85*. These documents specify the following data on water consumption norms (Annex № 16 to SNiP 40.01-2008):

Specific average daily (for 1 year) water consumption for utility and drinking needs of a population (in litres)	
Construction of houses equipped with domestic water supply and plumbing system:	
without baths	125-160
with baths and local water heaters	160-230
with centralized hot water supply	230-350

As mentioned above, construction rules and standards should be considered first when designing and constructing water supply systems in order to maintain, on average, a particular volume of water for future consumers. These standards should also apply to the reconstruction of water supply systems. The norms calculated in these standards have provided the basis for all Public Water Supply and Sewer Usage Rules in the Republic of Tajikistan.

CHAPTER 5. Regulatory Requirements for Sanitation Services

It has been stated that, "Sanitation generally refers to the provision of facilities and services for the safe disposal of human urine and faeces". For the purposes of this publication, we will talk about a certain type of sanitation service that closely relates to drinking
water supply – wastewater disposal or sewerage.

Drinking water supply and wastewater disposal services are often treated as one because the same provider renders them. In turn, consumers paying for vodokanal (municipal enterprise of water supply and wastewater treatment) services in cities often have no idea that they are also paying for water disposal services, as they are usually included in their tariff by default. Moreover, a consumer's interaction with water disposal and further treatment services may be limited to accidents or a clogging of the sewerage system. Nevertheless, there is a wide range of regulatory and statutory requirements that control this area.

Sanitation Performance Indicators in Laws

Wastewater disposal is a specific sector, therefore, there are fewer legal provisions for sewerage instruments than regulate drinking water supply services. On the other hand, there are a number of other regulatory and statutory instruments dealing with various aspects of wastewater disposal services.

The Civil Code does not contain explicit provisions regulating the sanitation area. The Law "On the Drinking Water and Water Supply" also has no provisions with regard to wastewater disposal.

Certain provisions for wastewater disposal are found in the Water Code of the RT, although they are not explicit. Regulations dedicated to wastewater discharge can be found in articles of

Chapter 17 of the Code. Articles 98 through 101 regulate the procedure of discharging various types of wastewater into water bodies (rivers, lakes, etc.), including domestic sewage. In addition, Article 2 of the Code presents indirect evidence that wastewater treatment plants also belong to ***water facilities***.

A number of common laws in Tajikistan also contain certain provisions regarding wastewater disposal, for example:

Law of the RT "On the Public Health Protection", as of 15.05.1997, № 419

- This law defines and regulates relations between state authorities, officials, citizens, social organizations and associations, and companies(regardless of ownership) in the public health protection area in accordance with the Constitution;
- Article 49 of the law regulates the provision of ecological wellbeing, as well as sanitary, epidemiological and radiation safety of the population through integrated sanitary, hygienic, anti-epidemic measures and a state inspection system.

Law of the RT "Concerning the Provisions for the Public Sanitary and Epidemiological Safety", as of 08.12.2003, №49

- Article 17 of this law sets criteria for the safety of water bodies and human health or life. It specifies sanitary and epidemiological requirements for water bodies, their protection, prevention of contamination and clogging. The article also sets maximum allowable concentration rates of harmful substances and maximum allowable discharge rates of chemicals, biological substances and microorganisms into water bodies.
- Article 21 specifies sanitary and epidemiological requirements for the collection, usage, decontamination, transportation, storage and disposal of industrial and domestic waste.
- In line with the provisions of the law, the collection,

usage, decontamination, transportation, storage, disposal and utilization of industrial and domestic waste are subject to terms and methods safe for human health and the environment. They should be implemented in accordance with sanitary standards.

Law of the RT "On the Protection of Environment", as of August 2, 2011, under № 760

- The law defines the legal grounds for state policy in environmental protection and focuses on ensuring steady social and economic development, a human right for a healthy and favourable environment. It also enhances law and order, the prevention of negative impacts on economic and other activities relating to the environment, the sustainable use of natural resources and provisions for ecological safety.

Law of the RT "On the Environmental Impact Assessment", as of April 22, 2003, under № 20

- The main purpose of this law is to prevent any potential negative consequences of project implementation. Careful review of projects can prevent unfavourable impacts on human health, natural resources, the environment or the ecological safety of society. The review of projects will assess any potential damage while carrying out managerial and economic activities to support natural environment forecasting.

Law of the RT "On the Production and Consumer Waste", as of May 10, 2002, under № 44

- This law regulates relations arising from the generation, collection, storage, usage, transportation, decontamination and disposal of waste. It sets requirements for state control, management and supervision of waste handling. The law also helps prevent negative impacts for both 1) industrial and consumer waste on the environment and human health, and 2) the integration of waste into additional source material for economic turnover.

All of the enumerated laws regulate different aspects of

wastewater disposal with respect to their specific purposes.

Sanitation Performance Indicators in Regulations

Special attention should be given to issues of wastewater disposal safety, as further treatment and decontamination of utility and domestic waste requires more detailed technical regulation through statutory instruments. One of the bylaws considered in the previous chapter contains the following provisions:

Public Water Supply and Sewer Usage RULES in the Republic of Tajikistan

These Rules give more detailed characteristics of a sewerage system by providing definitions, setting wastewater disposal rates, and describing the common rights and obligations of service providers in sanitation.

Definitions in the Rules:

1) Basic definitions used in these Rules:

… Sanitation customer premises equipment and structures for connection – a section of pipeline, in the direction of water travel, from a customer's last (inspection) sewage well of an in-house, in-yard or intrasite sanitation network to a sewage well (chamber) in the outdoor street sanitation network.

Outdoor water supply (sanitation) network of water supply (sanitation) systems - all underground, ground and overground street pipelines in populated areas, except for in-block, intrasite, intrafacility, in-plant, in-yard and in- house water supply (sanitation) networks.

Sanitation System - a set of engineering structures for collection and disposal of wastewater beyond the boundaries of populated areas or individual facilities; as well as for purification and decontamination of wastewater and wastewater sludge before their utilization or discharge into water bodies – receiving water.

The definitions provided are the only definitions of wastewater disposal system elements in the national legislation. These definitions describe:

1) Part of the system ***under the supervision of consumers*** (in-house, in-yard or on-premises elements of sanitation network);
2) Part of the system ***under the supervision of sanitation service providers*** – outdoor sanitation networks;
3) The whole sanitation system, including wastewater disposal and treatment.
These definitions are used hereinafter.

Section 5 of the Rules, as described in the previous chapter with respect to drinking water, also contains provisions for recording the amount of wastewater received. In particular:

5. Keeping Records of Drinking Water Supplied and Wastewater Received.

72) The amount of drinking water spent by a customer and wastewater received in a sanitation system is defined by the readings of metering instruments. In case when metering instruments are not available with domestic customers, the amount of drinking water spent and wastewater received in a sanitation system is defined in accordance with the current standards.

...

73) If a water meter is not operational and seals of water metering unit have been tampered with either by fault or negligence of a customer, the amount of drinking water spent and wastewater received is defined in accordance with Paragraphs 74 and 79 of these Rules.

...

74) In cases of reluctance to install a metering instrument and in other cases stipulated by these Rules, … Hereby, the amount of wastewater received is considered to be equal to the amount of drinking water supplied that is calculated in accordance with this paragraph.

75) If a customer prevents a representative of the Company from having access to metering instrument, the quantity of drinking water spent and wastewater received is defined in accordance with Paragraphs 74 and 79 of these Rules.

Paragraphs 73-75 of the Rules specify methods for calculating the quantity of water consumed and wastewater in various cases: non- operational metering instrument, customer's refusal to install a meter and inability to access a metering instrument.

Currently in Tajikistan, no wastewater metering instruments are used for domestic consumers, and payment for services is calculated using established standards. These standards, specified in Paragraphs 74 and 75, state "**the quantity of wastewater received is considered to be equal to the quantity of drinking water supplied".**

A company – provider of wastewater disposal services – shall submit standard wastewater analysis to competent structural units of the environmental protection authorities for approval:

114) A Company shall:

…

A Company that has a sanitation system shall submit, whenever possible, final standard wastewater analysis to structural units of the Environment Protection Committee under the Government of the Republic of Tajikistan for approval.

Apart from these Public Water Supply and Sewer Usage Rules, a number of statutory instruments of different levels regulate various aspects of wastewater disposal safety, for example:

- **Resolution of the Government of the RT №279 as of June 2, 2011, "On the approval of procedure, terms and methods for collection, usage, decontamination, transportation, storage and disposal of production and domestic waste in the Republic of Tajikistan";**
- **Resolution of the Government of the RT №280 as of June 2, 2011, "On the approval of populated area maintenance procedure and terms in the Republic of Tajikistan";**
- **Sanitary Regulations and Standards – SanPiN 42-128-4690-88 "Sanitary rules of populated area maintenance" (approved by the Ministry of Health of the USSR, on August 5, 1988, under № 4690-88);**
- **Sanitary regulations and standards for contamination protection of surface water (approved by the Ministry of Health of the USSR, 04.07.1988 №4630-88);**
- **Sanitary regulations for the arrangement and maintenance of landfills. Approved by the Deputy Chief Public Health Physician of the USSR, A.I. Zaichenko, as of May 16, 1983, №2811-83;**
- **Sanitary regulations for the arrangement and maintenance**

of water discharge stations;

- **Sanitary Regulations and Standards– SanPiN 2.1.7.020-09 Rules for collection, storage and disposal of healthcare facility waste.**

A few of the mentioned regulatory and statutory instruments have endured from Soviet time. Such instruments are still considered effective[10] provided they do not contradict the Constitution and laws of Tajikistan, if so, they are to be invalidated or modified.

Sanitation Specifications

Engineering requirements for sanitation are partially provided in the construction codes of the Republic of Tajikistan.

SNiP 2.04.01-85*[11] Construction Code "Domestic Water Supply and Plumbing System"

These rules are described in previous chapters of this publication. They also contain some provisions for sanitation. SNiP 2.04.01-85* regulates engineering parameters for internal infrastructures of water supply and sanitation systems in buildings. The second part of this SNiP, sections 15 through 21, deals with various aspects of technical regulation for indoor sanitation system design and construction.

SNiP RT (МКС ЧТ) 40.02-2009 Construction Code "Wastewater Disposal. Outdoor Networks and Structures".

This SNiP was developed on the basis of SNiP 2.04.03-85* "Wastewater Disposal. Outdoor Networks and Structures", and introduced changes and amendments in accordance with legislation of the Republic of Tajikistan. SNiP was approved by

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[10] **Resolution of the Supreme Council of the Republic of Tajikistan "On the Ratification of Agreement for Creation of the Commonwealth of Independent States", as of December 25, 1991, №462**

[11] **As of the writing of this publication, SNiP has not been updated, and the revisions from November 28, 1991 and July 11, 1996 are still effective and applicable**

order of the Director of the Agency for Construction and Architecture under the Government of the RT on August 16, 2010, and registered by the Ministry of Justice on April 1, 2011, under № 604. Once SNiP 40.02-2009 was ratified, the previous SNiP 2.04.03-85* was nullified.

Like many documents of its kind, SNiP is a voluminous document, with 70 annexes divided among 11 sections, containing clarifications and engineering standards on wastewater disposal. Annex №70 of SNiP comprises terms and their definitions, and provides the definition of "wastewater disposal" itself:

Wastewater Disposal – a set of engineering structures (pipelines, pump stations, treatment facilities and sanitary fixtures, standpipes, etc.) that provide for the reception, collection and disposal of wastewater from the territories of populated areas, industrial enterprises and other facilities, as well as wastewater treatment and decontamination before utilization or discharge into a water body.

This is the only definition of the term recorded in the legislation of Tajikistan.

Similar to SNiP 40.01-2008 "Wastewater Disposal. Outdoor Networks and Structures", SNiP 40.02-2009 also has wastewater disposal rates (*specific average daily wastewater disposal*) in Section 2, Paragraph 19. This paragraph refers to Annex 3 that specifies the following rates: 350 dm^3/day for urban residents (per resident), and 125 dm^3 for rural populated areas. Much like for drinking water supply, this rate is employed in the design, construction and reconstruction of sewerage and water disposal systems. Consequently, systems should be capable of receiving the specified quantity of water for disposal.

Annexes

- **Law of the RT "On the Drinking Water and Water Supply"**
- **Public Utility Network Connection RULES,**
- **approved by Resolution of the Government of the RT, as of June 3, 2014, №354**
- **Public Water Supply and Sewer Usage RULES in the Republic of Tajikistan**
- **GOST 2874-82 "Drinking Water. Hygienic**
- **Requirements and Quality Control"**
- **SanPiN 2.1.4.004-07 "Drinking Water. Hygienic**
- **Requirements for Water Quality of Centralized Drinking Water Supply Systems. Quality Control"**

LAW
OF THE REPUBLIC OF TAJIKISTAN
ON THE DRINKING WATER AND WATER SUPPLY

This law regulates relations in the drinking water and water supply area, and establishes state guarantees for the supply of a population with drinking water.

CHAPTER I. GENERAL PROVISIONS

Article 1. Basic Definitions

Basic definitions applied in this law:

- Drinking water – water, the quality of which in its natural state or after treatment (purification, decontamination or addition of missing substances) meets regulatory requirements for human drinking, domestic needs, or the manufacturing of food and medical products;
- Drinking water quality standards (regulatory requirements) – a set of permissible indicators, of both chemical and microbiological composition and organoleptic properties of drinking water, determined by research methods and regulated by sanitary rules to ensure water safety and harmlessness for human health;
- Drinking water supply – activity aimed at satisfying the needs of individuals and legal persons for drinking water;
- Drinking water supply source – water body (water reservoir, water course or aquifer) or any part thereof, from which water is used or may be used for drinking water supply with or without appropriate treatment;
- Centralized drinking water supply system (public water supply) – a set of facilities and structures for the withdrawal, treatment,

storage and supply of drinking water to water consumption sites open for common use by individuals and/or legal persons;

- Non-centralized drinking water supply system, common-use – facilities and structures for the withdrawal (with or without treatment) and treatment of drinking water with no supply of water to consumption sites open for common use by individuals and/ or legal persons;
- Autonomous drinking water supply systems – facilities and structures for the withdrawal and production of drinking water with or without the supply of water to consumption sites of sole proprietorship (single house, homestead, summer cottage or any individual facility);
- Drinking water supply system, in-vehicle – unit and equipment installed in a vehicle (cargo, passenger, etc.) to provide drinking water to passengers, crews and attending personnel en route;
- Drinking water supply system – definition applied for the identification of all systems with common standards for centralized, non-centralized, autonomous and in-vehicle water supply systems;
- Reliability of drinking water supply system – property of a system to maintain a certain mode (uninterrupted, hour-based, or scheduled) of drinking water supply to consumers in accordance with established drinking water supply rates and regulatory requirements for quality drinking water;
- Sanitary protection zone of waterworks facilities – territory and water shed with three surrounding belts and special standards for economic and other activity established to protect facilities and prevent deterioration of water quality;
- Drinking water consumption rates - design quantity of drinking water necessary to meet the physiological and domestic needs of one person per day in a populated area,

individual facility or in a vehicle during normal operation of drinking water supply systems, disturbed operation, and in emergency situations;

- Drinking water supply organizations – legal persons operating centralized or non-centralized drinking water supply systems;
- Consumers of drinking water – individuals and legal persons who use drinking water for their own needs.

Article 2. Legislation on the Drinking Water and Water Supply

Legislation of the Republic of Tajikistan on drinking water supply is based on the Constitution of the Republic of Tajikistan, this Law, and other regulatory and statutory instruments recognized by the Republic of Tajikistan.

Article 3. Objectives of the Law

Objectives of the Law are:

− establish legal safeguards and meet the needs of individual and legal persons for drinking water;
− lay the economic basis for drinking water supply;
− establish state guarantees for a sustained drinking water supply and grounds for liability when laws are breached in the drinking water supply area.

Article 4. Basic Principles of Drinking Water Supply

Basic principles of drinking water supply include:

− state guarantees that drinking water is a top priority, and must meet the needs and vital requirements for the protection and health of individuals and legal persons;
– state control and state regulation of drinking water supply issues;
– accountability of individuals and legal persons in the drinking water supply sector to local authorities, that exercise control over water use and protection; as well as, state administrative bodies for

civil defence or emergency situations within their purview;
– ensuring the safety, reliability and manageability of drinking water supply systems with respect to their process features and selection of water source, in accordance with common regulations and standards effective in the territory of the Republic of Tajikistan;
– keeping records of drinking water supply;
– imposition of charges for drinking water supply;
– state support for drinking water supply system development, production, equipment, expendable materials, and chemical substances for water treatment and decontamination.

Article 5. Competence of the Government of the Republic of Tajikistan in the Drinking Water Supply Area

Competencies of the Government of the Republic of Tajikistan in the drinking water supply area include:
– defining and ensuring the implementation of a unified state policy in the given area;
– adopting State drinking water supply development programs in the Republic of Tajikistan;
– adopting regulatory and statutory instruments on drinking water supply issues;
– defining record-keeping and accounting procedures in the drinking water supply area;
– defining state monitoring and supervision procedures in the drinking water supply area;

– allocating budgetary and other funds for rehabilitation of water supply systems in places affected by negative impacts of emergency situations;
– promoting international cooperation on water supply issues.

Article 6. Competence of Authorized Agency in the Drinking Water Supply Area

Competencies of the authorized agency in the drinking water supply area include:
– preparing and arranging the implementation of major focal points of state policy in the drinking water supply area;
– implementing unified state scientific and engineering policies for the supply of consumers (individuals and legal persons) with drinking water in accordance with quality standards and drinking water consumption rates;
– coordinating and ensuring funding for research work in the drinking water supply area, and the production of necessary materials and chemical substances for purification and decontamination of drinking water;
– organizing the development of standards and keeping records of drinking water consumption;
– approving targeted regional programs, construction plans, and the maintenance and development of drinking water supply systems;
– defining measures to protect water sources and drinking water supply systems;
– organizing processes and ecological audits of drinking water supply systems;
– organizing staff training, re-training and qualification upgrades in the drinking water supply area;
– determining a certification procedure for drinking water quality standards;

– submitting draft regulatory and statutory instruments to the Government of the Republic of Tajikistan in the prescribed manner;
– developing and approving codes and standards of drinking water supply system operation in coordination with competent authorities.

Article 7. Competence of Local Executive Authorities in the Drinking Water Supply Area

Competencies of local executive authorities in the drinking water supply area include:
– approving targeted programs, construction plans, and maintenance and development of drinking water supply systems;
– improving the quality of drinking water and sustainable use;
– protecting drinking water resources and water supply sources from contamination, pollution, clogging and depletion;
– protecting drinking water supply systems and sources from any damages;
– organizing the supply of legal persons and individuals with drinking water in accordance with drinking water consumption norms.

Article 8. Ownership Patterns for Drinking Water Supply Systems

1. Drinking water supply systems may be owned by the state (republican or communal ownership), legal persons or individuals.

2. The transfer or change of ownership of centralized or non-centralized drinking water supply systems is permitted if the transfer or change will not affect the performance of these systems.

3. A list of drinking water supply systems of paramount importance is defined by the Government of the Republic of Tajikistan.

Article 9. Centralized Drinking Water Supply Systems

1. Centralized drinking water supply systems are the main systems for the provision of uninterrupted drinking water supply to consumers. They are a critical part of infrastructure and are vitally important in the supply of cities and other populated areas with drinking water.
2. Equipment, materials and reagents for the production of drinking water, employed by organizations for centralized drinking water supply systems in cities and other populated areas, are included in a state list of necessary production items.
3. Requirements for the selection of a drinking water supply source for centralized networks are outlined in drinking water supply regulatory and statutory instruments of the Republic of Tajikistan.
4. A centralized drinking water supply network is supervised by a specially authorized state agency assigned by the Government of the Republic of Tajikistan.
5. Owners may autonomously exercise control over their centralized drinking water supply systems or transfer them by contract for the economic or operational control under legal persons.

Article 10. Non-Centralized, Autonomous Drinking Water Supply Systems

1. Non-centralized and autonomous drinking water supply systems are constructed for the supply of drinking water to

consumers in the absence of centralized drinking water supply systems.

2. Requirements for the selection of drinking water supply sources for non-centralized drinking water supply systems are established by regulatory and statutory instruments of the Republic of Tajikistan.

3. Owners of non-centralized drinking water supply systems and consumers (individuals and legal persons) of drinking water shall use water bodies as drinking water supply sources according to procedures established by the Republic of Tajikistan.

4. Owners of non-centralized drinking water supply systems may autonomously run these systems or delegate operational responsibility to other individuals or legal persons.

Article 11. Drinking Water Supply System in Vehicles

Drinking water supply systems are components of vehicles. Owners of vehicles shall ensure the normal working condition of in-vehicle drinking water supply systems and conform to drinking water quality regulatory requirements.

Article 12. Ensuring the State Regulation of Drinking Water Supply Development

1. Water supply development is ensured by the implementation of national and regional public water supply programs. Drinking water supply must be integrated into regional socio- economic development plans of administrative-territorial units.

2. Design, construction and reconstruction of centralized and non-centralized drinking water supply systems shall be carried out in accordance with design indicators of area development master plans, construction and sanitary codes and rules, ecological requirements, and state standards agreed upon by competent administrative bodies. Project design for the construction of centralized and non-centralized water supply systems will incorporate reliability requirements for such systems when exposed to destabilizing natural and man-induced factors.

3. The activities of persons who provide consumers with drinking water from centralized and non-centralized water supply systems are regulated by legislation of the Republic of Tajikistan.

Article 13. Financing of Drinking Water Supply

Sources of funding in drinking water supply are:

- republican budget funds for the improvement of drinking water supply systems specified in state development programs;
- payment of water consumers and water users;
- other sources allocated by legislation of the Republic of Tajikistan.

Article 14. State Support for Drinking Water Supply

Taxation, concessional lending and other benefits for drinking water supply organizations (regardless of ownership), equipment manufacturers, materials, reagents, and investors are defined in legislation of the Republic of Tajikistan.

CHAPTER 2. DRINKING WATER SUPPLY GUARANTEES

Article 15. State Guarantees for Public Drinking Water Supply

1. The State guarantees the supply of each person with drinking water that meets established quality standards, and a quantity consistent with drinking water consumption norms.
2. Public needs for drinking water in residential areas are secured by measures that prioritize the development of centralized or non-centralized drinking water supply systems, as well as state supported water supply.
3. The State guarantees that citizens who stay in public settings (terminal stations, airports, parks, beaches, etc.) or travel in vehicles have to the right to drinking water to be provided by owners of these facilities.
4. If operation of a centralized or non-centralized drinking water supply system is disturbed (it violates established consumer supply standards or fails to conform to established water quality

standards), local executive authorities, municipal authorities, owners of systems and water supply organizations shall take measures to ensure consumer supply. This supply may come from backup drinking water supply sources and systems or the use of technical aids for domestic and collective water purification and decontamination. The drinking water supply shall then be delivered in containers for common use.

5. The list of measures to be taken during disturbed operation of centralized or non-centralized drinking water supply systems is defined in the area contingency plan and will supply consumers in particular areas with drinking water.

Article 16. Ensuring the Quality of Drinking Water

The quality of drinking water supplied to consumers (individuals and legal persons) should meet standard requirements, and it is ensured by the following measures:

– appropriate selection of water supply sources and water purification technologies;
– permanent drinking water quality control in drinking water supply systems;
– use of equipment, materials and reagents employed in drinking water supply systems according to the established procedure with confirmed safety conformance certificates;
– regular approval and modification of regulatory requirements for drinking water and water supply sources (once every 5 years to reflect updated scientific information);

– protection of centralized and non-centralized drinking water supply system sources (sanitary protection zones and other protective measures against the unintentional or intentional contamination of drinking water);
– development of demo programs for the operation and quality control of drinking water from centralized or non-centralized drinking water supply systems with respect to local conditions;
– approval of tougher measures for regular control of drinking water quality by specially authorized state sanitary and

epidemiological surveillance agencies in situations of water quality deterioration or the endangerment of human health.

Article 17. State Control and Accounting in the Drinking Water Supply Area

1. State control of the drinking water supply area shall be overseen by agencies and institutions of the State Sanitary and Epidemiological Surveillance Service, together with state
2. ecological authorities and specially authorized state agencies for the regulation of water use and protection.
3. An accounting of water supply sources shall be ensured by specially authorized agencies for water resources use and protection management, involving hydrometeorological and environment monitoring authorities (surface water supply sources), mineral wealth use and protection authorities (underground water supply sources), and state sanitary and epidemiological surveillance agencies.
4. Determination of the quality of consumer drinking water and conformance of water quality to established standards shall be carried out by sanitary and epidemiological surveillance agencies and institutions.
5. An accounting of water used from centralized drinking water supply systems shall be carried out by owners of these systems.
6. The adherence to established state standards and requirements for drinking water and to methods of control in drinking water supply shall be ensured by state standardization inspections.
7. The observance of construction codes in the design and construction of water supply facilities shall be imposed by construction and architecture supervisory authorities.
8. State control and accounting of drinking water shall be implemented according to procedures established by the Government of the Republic of Tajikistan.

Article 18. Protection of Drinking Water Supply Sources and Systems

1. Protection of drinking water supply sources from

contamination, over drying, depletion, damages and destruction is a mandatory

2. condition for the safety and harmlessness of drinking water. This protection requires: 1) the observance of sanitary and ecological requirements and measures for the prevention of contamination, overdrying and depletion of surface water bodies; 2) a sanitary protection zone around water supply sources and facilities (except for water supply in vehicles); and 3) a compliance with operating practices within specified zones.

2. Sanitary protection zones for all sources, both centralized and non-centralized drinking water supply systems, regardless of ownership, shall be established to prevent unintentional or intentional water contamination.

3. It is prohibited to discharge wastewater within the first and second belt of a sanitary protection zone of drinking water supply sources.

4. Within the third belt of a sanitary protection zone of drinking water supply sources, it is absolutely prohibited to discharge wastewater from cities, industrial enterprises, or agriculture products that contain contaminants and biological components exceeding established maximum permissible discharge rates.

5. The formation, design, size, water protection standards and use(including a list of prohibited and restricted types of activity) of sanitary protection zones shall be regulated by the public authority responsible for sanitary and epidemiological surveillance.

6. The following entities shall be subject to sanitary and environmental protection measures:

– water supply organizations;

– local executive authorities, as well as persons carrying out economic activity in the vicinity of these facilities.

7. The implementation of set measures and compliance with sanitary protection zone requirements shall be enforced by sanitary and epidemiological surveillance authorities and specially authorized agencies for environmental protection.

8. Local executive authorities may impose additional measures to prevent any intentional contamination and spoilage of water supply sources and systems.

Article 19. Certification in the Drinking Water Supply Area

Items for certification in the drinking water supply area include:
– drinking water from a drinking water supply system;
– drinking water in containers intended for sale to consumers;
– production processes, equipment, facilities, materials and chemical substances for water purification and decontamination.

Article 20. Guarantees for Drinking Water Supply in Emergency Situations

1. The supply of drinking water to populations in emergency situations (accidents; man-induced and natural disasters resulting in contamination of water sources; destruction of water supply, treatment and decontamination systems leaving consumers with no more than one day's supply of water) shall be carried out by local executive authorities, emergency situation agencies and municipal authorities.

2. Emergency drinking water supply situations shall be forecasted by local authorities in collaboration with emergency situation and civil defence agencies and water supply organizations; all measures will be taken to supply consumers with quality drinking water to mitigate consequences of emergency situations.

Article 21. Rights and Obligations of Owners of Drinking Water Supply Systems and Water Supply Organizations

1. Owners of drinking water supply systems and water supply organizations have the right to:

– demand that consumers pay for the quantity of drinking water supplied, in a timely manner, as dictated by bilateral agreement;

– sue for the recovery of damages inflicted by individuals - contamination and/or depletion of water sources or a breakdown of drinking water systems, in accordance with the current legislation;

2. Water supply organizations and owners of drinking water supply systems, who directly operate them, shall:

– observe process conditions that meet regulatory requirements for drinking water;

– ensure uninterrupted drinking water supply norms, as a matter of priority, to meet the needs of the population, food industry companies and health facilities;

– use equipment, materials and chemical reagents sanctioned for water supply activity, with a certificate of conformance for established requirements;

– keep records of drinking water consumed;

– prevent the use of drinking water for industrial production needs or production processes that do not require the use of drinking water, provided the processes do not directly affect the population drinking water supply;

– exercise control over the quality of drinking water on the basis of time-proven laboratory or standardized methods, and timely notify consumers of any drinking water quality deterioration;

– timely notify all relevant authorities (local executive authorities, specially authorized executive authorities in charge of natural resources and environmental protection, and state sanitary supervision authorities) to disastrous accidents and other emergency situations that affect the status of water supply sources and systems, as well as any non-conformance of drinking water quality to sanitary

regulations and standards;

– provide unimpeded access to representatives of state sanitary and epidemiological surveillance authorities, and water use and protection regulation authorities for inspection of water supply facilities and structures;
– observe standards of economic and other activity restrictions established for sanitary protection zones of drinking water supply sources and systems;
– prevent the violation of water users' rights and infliction of damage to the environment;
– allocate funds for routine and major repair of water supply systems;
– ensure the protection of water sources from contamination, overdrying and depletion, and breakdown of water supply systems;
3. Owners of drinking water supply systems, who have transferred operational responsibilities to other water supply organizations, shall be held liable for these systems in accordance with legislation of the Republic of Tajikistan.

Article 22. Rights and Obligations of Drinking Water Consumers

1. Consumers of drinking water have the right to:
2. supplied with drinking water, in accordance with quality standards and water consumption norms, from centralized and non-centralized drinking water supply systems;
– demand control of the quality of drinking water supplied by centralized and non-centralized water supply systems;
– receive timely and comprehensive information on the quality of drinking water and any potential irregular mode of water supply as stipulated in legislation of the Republic of Tajikistan;

– initiate, through an established procedure, a public sanitary, epidemiological or environmental expert review and have their results submitted to relevant state authorities;

– claim damages as a result of a drinking water supply that does not meet regulatory requirements.

3. Individuals have the right to water supply from centralized and non-centralized water supply systems in accordance with quality standards and water consumption norms.

4. Consumers of drinking water shall:

– observe sanitary and other regulations and standards in the water supply area, as well as requirements established by this Law;

– prevent the contamination, clogging and depletion of water sources, and breakdown of water supply systems;

– sustainably and efficiently use drinking water in their daily life and at the factory;

– timely pay water bills in accordance with established tariffs;

– timely notify local executive authorities, state sanitary supervision authorities, environmental protection authorities and water supply organizations of the intentions and actions of individuals and legal persons that may contaminate and/or clog water supply sources;

– inform water supply organizations of unsatisfactory services from particular systems.

Article 23. Information on Drinking Water Supply Issues

1. Information on the quality of drinking water shall be provided to an applicant free of charge. All consumers of drinking water shall be provided information every month through mass media.

2. The detection of non-conforming drinking water quality that may pose a hazard to human health, owners of drinking water supply systems, water supply organizations or agencies monitoring the conformance of drinking water quality will result in the immediate notification of consumers. Additional information may include timeframes for the elimination of such non-conformances, precautionary measures (on additional water treatment methods),

and information on sites and delivery time of drinking water that meets regulatory requirements.

3. Irregularities in the drinking water supply necessitates the notification of consumers by water supply organizations and agencies through mass media or other means.

4. Arrangements and the provision of timely support and information to consumers on the drinking water quality and its irregular supply, according to law, shall be effected by local executive authorities.

5. CHAPTER 3. FINAL PROVISIONS IN THE WATER SUPPLY AREA

Article 24. Responsibility for Violation of this Law

Individuals and legal persons, failing to meet the requirements of this law, shall be held liable in accordance with legislation of the Republic of Tajikistan.

Article 25. Procedure for Putting this Law into Execution
This law shall be put into effect after its official publication.

Emomali Rakhmon President of
the Republic of Tajikistan
City of Dushanbe
December 29, 2010
№670

Approved by Resolution of the Government
of the Republic of Tajikistan
as of June 3, 2014, № 354

Public Utility Network Connection Rules
1. General Provisions
1. Public Utility Network Connection Rules (hereinafter referred to

as the Rules) regulate relations between service implementers and service consumers for connection to engineering networks, communal services and provision of appropriate resources. They define the procedure for service provision and payment, rights, obligations and liability of implementers and consumers.

2. Basic definitions applied in these Rules:

a) Implementer:

- an organization that owns or operates housing stock, facility or engineering networks and is either obligated to provide communal services to a consumer or authorized to perform the obligations of an implementer – for consumers residing in housing stock and at other state or non-state facilities;
- enterprise that provides communal services to consumers, for consumers residing in housing stock;
- housing and communal services that conclude contracts for the provision of communal services to consumers residing in the housing stock;

b) Consumer – a legal person or individual who uses or intends to use a service for business or domestic needs under contract with an implementer as per the prescribed procedure;

c) Indoor (in-house) networks – networks running inside a building or through a plot of land that supply products to consuming units;

d) Physical limit of operational responsibility – a demarcation of engineering network elements; preset duties (responsibilities) for the operation and maintenance of such elements as established by legislation of the Republic of Tajikistan and covered under contract;

e) Throughput capacity – capacity of engineering networks to pass through and receive a certain quantity of resources in a specific operating mode and definite time;

e) Products – electric energy, cold and hot water, natural gas and thermal energy in the form of hot water employed for the provision of electric power, heat, gas, water supply and product delivery services;

f) Engineering networks – a set of property items directly employed

in the process of resource provision;
g) Network diagram – a diagram of all engineering networks open for common access, drawn up by the architecture and urban construction agency in a prescribed manner, and based on existing and planned construction regarding electric power, heat, gas, water supply and sanitation facilities;
h) Technologically interrelated networks that belong to entities on the rights of ownership or other legal foundation – engineering networks that have mutual draw-off points and contribute to common technological electric power, heat, gas, water supply and sanitation systems;
i) Draw-off point – a place at the construction facility or on a plot of land for the connection of facilities to electric power, heat, gas, water supply and sanitation networks;
j) Maintenance – a set of measures including preventive inspections, as well as routine and emergency maintenance of engineering networks;
k) Specifications – a document that defines a draw-off point for connection to engineering networks, permitted load (capacity) for connection, supply source, parameters of carrier or using equipment, regulation methods and schedule, and basic parameters and requirements to be followed to ensure the connection of a construction (or reconstruction) facility or consumer to engineering networks. Specifications are issued by organization as stipulated in subsection "a" of this paragraph.

3. These Rules shall apply to both consumers and implementers of electric power, heat, gas, water supply and sanitation services, regardless of their departmental affiliation, ownership, or legal organization.
4. These Rules shall also apply in cases when construction (or reconstruction) of engineering networks or manufacturing equipment require a temporary or permanent connection to technologically interconnected engineering networks.

5. Procedures for connection to engineering networks and provision

of communal services include the following stages:
- specifications are obtained from an architectural planning assignment for facility construction design in accordance with these Rules and the administrative sequence of procedures related to urban development;
- contracts are drawn for connection to engineering networks and their maintenance;
- connection to engineering networks.

2. Procedure for Obtaining Specifications

6. Specifications for connection to engineering networks are issued by the implementer upon inquiry from a local architecture and urban development agency or consumer.

7. When a facility reconstruction, conversion or layout modification neither increases nor decreases specific consumption of necessary resources, obtaining new specifications are not required.

8. The inquiry should contain the name of the local architecture and urban development agency or consumer, their location and postal address, and an attached copy of the documents submitted by the consumer to the local architecture and urban development agency to obtain specifications.

9. The requirement to submit other documents is not allowed.

10. Within ten working days of receipt of the inquiry and attached documents, an implementer, who operates engineering networks, shall send specifications to the local architecture and urban development agency or consumer on the connection possibility of a designed facility to engineering networks with a specified draw-off point.

11. If the inquiry does not comply with existing terms and requirements, the implementer shall send a report to the local architecture and urban development agency or consumer to inform them of the non-conformance status of requested capacities and the

causes of non-conformance. The report should be processed within the time allotted in Paragraph 10 of these Rules.

12. The absence of a possible connection to engineering networks shall not serve as grounds for a refusal to issue an architectural planning assignment.

13. Specifications should contain the following data:

- name and address of facility;
- draw-off points;
- capacity of each draw-off point;
- maximum load of each draw-off point;
- validity terms of specifications;
- timeframes for the connection of a construction facility to engineering networks;
- any special or additional engineering requirements.

14. Once an implementer has issued specifications to a consumer, they have no right to modify or terminate the specifications issued.

15. If it is not possible to connect a construction facility to an engineering network at the specified location, an implementer should indicate other options for facility engineering.

16. Obtaining other specifications for connection to engineering networks not stipulated by these Rules is not required.

17. Connection of a construction facility to engineering networks without obtaining specifications or a concluded contract is not allowed.

18. An implementer shall provide specifications to local architecture and urban development agencies or a consumer free of charge.

19. In the event that a previously permitted capacity must increase or decrease, an individual or legal person shall send a relevant written inquiry to the implementer with whom a contract for provision of communal services is concluded.

20. Within 5 working days of receipt of inquiry, the implementer, with whom a contract for provision of communal services is concluded, shall provide the consumer with new specifications for the same draw-off points and terminate the previously issued

specifications.
21. If necessary, corresponding modifications should be added to the contract for provision of communal services within the 5 working days allotted in Paragraph 20.
22. 3. Validity Terms of Specifications
22. Specifications are issued for three years from the contract date conclusion at which point they cease to have effect on the provision of communal services and connection of construction facility to engineering networks.
23. The validity of specifications may be extended for up to one year on the basis of inquiry.
24. Information on the availability of existing and scheduled capacities of engineering networks, as well as the procedure for connection of construction facilities to engineering networks is provided free of charge. Inquiries by individuals, legal persons, or local executive authorities will be sent within 5 working days of the date of receipt of inquiry.

4. Procedure for Connection to Engineering Networks

25. Connection of a completed (or reconstructed) construction facility to engineering networks is carried out before acceptance of the facility into operation according to the following steps:
- filing an application to sign a contract for the provision of communal services and connection of a facility to engineering networks;
- the signing of contracts by consumer and implementer for the provision of communal services and connection of a facility to engineering networks, which includes a statement defining the physical limits of operational responsibility for facilities connected to engineering networks;
- supply of products.

26. For the connection of a facility to engineering networks, a consumer shall file an application with the implementer for a conclusion of connection contract with attached copies of the following documents:
- specifications;

- for legal persons and individuals - certificates of state registration and documents confirming a person's powers to sign the application on behalf of a consumer;
- for an individual - a passport;
- documentation on completed work (concealed work statements).

27. Requiring other documents from a consumer is not allowed.
28. The implementer shall receive applications and attached documents, then immediately issue a paper to the consumer acknowledging the receipt of the application and attached documents.
29. Within 5 working days of receipt of application, the implementer shall examine the conformance of submitted documents to requirements established in Paragraph 26 and shall notify the consumer of any discrepancies that resulted in non-conformance.
30. Application for connection of a facility to engineering networks should be processed within 5 working days of receipt of application.
31. Within the timeframe for application review, an inspection is conducted to determine the conformance of completed construction networks to requirements established by legislation of the Republic of Tajikistan. During this time, the division of responsibilities and ownership demarcation points of engineering networks are agreed upon with the consumer.
32. Based on the results of inspection and following an agreement, a consumer and implementer shall sign the relevant conformance statement (conclude the contract) for the provision of communal services and maintenance of engineering networks.
33. Within 5 days, the implementer shall sign a contract with the consumer for the provision of communal services and maintenance of engineering networks.
34. Within 5 working days of the contract conclusion, an implementer shall connect a facility to engineering networks and start major maintenance of said engineering networks.
35. Connection of a facility to engineering networks is carried out on the basis of a bilateral contract.

5. Procedure for Service Provision and Payment

36. Consumer service provision systems should be permanently operational, except in the following cases:

- carrying out repair and preventive work (established by the implementer in accordance with current construction codes, operation and maintenance rules, regulations for carrying out routine and major repairs, and other regulatory documents);
- during non-heating season breaks for heating systems scheduled by the implementer in response to climatic conditions;
- during natural disasters or emergency situations beyond reasonable control of the implementer.

37. An implementer shall provide consumers with services that meet quality requirements, sanitary regulations and standards, and contract terms, as well as provide information on service provision.

38. Consumer properties and service provision mode should meet the following established standards:

- for heat supply – air temperature in residential premises is subject to heat insulation measures under current rules and standards;
- for electric power supply - electric power parameters should comply with the current standard;
- for gas supply - gas supply rates should comply with the current standard;
- for cold water supply – properties and composition of water supplied, as well as the design water flow rate at the water withdrawal point should meet hygienic requirements;
- as for hot water supply – properties, composition and heating temperature of water supplied, as well as the design water flow rate at the water withdrawal point should meet hygienic requirements;

- for sewerage - conformance to wastewater disposal.

39. Local executive authorities that oversee consumer service safety shall have the right to order their regional offices to clarify parameters of consumer properties and the service provision mode. They may also establish a guaranteed level of quality considering capacity, composition, wear and tear of communal capital assets, climatic and other local conditions of a populated area. As for decisions made and consequent adjustments of payment for services, an implementer shall notify consumers through mass media one month before a decision takes effect.

40. An implementer shall provide clear and readily understandable information on services rendered, service tariffs, payment terms, provision mode, consumer properties and the availability of certificates for respective services.

41. Services are provided to a consumer on a remunerative basis in accordance with their contract and these Rules.

42. A contract shall cover:

- quality of services, service provision mode and standard consumption norms;
- procedures and timeframes for the elimination of problems and accidents within the usage liability limits;
- establish payment rates and terms, accounting periods and due dates, and penalties for delayed service payment;
- liability of implementers for delayed cessation or provision of services;
- technical characteristics of engineering equipment for residential premises, including those defining maximum capacity of electric household machines, appliances and equipment;
- rights, obligations and liability of an implementer and consumer;
- terms of service provision termination.

43. The composition of services provided to a consumer is defined by the degree of facility improvement.
44. Service payment rates are established by an implementer in coordination with authorized antimonopoly policy agency, or otherwise stipulated by legislation of the Republic of Tajikistan.
45. The established accounting period for service payment is one calendar month. Payments are made by the 10th day of each month following the period. Service payments are made on an even basis during the year, unless otherwise stipulated by contract.
46. Method of service payment (cash or non-cash) is agreed upon between a consumer and implementer. Payment with cash is made through a special billing document using cash register machines.
47. If consumers have metering instruments, they are allowed to make service payments directly to an implementer. Relations between implementers and consumers are established by the Rules, and terms of rights, obligations and liability shall be covered under contract.
48. When service quality deviates from the requirements established by contract, a consumer's payment should consequently reduce.

49. Deviation list, value, reduction range and handling procedure, as well as recommended payment reduction terms associated with the deterioration of consumer service quality are established by local executive authorities with their regional offices.

6. Procedure for Service Use

50. Service use should be carried out on the basis of and in line with these Rules and contract.
51. The implementer shall exercise control over adequate service use in accordance with their contract.

7. Rights and Obligations of Service Consumer and Implementer

52. A consumer has the right to:

- receive services of an established quality, safety for a consumer's life and health, and not have damage inflicted on a consumer's property;
- call on an implementer for full recovery of damages or losses to a consumer's life, health or property because of substandard service provision or psychological damage in the amount established by legislation of the Republic of Tajikistan;
- skip service payment during breaks; termination of payment shall not exempt an implementer from liability to cover damages and losses;
- have an implementer fix identified deficiencies in the provision of services within a timeframe established by contract;
- approach state or judicial authorities in cases of consumer rights violations in accordance with legislation of the Republic of Tajikistan.

53. A consumer shall:

- pay on time (timeframes established by contract) for services provided;
- sustainably use services for their intended purpose;
- abstain from actions that violate the procedure for service use established by contract and these Rules;
- observe safety requirements when using services;
- provide unimpeded access to implementer representatives for the inspection of engineering equipment, metering and monitoring instruments.

54. The consumer is not allowed to:

- re-equip indoor engineering networks without permission of the implementer;
- install, connect (without written permission from the implementer) and use electric household appliances and machines

that exceed the technical capacity of the in-house electric network; add sections of heating appliances; use shutoff and control valves; or connect and use household appliances or equipment (e.g., individual water purification devices) that have no manufacturer's specifications (certificates) or fail to meet operational safety requirements, or sanitary and hygienic standards;
- breach existing service accounting schemes;
- use heat carrying agents in heating systems not for their intended purposes (discharge water from system and heating appliances).

55. An implementer has the right to:
- apply contractual measures when a consumer violates payment time limits;
- inspect the status of engineering equipment to control consumer consumption of services.

56. An implementer shall:
- take prompt measures for the preparation of projects and contract conclusion for provision of services;
- provide services of an established quality (consumer properties and service provision mode);
- develop, in coordination with local executive authorities, a form to register consumer complaints in connection with failure to maintain service quality and timeframes to fix deficiencies;
- take prompt measures to prevent and reestablish quality services for a consumer;
- promptly inform consumers of changes in quality of services;
- prevent the breakdown of technological processes and service quality deterioration, plan measures for enhanced consumer properties and quality service provision, as well as

use water and energy resources in a sustainable manner.

8. Final Provisions

57. An implementer shall be held fully liable for damage inflicted to a consumer's life, health or property because of failure to provide services or increase in tariff rate without justification according to legislation of the Republic of Tajikistan.

58. An implementer shall be held liable for the quality of service provision in accordance with legislation of the Republic of Tajikistan, these Rules and contract.

59. An implementer, consumer, other legal persons and individuals shall be held liable for failure to comply with requirements of these Rules in accordance with legislation of the Republic of Tajikistan.

60. Approved by Resolution of the Government of the Republic of Tajikistan

as of April 30, 2011,
№ 234

Public Water Supply and Sewer Usage RULES

Introduction

These Public Water Supply and Sewer Usage Rules (hereinafter referred to as the Rules) have been developed in accordance with legislation of the Republic of Tajikistan. They regulate the relationship between public companies of water and sewer utilities of the Republic of Tajikistan that serve all consumers in populated areas, regardless of ownership and departmental affiliation.

1. Basic definitions applied in the Rules

1) Basic definitions applied in these Rules

Customer – an individual or legal person with the right to use services provided by water supply and sanitation organizations in accordance with a concluded contract, and has premises equipment and structures directly connected to outdoor water supply or sanitation networks of a populated area.

Customer premises equipment and structures for connection
- a section of pipeline with equipment and structures thereon that connect outdoor networks with a customer's in-house, yard, in-block or intrasite water supply and sanitation networks.
- Drinking water supply – activity aimed at satisfying the needs of individuals and legal persons for drinking water.

Drinking water consumption norms – design quantity of drinking water necessary to meet the physiological and domestic needs of one person per day in a particular populated area, at an individual facility during normal operation of drinking water supply systems, disturbed operation, and in emergency situations.

Water supply customer premises equipment and structures for connection – a section of pipeline from a well (chamber) shutoff

valve in the outdoor street water supply network to the water metering unit of a customer.

Water supply – measures for water delivery to populated areas and individual facilities, in the required quantities and of a particular quality, with water from a water source, waterworks facility or water conduit.
Water economy balance – a comparison of water needs with existing water resources, and a ratio of water volumes employed and disposed of in a definite time period.

Sanitation customer premises equipment and structures for connection – a section of pipeline, in the direction of water travel, from a customer's last (inspection) sewage well of an in-house, in-yard, or intrasite sanitation network to a sewage well (chamber) in the outdoor street sanitation network.

Outdoor water supply (sanitation) network of water supply (sanitation) systems – all underground, ground and aboveground street pipelines in populated areas, except for in-block, intrasite, intrafacility, in-plant, in-yard and in-house water supply (sanitation) networks.

Throughput capacity of equipment or structure for connection – the quantity of drinking water (wastewater) that passes through sections of a pipeline connecting outdoor and indoor water supply or sanitation networks over a given time. It is measured in m^3/day or m^3/month, and it depends on the diameter of a pipeline, water head and water velocity therein.

Water supply system (waterworks facilities) – a set of engineering structures for withdrawal, purification, conveyance and delivery of water to consumers of populated areas or individual facilities in the required quantities and of particular quality.

Sanitation system – a set of engineering structures for collection and

disposal of wastewater beyond the boundaries of populated areas or individual facilities, as well as for the purification and decontamination of wastewater and wastewater sludge before their utilization or discharge into water bodies – receiving water.
Street water intake facility (standpipe, booth, etc.) – a facility for withdrawal of water directly from an outdoor street water supply network.

Industrial wastewater – water employed for industrial needs in all sectors of industry (including agroindustry, public utility companies, public catering companies, local and food industry companies) that has modified physical, chemical or biological parameters, properties and composition as a result of in-plant water processing.

Unauthorized connection to existing water supply and sanitation systems – connection to water supply networks made without authorization and knowledge of the Company before commissioning of facilities under a handover certificate, with an
expired use permit , as well as in the absence of or delayed conclusion of contract for supply of drinking water and collection of wastewater.

Unauthorized construction of facilities and structures for connection – facilities and structures built (re-equipped) that are not project-based or under a project agreed upon with the Company;
or have out-of-date specifications or deviations from them, including re-equipment of water metering units, replacement or removal of water metering instruments, without knowledge of the Company.
Unauthorized use of facilities and structures for connection
– use of facilities despite the absence of permission (reasoned prohibition) of the Company before commissioning under a handover certificate, with the expired use permit issued, as well as in the absence of or delayed conclusion of contract for supply of drinking water and collection of wastewater.
Water metering unit – water meter (vane or turbine), valves, bypass line and, if required, filter.

2. General Provisions

2) These Rules regulate relations between customers and companies that operate water supply and sanitation systems in a populated area, hereinafter referred to as Companies.

3) The Rules provide for: the rights of consumers to use public water supply and sanitation systems, subject to terms stipulated by contract with a Company, that ensure their health and safety; information on a Company's services and implementers; procedures for the connection of facilities to water supply and sanitation systems; installation and operation of water metering instruments and water accounting; calculation of payment for use of drinking water; collection of wastewater; obligations of parties, guarantees and property

4) liability of implementers; and a mechanism for implementation of the specified rights and relevant requirements.

5) The Rules shall apply across the Republic of Tajikistan and are binding for Companies that serve populated areas, as well as for all customers.

6) Customers are legal persons, regardless of their departmental affiliation, ownership or legal form of organization, as well as organizations that own (have full economic control or operational control) of housing stock and engineering infrastructure facilities. Organizations are authorized to provide public utility services, while condominiums and other owner associations are given the right to run the housing stock.

Customers may be individuals (a population residing in the state (departmental), local or public housing stock, or residing in private houses or apartments) that are directly connected to water supply and sanitation systems of populated areas under a concluded contract with a Company and liable in accordance with these Rules.

7) Sub-customers are individuals and legal persons specified in paragraph 5 of these Rules, who receive water from water supply networks and discharge wastewater into sanitation networks of a Company's customer.

8) Drinking quality water from water supply systems of populated areas (hereinafter referred to as 'drinking water') shall be supplied first for drinking, domestic and utility needs of a population; for process needs of customers; as well as for fire extinguishing by contracts concluded between Companies and customers.

9) The sanitation system of populated areas is intended for collection, disposal and purification of domestic wastewater.

10) Collection of industrial wastewater into the sanitation system of populated areas may be permitted by a Company, given the design capacity of treatment facilities and prior fulfillment of current regulations and specifications for collection of their customers' wastewater into sanitation systems of populated areas.

11) Water supply to customers and collection of wastewater is only carried out with a concluded contract between Companies and customers. A concluded contract between non-domestic customers and a Company should have a water economy balance sheet attached that justifies the quantity and quality of water necessary for customers; structural water supply and sanitation diagrams; organizational and technical plans to reduce water consumption, wastewater collection rates and observe contaminant discharge standards; timeframes for actions; names of officials in charge of their implementation and sources of funding.

12) The physical limit of operational responsibility between Companies and customers for the technical status and maintenance of water supply and sanitation networks, facilities and structures is defined by their balance sheet attribution.

13) The following physical limit of operational

responsibility is established between customers and a Company for operation (status, maintenance, balance sheet attribution) of networks and structures:

- water supply networks of customers (including houses, heating and power plant, boiler stations), from their place of connection to a public water supply network (from a shutoff valve in a public network) on a customer's balance sheet as being run by customers;
- the physical limit of operational responsibility for the operation of water supply networks and equipment in state residential houses, considering the source of funding, is defined by the local executive authorities;
- connection to a public sanitation system (connecting branch) from a sewage inspection well on a customer's balance sheet as being run by customers;

- in-house water supply and sanitation networks; equipment, including a water metering unit and fire shutoff valve located thereon; sewer outlets to a place of connection in a public sanitation network (to an inspection well); intrasite water supply and sanitation networks; equipment and structures of industrial companies and organizations; and boiler stations on a customer's balance sheet as being run by customers.

14) Customers, upon request or with written permission of the Company, if a Company deems it technically feasible, may allow the connection of other customers (sub-customers) to water supply and sanitation networks, and equipment and structures that are serviced by and under the economic control of a customer. This connection requires that a physical limit of maintenance responsibility be established between customer and sub-customer.

15) Sub-customers shall conclude a contract for use of drinking water and discharge of wastewater with their Customer. All information on sub-customers specifying their names, departmental

affiliation, drinking water consumption and wastewater discharge rates, availability of metering instruments and other data shall be provided, in accordance with Paragraph 9 of these Rules, by the customer in an annex to the concluded contract between customer and Company.

16) Increasing or decreasing water consumption or the quantity of wastewater discharged by a customer; increasing the concentration of contaminants in wastewater discharges, in excess of the rates specified by contract; reconstruction or operation of new water supply and sanitation networks, equipment and structures; connection of new sub-customers; modification of a water metering unit's layouts or fittings; or the replacement of metering

nstruments are only allowed with permission of the Company. All expected modifications and respective supplements must be added to a previously concluded contract or the conclusion of a new contract.

17) If customers use water for their technical needs alongside the drinking water supply of a populated area, a local executive authority as advised by the Company, shall oblige these customers to take timely measures at their own expense to cease the use of drinking water for their technical needs. If a customer fails or delays to execute these measures, the Company has the right to refuse a drinking water supply to the customer, in whole or in part, which is used by the customer for technical needs.

18) The settlement of accounts with customers for water spent and wastewater received is made on the basis of tariffs established in accordance with the current legislation.

19) For existing and newly connected customers to the water supply and sanitation systems of a populated area, a concluded contract between a Company and their customers shall define:

- drinking water limits and supply terms;
- a collection limit of industrial wastewater into sanitation systems; requirements for the quantity and concentration of contaminants in wastewater, in accordance with the current rules; and specifications for the collection of wastewater into sanitation

systems of populated areas;
- validity term of limits agreed.

20) A Company can increase tariffs for above-limit water consumption and water disposal, and for exceeded permissible concentration of contaminants discharged by industrial enterprises

21) in accordance with the current legislation and concluded contract.

22) Relations not regulated by these Rules, such as additional requirements that reflect local conditions or water supply and sanitation systems with specific features, shall be defined contractually between a Company and customer.

23) Any complaints against actions of a Company shall be considered by superior housing and communal service agencies, local executive authorities, or by courts.

24) Disputes between a Company and customers are settled in accordance with the procedure established by the current legislation.

3. Connection of Facilities to Water Supply and Sanitation Systems of Populated Areas

25) To connect new facilities to water supply and sanitation systems of populated areas or increase drinking water supply and wastewater disposal through existing equipment and structures for connection, the end user (customer) shall obtain a connection permit and specifications, regardless of the departmental affiliation of water supply and sanitation networks and equipment, to which a connection is made. The procedure for obtaining specifications is executed in accordance with the "Rules for Connection to Utility Networks and Provision of Public Utility Services" approved by Resolution of the Government of the Republic of Tajikistan as of October 1, 2009, №531.

26) To obtain a connection permit and specifications, an end

user (customer) shall file an application with a Company with the following attachments: waterworks certificate, geodesically underpinned layout of a land plot specifying all engineering services and characteristics of the facility

27) eing connected (purpose, elevation, building height or number of storeys, list of sub-customers, etc.).

28) Within 10 working days of receipt of application, a Company shall issue specifications for the connection to water supply and sanitation systems and indicate the validity term of the specifications issued.

29) Specifications for the connection to public water supply and sanitation systems define a place of connection to water supply and sanitation systems (address, # of wells or chambers); the procedure for project documentation approval with consideration of existing regulatory documents, such as the validity term of specifications; departmental affiliation of designed (reconstructed) facilities and structures for connection; demarcation lines of Company and customer networks; and special engineering requirements for the equipment and structures for connection. In addition, specifications of equipment and structures for connection provide the following data:

a) for water supply systems:

- design water head at connection place;
- requirements for measuring and monitoring instruments and structure of water metering unit;
- maximum quantity of water supplied and water consumption mode;
- requirements for the structure of reservoirs;

b) for sanitation systems:

- water trough elevation at place of connection to sanitation system;
- quantity, composition and concentration of contaminants, and collection mode of wastewater being discharged; requirements for wastewater sampling facilities and wastewater flow meters.

30) A Company, when issuing permits and specifications for the connection of new facilities, or to a customer for increased

drinking

31) water supply (collection of wastewater) through existing equipment and structures for connection, shall have the right to issue a permit with special specifications and additional requirements. Such circumstances include insufficient capacity or lack of funds for the development, design, construction, logistical and maintenance support of water supply and sanitation systems.

32) Projects for connection of equipment and structures to water supply systems should contain:

- a print-out of the locality plan at a scale of at least 1:2000;
- a master plan of the land plot at a scale of at least 1:500 with all designed and existing underground structures, as well as their laying depth, that has been confirmed by the owners of the underground facilities;
- cross sections, layouts of shutoffs and other valves, fittings, fire hydrants and specifications for equipment and structures;
- a plan of the premises at a scale 1:50 or 1:100 with the location of a water metering unit and a depiction of water supply networks and equipment;
- a work drawing of the tie-in connection of the customer service pipe and water metering unit at a scale 1:10 or1:20;
- an explanatory and calculation report with a drinking water consumption balance for drinking, domestic, utility and industrial needs, as well as maximum daily and hourly drinking water consumption norms.

33) Projects for connection of equipment and structures to a sanitation system should contain:

- a print-out of the locality plan at a scale of at least 1:2000 with hypsographic curves;
- a master plan of the land plot at a scale of at least 1:500 with all designed and existing underground structures, as well
- s their laying depth, that has been confirmed with the owners of the underground facilities;
- cross sections of designed sanitation lines with hydrogeological conditions, diameters of pipes, ground surface and

pipe laying elevations, designed and existing places, and crossing elevations with underground facilities. Sections are provided at a scale 1:100 vertically and 1:500 horizontally;

- a work drawing of designed sanitation structures (connection well, etc.);
- an explanatory and calculation report with quantity of wastewater, composition and degree of wastewater contamination, local treatment facilities and their performance, design diameters and pitches of pipes, locations of sewer outlets, line pack and wastewater flow velocity, and type of wastewater metering instrument.

34) A company shall consider a project for the connection of equipment and structures submitted for approval; then issue its conclusion within 10 working days, or in cases that require on-site inspection and measurements – within 1 month. Hereby, a Company shall check the conformance of a project developed to previously issued specifications and these Rules. The design organization shall be held liable for the conformance of a project developed to requirements of regulatory documents.

35) All changes introduced in design options during the design cycle and deviations from specifications issued for the connection of equipment and structures are subject to additional agreement with the Company.

36) One copy of the agreed upon project for connection of equipment and structures shall be given back to the end user (customer), the second copy shall be used for technical supervision of construction and the commissioning of equipment and structures for connection.

37) Upon completion of construction and before commissioning, all water supply and sanitation networks and structures thereon shall be submitted to the Company by the end user (customer) for technical expert examination. A certificate shall be issued on implementation of specifications in compliance with project and regulatory documents. In addition, the following information should be provided:

- concealed work statements for construction of beds, foundations, soil compaction, insulation, etc.;
- certificates and manufacturer's specifications or their replacement documents for pipes, equipment and structures;
- concrete cube strength test sheets;
- network and structure sanitary treatment statements;
- a welding ribbon indicating the name and ID # of the welder;
- network and structure strength and impermeability hydraulic test certificates, and fire hydrant water output test certificates;
- sewer outlet and air escape valve performance certificates;
- as-built drawings of underground facilities, confirmed by the owners and other concerned organizations;
- work completion certificates for corrosion protection of pipelines;
- bills of deviations agreed upon by the design organization, customer and other concerned organizations;
- warranty certificates of construction organization for a facility being handed over, with an indication of liability period of construction organization for concealed defects;
- a work log;
- end user (customer) accounting office's certificate on the book value of networks and structures to be transferred under the economic control of the Company;
- handover certificate of water metering unit and wastewater flow metering instruments.
- Based on the findings of technical expert examination, a statement is drawn up to be signed by representatives of the Company and end user (customer).

38) After connection to a water supply system and prior to operation, waterworks facilities are subject to flushing and decontamination. A special statement will be drawn up when a

positive water quality test results for bacteriological indicators in accordance with requirements established by the State Sanitary and Epidemiological Surveillance Service of the Ministry of Health of the Republic of Tajikistan.

39) Water supply equipment and structures for connection, attended by a Company representative, are flushed and decontaminated by the construction organization at its own expense. The quantity of water – Q, spent for flushing and decontamination, is measured by the formula:

$Q = 2,65 \times F \times t \times SQRT (H), (m^3)$,
where,
F – flushing pipe cross area, m²;
H – water head before valve in flushing pipe, m;
t – flushing time, sec.
SQRT (H) – square root of H.

40) Information on the duration of flushing, diameter of the flushing standpipe and water head is reported in a statement by representatives of the Company and the organization involved in flushing.

41) A statement on the decontamination of built water supply networks and structures is a document that authorizes their connection or tying in to existing water supply systems and start of operation. The statement shall be signed by representatives of the Company, end user (customer) and regional branch of the State Sanitary and Epidemiological Surveillance Service of the Ministry of Health of the Republic of Tajikistan.

The connection of built water supply and sanitation networks and structures to water supply and sanitation systems shall be carried out by the end user (customer) under technical supervision by the Company.

42) Tying in, flushing and decontamination of customer service pipes, and connection of customer sewer outlets shall be carried out by the end user (customer) or Company at the expense of the end user (customer).

43) The supply of drinking water and collection of wastewater is allowed by the Company after elimination of all detected deficiencies of the concerned system according to technical expert examination certificate and receipt of information from the Company on commissioning and conclusion of the contract. A customer shall file an application with the Company for connection to the water supply and sanitation systems, registration of the customer with the Company and conclusion of the contract in accordance with these Rules.

44) After registration of the customer with the Company and conclusion of the contract with the customer, the Company shall put into operation the built facilities and structures for connection in the presence of representatives from the customer and construction organization.

45) The end user (customer) shall be responsible for the normal operation and technical status of water supply and sanitation networks and structures for one year from the date of their commissioning and, on the basis of the Company's instruction, shall eliminate all detected technical deficiencies by its own efforts and expenses.

46) Unauthorized connections to existing water supply and sanitation systems of populated areas and unauthorized construction of facilities and structures are prohibited.

47) Any connections of non-drinking water supply networks and sanitation networks to water supply systems of populated area are absolutely forbidden.

48) Liability for unauthorized connection to water supply and sanitation systems and equipment being served by and under

49) he economic control of a Company shall rest with:

- the owner of equipment and structures for connection;
- the customer being served by and under the economic control of Company;
- the construction organization, before signing a technical expert examination certificate by the Company.

50) For unauthorized connection to networks and equipment

where the control type is not ascertained, liability shall rest with owner of the connection equipment and structures, i.e. an organization that uses water or discharges wastewater through those equipment and structures.

51) With the detection of unauthorized construction of facilities and structures for connection, a representative of the Company shall draw up a statement, in two copies, with one copy provided to the owner of those facilities or the customer. If the owner of the facilities or customer does not agree with the statement, the latter shall sign the statement specifying their objections against the claims brought. If the customer refuses to sign the statement, then it becomes effective unilaterally with an indication "denied a signature".

52) The detection of unauthorized construction of facilities and structures for connection to water supply and sanitation systems are subject to immediate disconnection by the customer or Company's staff. A bill shall be provided to the customer to recover the amount for water spent and wastewater in accordance with Paragraph 74 and 79 of these Rules, as well as the costs of work for disconnection of facilities and structures.

49) Street water intake facilities (standpipes, booths) shall be operated by the Company or customer depending on their economic control. Proximity to a water intake facility prohibits any party from laundering, washing cars and scrubbing animals; connecting pipes and hoses to water intake facilities; and carrying out other activities contradictory to sanitary requirements.

50) A Company may temporarily authorize water supply of
facilities under construction; trade organizations operating only in the summer time; and road infrastructure facilities and amenities of populated areas according to a schedule agreed upon with local authorities upon the recommendation of the Company.

51) A permit for use of a temporary water supply line is issued for no more than one year. Upon expiry of this term, a permit should be renewed in agreement with the Company and by decision of local executive authorities.

52) It is not allowed to connect temporary water supply lines to wells with standpipes and fire hydrants.

53) A Company may authorize temporary connection to water supply networks and equipment that are both under the economic control of the Company and customers. Water pipelines outside buildings should be laid in the ground. Open water pipeline structures are allowed only for summer water supply lines. Hereby, it is not allowed to lay pipes in street troughs and road side ditches.

54) The construction and operation of temporary water supply lines is carried out by the customer.

55) The connection of sub-customers to water supply and sanitation networks of a customer is made according to the procedure set forth in this section.

4. Installation and Operation of Drinking Water Supply and Wastewater Collection Metering Instruments

56) The supply of drinking water and collection of wastewater for all categories of customers should be carried out according to water metering instruments installed by companies operating water supply and sanitation systems. Provisions of this paragraph shall also

57) apply to networks and systems employed for fire extinguishing purposes (outdoor and indoor fire-extinguishing units).

58) Water metering instruments should meet the current standards of the Republic of Tajikistan and be certified by the Agency for Standardization, Metrology, Certification and Trade Inspection under the Government of the Republic of Tajikistan.

59) Water metering units should be placed in buildings and on premises with artificial or natural lighting and air temperature in the winter time no less than +4 C. The location of a water metering unit should be securely insulated from material storage places to avoid their spoilage in the event of water metering unit floods. The

premises of a water metering unit should be moisture-proof to prevent penetration of ground and rainwater, and it should have a convenient lockable entrance door to avoid access of unauthorized persons. Construction of transit sanitation lines, standpipes and outlets are not allowed on the premises of water metering units.

60) A contract concluded with a customer and Company for use of drinking water should specify the function and name of a person in charge of premises, safety of water metering equipment, integrity of water meter and bypass line valve seals, and storage place for keys to the entrance door. A water metering unit is under the economic control of the customer, and a water metering instrument is under the economic control of the Company.

61) Installation of a water metering instrument is only allowed after full preparation of the premises and equipment of a water metering unit, completion of all construction and assembly work therein, and a drawing up of an acceptance statement for the water metering unit.

62) Water metering instruments should be installed, operated and checked in accordance with the current regulatory documents. Upon expiry of a meter's service limit established by the current regulatory documents, a Company should install an appropriate new water metering instrument within one month.

63) Water metering instruments should be checked and sealed by the Agency for Standardization, Metrology, Certification and Trade Inspection under the Government of the Republic of Tajikistan or their authorized bodies at the expense of the Company. Installation and operation of unsealed water metering instruments is not allowed.

64) A customer shall be held liable for the safety and integrity of water metering instruments and their seals.

65) Customers shall immediately notify a Company of any troubles or disturbed performance of water metering instruments, broken/tampered seals or seal integrity violation.

66) State and departmental inspection and scheduled work for the maintenance of water metering instruments, being served by

and under the economic control of a Company, are carried out by representatives of the Agency for Standardization, Metrology, Certification and Trade Inspection under the Government of the Republic of Tajikistan or their authorized bodies at the expense of the Company.

67) Water metering instruments not intended for the settlement of accounts with a Company shall be operated and maintained by customers or sub-customers. A Company shall not consider the readings of these accounting instruments with customers.

68) Readings of water metering instruments intended for the settlement of accounts with customers shall be taken by customers and provided to the Company within the timeframe specified by contract.

69) A Company shall regularly check the accuracy of readings taken by customers and water consumption information provided by customers. If discrepancies are detected between the readings of water metering instruments and the information provided on water consumption, a Company shall resettle accounts for the period of the previous check.

70) When taking the readings of water metering instruments, a representative of the Company shall check the availability and integrity

71) of seals installed by the Company on water meters, bypass line valves of a water metering unit, hydrants and other water supply equipment situated on the customer's premises or being under a customer's economic control.

72) Customers shall provide access to representatives of a Company (with official IDs, when available) for: water metering units, all water supply and sanitation equipment, facilities and structures situated on the premises of a customer or being under a customer's economic control. If a customer fails to provide access to a representative of the Company to water metering instruments or a sealed valve to take the readings, the settlement of accounts will be made in accordance with Para 74) and 79) of these Rules.

73) In order to execute work on water supply and sanitation

networks, facilities and structures for removal or replacement of water metering instruments, a representative of the Company should have a work order and official ID. Without presentation of these documents, a customer should not allow inspection or execution of any work on a water metering unit, metering instruments on water supply and sanitation networks, facilities or structures.

5. Keeping Records of Drinking Water Supplied and Wastewater Received

74) The quantity of drinking water spent by a customer and wastewater received in a sanitation system is defined by the readings
of metering instruments. In cases where metering instruments are not available with domestic customers, the quantity of drinking water spent and wastewater received in a sanitation system is defined according to the current standards.

75) If a water meter is not operational and the seals of a water metering unit have been tampered with either by fault or negligence of a customer, the quantity of drinking water spent and wastewater received is defined in accordance with Para 74) and 79) of these Rules.

If a water meter is not operational by fault or negligence of the Public Utility Company, the quantity of drinking water spent and wastewater received is defined by a customer's average consumption for the last three months.

76) In cases of reluctance to install a metering instrument and in other cases stipulated by these Rules, the quantity of drinking water spent is defined by the throughput capacity of the pipe connected to a public water supply system, with water velocity equal to 1,5 m/s and actual time of the customer’s water supply from the last checked date by the Company. Hereby, the quantity of wastewater received is considered to be equal to the quantity of drinking water supplied that is calculated in accordance with this paragraph.

77) If a customer prevents a representative of the Company from having access to a metering instrument, the quantity of drinking water spent and wastewater received is defined in accordance with Para 74) and 79) of these Rules.

78) The quantity of wastewater discharged from customers into a sanitation system, in the absence of water metering instruments, is considered to be equal to the quantity of drinking water consumed.

79) If the quantity of wastewater being discharged is less than the quantity of drinking water spent by the customer from the water supply system, the customer shall provide the necessary calculations to the Company to justify the quantity of wastewater being discharged within a timeframe defined by the Company.

80) Customers, who are not connected to a water supply system of populated area, or who have another source of water, shall provide a Company with water flow meter readings data and other data necessary to calculate the actual quantity of wastewater discharged into a sanitation system within a timeframe defined by the Company.

81) If a customer fails to provide the data specified in Paragraph 78 of these Rules, the quantity of wastewater received from customers will be defined by the throughput capacity of a pipe connected to

82) a public sanitation system, judging from its line pack equal to

0.8 of daily operation and a wastewater velocity of V = 1,5 m/sec.

83) For unauthorized construction of facilities and structures for connection to water supply and sanitation networks, including equipment for connection to standpipes, fire hydrants and house service pipes, the quantity of drinking water spent and wastewater received is defined by the throughput capacity of the facilities and structures for connection in accordance with Para 74) and 79) of these Rules. Hereby, the time of unauthorized facilities use is defined from the actual start date of facility use. If it is not possible to define this date, the time of use is considered to be no

more than three months.

84) With the temporary use of water supply facilities (in cases specified in Para 50) and 51) of these Rules), in the absence of water metering instruments, the quantity of drinking water spent and the procedure for settlement of drinking water accounts is defined by the contract concluded between customer and Company.

6. Calculations for Use of Drinking Water and Collection of Watewater

85) The settlement of accounts with customers for drinking water supplied and wastewater received will be made using prices and tariffs in accordance with the current legislation and the contract concluded with the Company and customer. The settlement will cover readings of water metering instruments for the accounting period and data on the quantity of wastewater, or monthly water consumption norms.

86) The settlement of accounts with customers for drinking water supplied and wastewater received is made according to payment documents (bills) issued by the Company or customer in a manner prescribed for such category of customers.

87) The settlement of accounts with customers will be made according to timeframes specified by contract between a customer and Company.

84) The settlement of accounts with customers will be made on a cash or non-cash basis through banking institutions.

85) The settlement of accounts with customers, who use drinking water from street water intake facilities, will be made by paying bills issued by the Company.

86) If customers fail to pay bills within the established timeframe, a penalty will be imposed for every day of payment delay in accordance with the current legislation.

87) If customers fail to pay bills upon expiry of ten days, a Company shall disconnect the customer's premises equipment and structures for connection and stop the supply of drinking water and collection of wastewater.

88) The supply of drinking water and collection of wastewater will be resumed in order of priority after payment of debt by the consumer.

89) Liability for damages and other consequences that may be caused by the stopping of water supply (wastewater collection), in view of the Company having disconnected customer premises equipment and structures, shall rest with the customer.

90) If sub-customers are connected to a customer who has contractual relations with the Company, the settlement of accounts for drinking water supplied and wastewater received will be made by the sub-customer with the customer under their respective individual contracts.

91) The settlement of accounts with heat supply organizations for drinking water supplied to them for centralized hot water supply will be made for the whole quantity of drinking water supplied. The quantity will be defined by the readings of metering instruments and the corresponding quantity of wastewater equal to the quantity of drinking water supplied, and subject to tariffs according to the contract concluded with the Company and heat supply organizations.

92)

93) The quantity of wastewater paid for by a heat supply organization is reduced by the quantity of wastewater, the collection of which into sanitation systems is covered by contracts directly concluded with the customers of heat supply organization and the Company.

94) In the absence of metering instruments with heat supply organizations, the quantity of drinking water supplied for centralized hot water supply and the corresponding quantity of wastewater is defined in accordance with Para 74) and 79) of these Rules.

95) Mistakes made by a customer during self-guided invoicing

and bill payment are taken into consideration by the Company when found. If a mistake is found in the drinking water consumption records, the Company shall resettle accounts for the last accounting period.

96) If a customer's metering instrument is broken or damaged; the integrity of seals are violated thereon, or on other water supply equipment; or unauthorized construction of facilities and structures for connection to water supply and sanitation systems are detected; a Company, based on a statement drawn up according to Para 47) of these Rules, shall recover the applicable amounts in the following manner:

- from customers specified in Para 82), through a Company's issue of an additional bill for drinking water and wastewater received in accordance with Para 74) and 79) of these Rules;
- from customers specified in Para 83), through direct debiting of billing accounts based on payment documents issued by the Company for drinking water and wastewater received in accordance with Para 74) and 79) of these Rules.

97) When unauthorized construction of facilities and structures for connection to water supply and sanitation systems

98) y owners who are not customers are detected, a representative of the Company draws up a statement in accordance with Para 46) of these Rules and issues a bill (calculated according to Para 74) and 79) of these Rules) to their owner to pay for drinking water spent and wastewater received.

98) When leaving the premises occupied, changing the company details or legal status, a customer shall provide the Company with a 10- day notification and settle accounts for drinking water spent and wastewater received.

99) With the transfer of a facility to a new owner, the latter shall provide a written notification, within one month, to the Company assuming the consumer's obligations and concluded

contract with the Company.

100) If a customer fails to notify the Company of their departure from the premises occupied and transfer to a legal successor or owner, and the latter fails to notify the Company within an established time on assuming a consumer's obligations, the legal successor or owner shall be held liable for the use of water supply and sanitation systems. The settlement of accounts for drinking water spent and wastewater received is made in accordance with Para 74) and 79) of these Rules.

101) Water spent from a water supply system of a populated area for extinguishing fires with customers and facilities that are also customers of the Company, regardless of its departmental affiliation or ownership, shall be paid for by the customer or owner of the facility.

102) Payment documents for drinking water spent for fire extinguishing are issued by the Company to customers or owners of facilities based on data from fire authorities. The consumption of water for tactical drills, check of fire hydrant or indoor fire check operations shall be subject to payment.

103) Information on the quantity of water spent for internal fire extinguishing is provided by representatives of the consumer and

104) elevant fire service; external fire extinguishing, fire drills and check of hydrants are provided by representatives of the fire protection service and Company.

7. Conditions for Ceasing the Supply of Drinking Water and Collection of Wastewater

105) The supply of drinking water and collection of wastewater shall be carried out uninterruptedly, as stipulated by a contract concluded with the Company and customer, except for cases specified in Para 106) of these Rules.

The customer has no right, without a written authorization from the

Company, to stop supplying water to sub-customers.

106) Restrictions on drinking water supply to customers and regulation of drinking water supply mode are applied according to the procedure provided in the concluded contract between the Company and customer, except for cases specified in Para 106) and 107) of these Rules.

107) A company shall have the right, without securing prior approval from local executive authorities or prior notification of the customer, to cease in full or in part the supply of drinking water and collection of wastewater if it does not affect the quality of water supply and sanitation services to other customers in the following cases:

- poor technical status of water supply and sanitation networks, equipment or structures being served by or under the economic control of a customer, where a customer fails to meet Company requirements for the resolution of problems in operation as revealed by representatives of the Company;
- failure to fulfill obligations before a Company on the development, reconstruction or replacement of networks and structures of water supply and sanitation systems;
- a customer prevents access of an official from the Company to inspect a water metering unit, water supply and sanitation
- networks, equipment and structures thereon; control and take the readings of water metering instruments; make on-site measurements and take wastewater samples; and carry out other types of work by work orders of the Company;
- a Company carrying out scheduled preventive repairs and works for the maintenance of water supply and sanitation networks and equipment, to which a customer is connected, and for connecting new customers;
- unauthorized facilities and structures are detected, for the connection of a customer to water supply and sanitation systems or networks being served by and under the economic control of the customer, and when a customer has not concluded or has not extended a contract with the Company;
- failure of a customer to pay a bill within an established timeframe;

- a customer denies a connection of sub-customers who received authorization from the Company for the connection to water supply and sanitation systems under the economic control of customer, as well as the order of regional offices of the State Sanitary and Epidemiological Surveillance Service of the Ministry of Health of the Republic of Tajikistan;
- failure of a customer to observe the terms of a concluded contract with the Company for prescribed limits of drinking water supply, and failure of a customer to observe the terms for quantity and composition of wastewater being discharged.

108) Ceasing the supply of drinking water to heat supply sources (boiler plants, central heat supply stations) that do not have backup water supply sources, during heating season, is only allowed with permission from local executive authorities;

109) A Company shall have the right to cease, in full or in part, the supply of drinking water and collection of wastewater without prior notification of the customer in the following cases:
- power supply shutdown in the Company;
- natural disasters and big accidents, including the abrupt deterioration of water quality in the water source because of pollution and contamination;
- necessity to increase drinking water supply to fire origin points.

110) With regular disruptions of drinking water supply, due to insufficient capacity of a water supply system, a Company shall, in coordination with local executive authorities, organize the supply of drinking water to particular places of a populated area on schedule with the mandatory notification of customers on water supply modes. Hereby, a Company shall develop and implement necessary measures to fix any problems preventing the normal water supply of customers.

111) With the complete cessation of drinking water supply, regardless of cause, a Company, in collaboration with local executive

authorities, shall consider arrangements for temporary water supply to a population until the drinking water supply is resumed.

112) A Company should notify a district fire station of each case of partial or full cessation of water supply to a facility that has outdoor or indoor firefighting water networks.

8. Obligations and Liability of Company and Customers

113) A Company shall provide for the water supply of customers, collection and disposal of wastewater in accordance with concluded contracts, provided that all connected customers use water supply and sanitation equipment, facilities and networks in accordance with these Rules.

114) A Company shall not be held liable for disrupted water supply of customers caused by:

- restrictions or the cessation of drinking water supply for reasons specified in Para 106) of these Rules, fault of the customer.

115) A Company shall:

- regularly supervise the status and operation of water supply and sanitation networks, structures and equipment of customers connected to water supply and sanitation systems, as well as provide practical assistance to customers in the arrangement of proper operation;
- regularly control water losses, detect leakages and wasteful use of water by customers; strictly control and keep records of water supply and consumption; regularly control for compliance with drinking water supply and wastewater discharge limits, and contaminant discharge standards;

- call on customers to reduce, in every possible way, the

consumption of drinking water for production purposes by introducing cost-effective process cycles, partial or full water rotation, use of service water or polished effluents, and switching over to water-free process cycles;

- practice strict accounting; notify the regional offices of the State Sanitary and Epidemiological Surveillance Service of the Ministry of Health of the Republic of Tajikistan and structural units of the Environment Protection Committee under the Government of the Republic of Tajikistan of accidents in water supply and sanitation structures, identified cases of non-conformance of drinking water quality, and increased concentration of contaminants in wastewater discharged into sanitation systems that pose a threat to public health;
- notify consumers through mass media of Company performance, status of structures, measures for reduction of water losses, etc., and implementers of these measures.
-
- a Company shall have a special permit for water use issued by an authorized ad hoc state agency that regulates water use and protection;

- a Company that has a sanitation system shall submit, whenever possible, final standard wastewater analysis to structural units of the Environment Protection Committee under the Government of the Republic of Tajikistan for approval.

116) Customers shall:
- conclude contracts in a timely manner with a Company and unconditionally fulfil contractual obligations including promptly and accurately take readings of water metering instruments and paying bills;
- provide consistent protection of water supply and sanitation networks and equipment situated on the customer's premises; prevent their destruction, flooding and freezing up; remove ice and snow from manhole covers; protect the integrity and safety of

seals installed by the Company; ensure surface runoff drainage from manholes; avoid obstruction of entrances and fire hydrants and protect the integrity of fire hydrants;

- prevent the pile up of various objects and materials, and the erection of any structures above water supply and sanitation networks and equipment situated on a customer's premises or under the economic control of a customer;

- immediately notify the Company of all detected damages or deficiencies of water supply and sanitation systems, facilities and equipment, and protect sites of damage until the arrival of Company representatives.
- prevent excessive drinking water consumption and over-limit wastewater discharge;
- control the consumption of drinking water by sub-customers and take measures for the reduction of all types of drinking water losses;
- provide for the proper maintenance of water supply and sanitation networks, structures and equipment served by and under the economic control of the customer;
- prevent unauthorized persons from executing any type of work on a water metering unit, water supply and sanitation network situated on the premises of a customer;
- prevent unauthorized persons from opening manhole (chamber) covers and descending therein;
- prevent the discharge of rainwater and thaw water into a sanitation network situated on the premises of a customer or under the economic control of customer;

Customers who fail to perform the obligations provided in these Rules and contract shall be held materially liable to the extent and in the amount required by contract.

117) A customer shall be held liable for completeness, safety, operating capacity and normal technical status of any and all shutoff devices that prevent flooding in basements during accidents in sanitation networks.

118) In the case of basement floodings caused by the lack of valves, leaky cleanout pipes, poor technical condition of plumbing fixtures, sanitation networks, facilities and equipment under the economic control of the customers, the liability for any damage inflicted shall rest with the customer, regardless of whether the accident (clogging, flooding) happened in the sanitation networks of the customer or Company.

119) A customer shall be held liable for the integrity and safety of Company seals on water metering instruments (bypass line valve, emergency water valves, hydrants and other water supply equipment) employed for the settlement of Company accounts for drinking water consumed on the premises of the customer or under the economic control of the customer.

120) The break of seals on emergency water valves and hydrants is allowed during:

- tests of operational performance of firefighting water supply systems and fire pumps after agreement with the Company;
- fire extinguishing and acceptance tests of a firefighting water supply system by fire protection authorities without notification of the Company.

121) Upon completion of use of a firefighting water supply system, a customer shall submit, within one day, to the Company a statement on the break of seals and call for a representative of the Company to reseal the valves.

122) Owners of street water intake facilities intended for collective use shall:

- provide principles and options for their use;

- prevent the laundering, washing of cars, scrubbing of animals and connection of pipes and hoses to standpipes near water intake facilities, as well as control the malfunctioning of water intake facilities, safety of their parts and observance of sanitary requirements;
- prevent wasteful spillover of drinking water,

puddling and icing;
- maintain good condition of drainage systems and approaches to water intake facilities, and break away ice in the winter time.

123) Individuals and legal persons found responsible for damage to water supply and sanitation networks, structures and equipment thereon shall be held materially liable for damage inflicted to the organization according to Company charges and applicable legislation.

Companies and organizations that have damaged facilities of water supply and sanitation systems, or have failed to prevent the

emergency discharge of contaminants or toxic substances shall:
- immediately notify the Company and regional offices of the State Sanitary and Epidemiological Surveillance Service of the Ministry of Health of the Republic of Tajikistan;
- repair damages and consequences using their own resources and at their own expense, under technical supervision of the Company;
- recover damages arising in connection with these damages and their consequences;
- remunerate the Company for the cost of drinking water lost as a result of damages;

The calculation of the quantity of drinking water lost is made according to Para 74) and 79) of these Rules.

124) Persons found guilty for violating the established procedure for protection of water supply and sanitation networks, facilities and equipment shall be held liable in accordance with the applicable legislation.

125) For damage inflicted by leakages of drinking water or wastewater from water supply or sanitation networks under the economic control of a Company, a Company shall be held liable in accordance with the procedure established by legislation of the Republic of Tajikistan.

Annex № 1 to Public Water Supply and Sewer Usage Rules in the Republic of Tajikistan

Norms of
water consumption from public water supply and sanitation system; with the consideration of warm and dry climates of districts, water consumption norms for public needs may be increased or decreased by 10-20%

List of Consumers	Types of Consumption	Unit of Consumption	Water Consumption Rate, litre	Remarks
Common-use standpipes (street)	1. Consumption from street standpipes	1 person/day	50	
	2. Consumption from yard taps and standpipes (multi-family houses)	1 person/day	95	
Houses	1. With domestic water supply and plumbing (without bath)	1 person/day	130	
	2. With domestic water supply and plumbing (with bath and gas)	1 person/day	150	
	3. With domestic water supply and plumbing, baths, solid-fuel heaters	1 person/day	180	
	4. The same, with instantaneous gas and electric heaters that have	1 person/day	300	

	multi-point water draws-off	1 person/day	270	
	5. Houses with centralized hot water supply equipped with wash stands, kitchen sinks and showers	1 person/day	320	
	6. The same as in Para 4, but with sitting baths	1 person/day	360	
	7. The same as in Para 4, but with baths, L = 1500- 1700mm, equipped with	1 person/day	480	
Admin. buildings	1. Water consumption from common-use water faucets per one worker	per day per day	12 30	
	2. The same, with domestic water supply	$100m^2$ /day	80	
Schools	1. Water consumption from yard standpipes for 1 pupil teacher	per shift per shift	12 15	
	2. With domestic water supply 1 teacher	1 person/day 1 person/day	100 110	
	3. Schools, boarding schools and houses for homeless with domestic water supply and			
	4. School camps (with domestic water supply plumbing)			

Kinder gartens nurseries	1. Only daytime care 2. Day and night care	1 person/shift 1 person/shift	33 121	
Sanatorium resorts, rest homes	1. With baths in all rooms 2. With showers in all rooms	1 bed/day 1 bed/day	320 150	
Hotels	1. With common baths showers 2. With baths and in rooms 3. With baths and in separate rooms	1 bed/day 1 bed/day 1 bed/day	120 300 360	
Saunas	1. Bathing with tub 2. In separate shower cubicles baths	1 person 1 person 1 person	180 360 540	
Laundries	1. Hand washing 2. Machine washing	1kg of dry line 1kg of dry	n 55 n 10	
Cinema theatres	For 1 cinemagoer/1session	1 seat	5	
Houses of culture. recreations clubs, theatres, circuses	1. For 1 2. For 1 public figure	1 seat 1 public figure	15 65	
Photo graphy	1. With indoor water faucet	1 faucet/hour	250	
Out-patient	1. For one patient	1 person/shift	18	

Chemists	With trade hall and ancillary premises	1 worker	17	
Hospitals	1. With centralized water supply and WCs 2. With centralized water supply and WCs (infectious disease	1 bed 1 bed	290 350	
Labs	1. Chemical laboratories in schools and universities 2. Chemical laboratories in	1 device/shift 1 worker/shift	336 520	
Vet clinics	1. Cattle care 2. Small cattle care	1 head 1 head	100 60	
Fountains	1. Small diam. 13-25mm for 1 hour 2. Medium diam. 25-50 mm for 1 hour 3. Big diam. 50-150mm for 1 hour 4. Sprinkler truck, 1	piece piece piece piece	10000 25000 35000 200	
Barber shops	1.1 workstation with washstand per shift 2. 1 workstation without washstand per shift	1 seat 1 seat	99 25	
Swimming pools, fire tanks	1. By volume 2. Replenishment of water spent and evaporated, in % of the total	m^3 % per day	15	

Public lavatories with sewerage	1. Public lavatory	By throughput capacity of pipe per day		
Sales outlets for soda shops	1. Soda water sales	1 faucet	800	
	2. Juice, lemon soda, mineral water sales for 1 hour	1 faucet 1 person	500 20	
	3. Small food & goods sales outlets that have no indoor water supply	1 faucet	50	
	4. Small food & goods sales outlets that have indoor water for 1 hour			
Canteens, restaurants, tea houses, bread bakeries	1. Preparation of one course	1 course	12	
	2. All types of courses	1 faucet	500	
	3. Coffee shops, canteens, bread bakeries, sales outlets for confectioneries	1 faucet 1 course	25 15	
	4. Canteens, snack			
Stadiums, sports facilities	1. For one sportsman, with use of shower	1 person	50	
Irrigation,	1. Watering of streets,	$_m2$	6	

watering	avenues, yard and sports grounds, per day (for 1 sprinkling/watering) 2.Watering of sports grounds per day (for 1 time) 3. Irrigation of gardens, flower beds, melon	m^2 m^2	1.5 30	
Garages, car wash	1. Truck wash, per day 2. Car wash, per day 3. Bus wash. per day 4. Motorcycle & scooter wash, per day	1unit 1unit 1unit 1unit	100 60 250 25	
Farming (livestock)	1. Cattle, per day 2. Small cattle	1 head 1 head	120 25	
Water consumed by workers and officers of industrial entities	1. Per one worker, per shift	1 person	25	

Note:

1. If particular water consumption norms are unavailable, it is necessary to install water metering instruments on construction sites, in construction material plants, in concrete grout and mortar preparation workshops and paint manufacturers; in the absence of water

metering instruments, water consumption accounting is completed according to table data for throughput capacity of pipes (point of connection).

2. Water consumption norms for irrigation of plantations and lawn areas are relevant from May 1 until October 31, except for cases when year-round irrigation is foreseen.

3. Water consumption norms for workers and officers of industrial entities do not include the use of showers, which is considered separately.

4. At public catering facilities: cafes, restaurants, canteens, sales outlets, etc., the rate reflects the preparation of a single course. Rate calculations for dish washing, domestic and utility needs of workers and officers are considered separately.

5. For snack bars, sales outlets and canteens in theatres, cinemas, health centers, child and education institutions, water consumption is defined separately.

6. Industrial water consumption norms only consider the production of goods. Water consumption for drinking, workers' household utility needs and shower (sprinkling) facilities is considered separately.

7. If houses, trade fairs, schools, universities, sales outlets, hospitals, child centers (kindergartens), administrative buildings, transport and industrial entities have yard flush latrines, their water consumption is considered separately.

8. Water consumption for shower (watering/sprinkling) needs is relevant from May 1 until October 31. If water inspectors find yard taps or water intake facilities with leaks due to malfunction or wasteful water use, payment for water consumed will apply to the entire accounting period.

The quantity and nature of leaks is defined by water inspectors from the Company to be evidenced by a registration entry in the report card. In controversial cases, the above-limit water consumption is subject to immediate measurement and consideration.

9. Water consumption norms for food shops, confectionery factories and grocery stores do not include water consumption for floor washing.

10. If the climate is warm and dry, water consumption norms may be increased or decreased by 10-20%.

With the availability of a centralized hot water supply, water consumption norms shall decrease (for hot water used) by 105 l, while collection and disposal of wastewater will remain the same.

Water consumption norms from a public water supply system for one person per month in private houses, with the availability of:

- summer shower – 1,8 m^3/person, car – 1,8 m^3,

watering of trees and plantations – 360 l/m^2.

Water consumption norms for public settings:

- watering of trees, gardens, flowerbeds, melon fields, plantations – 360 l/month for 1 m^2, watering of glasshouses – 60 l/day for 1 m^2.

For the irrigation and watering of plantations, in coordination with local executive authorities, the Company may allow watering from 24:00 until 06:00 with payment for water consumed according to tariffs.

Annex № 2 to Public Water Supply and Sewer Usage Rules in the Republic of Tajikistan

Table of
throughput capacity of pipes, with water velocity
V = 1,5 m/sec, by cross area

№	Pipe Diam., mm	Flow Rat m^3/hour	e Flow Rate m^3/day	Flow Rate m^3/9 hours	Flow Rate m^3/22 working days
1.	d- 15mm	0,94	22,5	8,46	186,12
2.	d- 20mm	1,73	41,5	15,57	342,54
3.	d- 25mm	2,88	69,0	25,92	570,24
4.	d- 32mm	5,18	124,3	46,62	1025,64
5.	d- 40mm	6,84	164,2	61,56	1354,32
6.	d- 50mm	11,52	276,5	103,68	2280,96
7.	d- 70mm	19,10	458,4	171,9	3781,8
8.	d- 80mm	27,0	648,0	243,0	5346,0
9.	d- 100mm	46,8	1123,2	421,2	9266,4
10.	d- 125mm	72,0	1728,0	648,0	14256,0
11.	d- 150mm	106,2	2549,0	955,8	21027,6
12.	d- 200mm	165,5	3972,0	1489,5	32769,0

Annex № 3 to Public Water Supply and Sewer Usage Rules in the Republic of Tajikistan

Table of
throughput capacity of pipes, with water velocity V = 2,0 m/sec, by cross area

№	Pipe Diameter mm	Flow Rate m^3/hour	Flow Rate m^3/day	Flow Rat m^3/9 hours	e Flow Rate m^3/22 working
1.	d- 15mm	1,3	31,0	11,7	257,4
2.	d- 20mm	2,3	55,0	20,7	456,4
3.	d- 25mm	4,0	96,0	36	792
4.	d- 32mm	6,8	163,0	61,2	1346,4
5.	d- 40mm	9,0	216,0	81	1782
6.	d- 50mm	15,5	372,0	139,5	3069
7.	d- 70mm	25,0	600,0	225	4950
8.	d- 80mm	36,0	864,0	324	7128
9.	d- 100mm	61,0	1464,0	549	12078
10.	d- 150mm	136,8	3283,2	1231,2	27086,4
11.	d- 175mm	162,0	3888,0	1458	32076
12.	d- 200mm	248,0	5952,0	2232	49104
13.	d- 250mm	381,6	9158,4	3434,4	75556,8

14.	d- 300mm	547,2	13132,8	4924,8	108346,6
15.	d- 350mm	748,8	17971,2	6739,2	148262,4
16.	d- 400mm	964,8	23155,2	8663,2	191030,4
17.	d- 450mm	1224,0	29376,0	14016	242352
18.	d- 500mm	1512,0	36288,0	13608	299376
19.	d- 600mm	2160,0	51840,0	19440	427680
20.	d- 700mm	2808,0	67392,0	25272	555984
21.	d- 800mm	3672,0	881123,0	33048	727056
22.	d- 900mm	4608,0	110592,0	41472	912374
23.	d- 1000mm	5688,0	136612,0	51492	1126224

STATE STANDARD OF THE UNION OF SSR
DRINKING WATER
HYGIENIC REQUIREMENTS AND QUALITY CONTROL GOST 2874-82
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S T A T E S T A N D A R D O F T H E U N I O N O F S S R

ВОДА ПИТЬЕВАЯ **Гигиенические требования и контроль за качеством** Drinking Water. Hygienic Requirements and Quality Control	**GOST 2874-82**

This Standard applies to drinking water supplied by centralized drinking and utility water supply systems, as well as by centralized water supply systems that supply water both for drinking and utility, and industrial purposes, and establishes hygienic requirements and drinking water quality control.

The Standard does not apply to water with non-centralized use of local sources without a distribution pipe network.

1. HYGIENIC REQUIREMENTS

1.1. Drinking water should be safe from epidemic risks, have a harmless chemical composition, and have favourable organoleptic properties.

1.2. Water quality is defined by its composition and properties at the entry of a water supply network, or exit at water draw-off points of outdoor and indoor water supply networks.

1.3. Microbiological water indicators

1.3.1. Water safety, concerning epidemic risks, is defined by the total count of microorganisms and coliform bacteria.

1.3.2. By microbiological indicators, drinking water should meet requirements specified in Table. 1.

Table 1

Indicator	Standard	Test Method
Count of microorganisms in 1 cm^3 of water, no more than	100	acc. to GOST 1896337
Count of coliform bacteria in 1 dm^3 of water (coli index), no more than	3	acc. to GOST 189633-87

1.4. Toxicological water indicators

1.4.1. Toxicological indicators of water quality characterize the safety of water chemical composition and include standards for substances:
occurring in nature;
added as reagents to water in the process of water treatment;
appearing as a result of industrial, agricultural, domestic and other
contamination of water supply sources.

1.4.2. Concentration of chemical substances occurring in natural water or added to water in the process of water treatment should not exceed the rates specified in Table. 2.

Table 2

Chemical Substance	Standard	Test Method
Aluminium, residual (Al), mg/dm^3, max.	0,5	acc. to GOST 18165-89
Berillium (Be), mg/dm^3, max.	0,0002	acc. to GOST 18294-89
Molybdenum (Mo), mg/dm^3, max.	0,25	acc. to GOST 18308-72
Arsenium (As), mg/dm^3, max.	0,05	acc. to GOST 4152-89
Nitrates (NO_3), mg/dm^3, max.	163 45,0	acc. to GOST 18826-
Polyacrylamide, residual	2,0	acc. to GOST 19355-85

Chemical Substance	Standard	Test Method
Plumbum (Pb), mg/dm^3, max.	0,03	acc. to GOST 18293-72
Selenium (Se), mg/dm^3, max.	0,01	acc. to GOST 19413-89
Strontium (Sr), mg/dm^3, max.	7,0	acc. to GOST 23950-88
Fluorine (F), mg/dm^3, max. for climatic areas:		acc. to GOST 4386-8
I and II	1,5	
III	1,2	
IV	0,7	

(Revised Edition, Rev. № 2).

1.5. Organoleptic water indicators

1.5.1. Indicators that provide for favourable organoleptic water properties and include standards for substances:
occurring in nature;
added as reagents to water in the process of water treatment; appearing as a result of industrial, agricultural and domestic
contamination of water supply sources.

1.5.2. Concentration of chemical substances which impact organoleptic water properties, occurring in natural water or added to water in the process of water treatment, should not exceed the rates specified in Table. 3.

Table 3

Indicator	Standard	Test Method
Hydrogen ion concentration, pH	6,0-9,0	Measured by pH-meter of any brand, with pH glass electrode, accuracy of measurement does not exceed 0,1 pH
	0,3	acc. to GOST 4011-7
		acc. to GOST 4151-7

Ferrum (Fe), mg/dm^3, max.	2
Total hardness, mol/m^3, max.	2

Indicator	Standard	Test Method
Manganese (Mn), mg/dm^3, max.	0,1	acc. to GOST 4974-72
Cuprum (Cu^{2+}), mg/dm^3, max.	1,0	acc. to GOST 4388-72
Polyphosphates, residual (PO^{3-}_4), mg/dm^3, max.	3,5	acc. to GOST 18309-72
Sulphates (SO_4^{--}), mg/dm^3, max.	500	acc. to GOST 4389-72
Dry residue, mg/dm^3, max.	1000	acc. to GOST 18164-72
Chlorides (Cl^-), mg/dm^3, max.	350	acc. to GOST 4245-72
Zinc (Zn^{2+}), mg/dm^3, max.	5,0	acc. to GOST 18293-72

Notes:

1. For water supply lines supplying water without special treatment, sanitary and epidemiological service agencies allow for: dry residue up to 1500 mg/dm^3, total hardness up to 10 mol/ m^3, Fe up to 1 mg/dm^3; Mn up to 0,5 mg/dm^3.
2. Total concentration of individual portions of chloride and sulphate should not exceed a maximum permissible concentration of 1.

(Revised Edition, Rev. № 1).

1.5.3. Organoleptic water properties should meet the requirements specified in Table. 4.

Table 4

Indicator	Standard	Test Method
Odor with 20 °C, and with heating to 60°, score points, max.	2	acc. to GOST 3351-74
Taste and flavor with 20 °C, score points, max.	2	acc. to GOST 3351-74
Water color index, degrees, max.[a]	20	acc. to GOST 3351-74
Water turbidity, by standard scale, mg/dm^3, max.	1,5	acc. to GOST 3351-74

Note: In coordination with sanitary and epidemiological service agencies, it is allowed to increase water color index up to 35°; turbidity (in high-water time) up to 2 mg/dm^3.

(Revised Edition, Rev. № 1).

1.5.4. Water shall not contain any aquatic species and shall be free of a surface film as detectable by an unaided eye.

1.6. Concentrations of chemical substances not specified in Tables 2 and 3, but present in water as a result of industrial, agricultural and domestic contamination, shall not exceed maximum permissible concentrations approved by the Ministry of Health of the USSR for water from reservoirs intended to satisfy public drinking, domestic and utility needs that maintain organoleptic, sanitary and toxicological qualities, as well as Radiation Safety Standards, NRB-76/87. If such substances are detected in water, with the same limiting nuisance value, the total ratios of concentrations detected in water and their maximum permissible concentrations shall not exceed 1. Calculation is made according to formula:

(Revised Edition, Rev. № 2)

$$\frac{C_1}{ПДК_1}+\frac{C_2}{ПДК_2}+\ldots\frac{C_n}{ПДК_n}\le 1,$$

where $C1$, $C2$, Cn – are detected concentrations, mg/dm^3.

2. WATER QUALITY CONTROL

2.1. Institutions and organizations in charge of centralized drinking and utility water supply systems and waterworks facilities, that supply water for drinking, utility and industrial purposes, shall permanently control the piped water quality at draw-off points, network entry points, as well as the distribution network according to the requirements of this section.

2.2. Sampling methods - acc. to GOST 24481-80 and GOST 18963-73.

2.3. Laboratory and production control of water draw-off points shall be exercised according to the requirements of GOST 2761-84; a list of indicators shall be agreed upon with sanitary and epidemiological service agencies upon review of

local natural and sanitary conditions.

For water supply lines with an underground water supply source, water shall be tested at least four times (by season) during the first year; following the first year, water shall be tested at least once a year in the most unfavourable time according to previous findings.
In water supply lines with a surface water supply source, water shall be tested at least once a month.
2.4. Laboratory and production control of water quality shall be analysed for microbiological, chemical and organoleptic indicators before entry into the network
2.4.1. Microbiological tests shall be conducted in line with the indicators established in Table. 1.
In water supply lines with an underground water supply source that has not be decontaminated, water shall be tested:
at least once a month – with a population up to 20000 people;
at least twice a month – » » » up to 50 000 people;
at least once a week – » » » more than 50000 people; with decontamination:
once a week – with a population up to 20000 people;
three times a week – » » » up to 50000 people;
every day – » » » more than 50000 people.
In water supply lines with a surface water supply source, water shall be tested:
at least once a week, and every day in spring and autumn time – with a population up to 10000 people;
at least once a day - more than 10000 people.
2.4.2. With controlled water decontamination by chlorine and ozone in water supply lines with underground and surface water supply sources, concentration of residual chlorine and residual ozone shall be determined at least once every hour acc. to GOST 18190-72 and GOST 18301-72.
2.4.3. Concentration of residual chlorine in water, after clean water
cisterns, should be within the range specified in Table. 5.

Table 5

Chlorine, residual	Concentration of residual chlorine, $мг/дм^3$	Time appropriate for contact of chlorine with water, min, at least
1. Free	0,3-0,5	30
2. Fixed	0,8-1,2	60

Note: Given the simultaneous presence of free and fixed chlorine, with a concentration of free chlorine exceeding 0,3 mg/dm^3, control

shall be exercised according to sub-section 1; with a concentration of free chlorine less than 0,3 mg/dm^3, control shall be exercised according to sub-section 2.

2.4.4. In cases, by order of sanitary and epidemiological service agencies, or in coordination with them, an increased concentration of residual chlorine in water is allowed.

2.4.5. With water ozone treatment, for decontamination purposes, the concentration of residual ozone (after the mixing chamber) should be 0,1-0,3 mg/dm^3 with a guaranteed contact time of at least 12 min.

2.4.6. If it is necessary to control for biological fouling in the water supply network, chlorine feeding points and chlorine doses shall be agreed upon with sanitary and epidemiological service agencies.

2.5. Chemical water tests shall be conducted according to indicators established in Tables. 2 and 3 (except for residual quantities of reagents), as well as Para 1.6. A set of indicators and sampling schedule shall be agreed upon by sanitary and epidemiological service agencies upon review of local natural and sanitary conditions.

2.5.1. Laboratory and production control of residual quantities of reagents and substances removed by water treatment in water supply lines shall be excised with a methodology respective to the nature of treatment. The removal shall be completed in accordance with a schedule agreed upon with sanitary and epidemiological service at least once a shift.

2.6. Organoleptic indicators specified in Table. 4 shall be defined during testing of all samples (apart from samples for residual chlorine and ozone) taken from water supply lines from both underground and surface sources.

2.7. Laboratory and production control of the distribution network shall be analysed for the following indicators: coli index, total count of microorganisms in 1 cm^3, water turbidity, color index, odor, taste and flavor.

If microbial contamination is detected in excess of allowable

standards, the cause will be determined by repeated sampling and additional surveys for the presence of bacteria – indicators of recent fecal contamination acc. to GOST 18963-73, mineral nitrogen-containing substances acc. to GOST 4192-82 and GOST 18826-73; chlorides acc. to GOST 4245-72.

2.7.1. Samples from the distribution network shall be taken from street water intake facilities that feature the quality of water in water supply mains, from the most elevated to terminal sections of the street distribution network.

2.7.2. Samples shall also be taken from the faucets of indoor water supply networks of all houses that have booster pumps and local elevated water storage tanks.

2.7.3. Total number of test samples in the mentioned sections of distribution network shall be agreed upon with sanitary and epidemiological service agencies and meet the requirements of Table. 6.

Table 6

Number of population covered by services, people	Minimum number of samples taken across distribution network for one month
Up to 10000	2
Up to 20000	10
Up to 50 000	30
Up to 100000	100
More than 100000	200

The number of samples does not include mandatory control samples to be taken after repairs and rehabilitation of a water supply line or distribution network.

2.8. State sanitary supervision of the water quality of centralized drinking and utility water supply systems shall be exercised by a program and within timeframes established by local sanitary and epidemiological service agencies.

INFORMATION DATA

1. DEVELOPED AND SUBMITTED by the Ministry of Health of USSR DEVELOPERS: K. I. Akulov, V. T. Mzaev, A. A. Koroliyov, T. G. Shlepnina

2. APPROVED AND ENACTED by Resolution of Standards Committee as of 18.10.82, №3989

3. REPLACED GOST 2874-73

4. REFERENCE REGULATIONS, SPECIFICATIONS & STANDARDS

Referenced Document	№ of Paragraph	Referenced Document	№ of Paragraph
GOST 2761-84	P. 2.3	GOST 18190-72	P. 2.4.2

Referenced Document	№ of Paragraph	Referenced Document	№ of Paragraph
GOST 3351-74	P. 1.5.3	GOST 18293-72	P. 1.4.2, 1.5.2
GOST 4011-72	P. 1.5.2	GOST 18294-89	P. 1.4.2
GOST 4151-72	P. 1.5.2	GOST 18301-72	P. 2.4.2
GOST 4151-89	P. 1.4.2	GOST 18308-72	P. 1.4.2
GOST 4192-82	P. 2.7	GOST 18309-72	P. 1.5.2
GOST 4245-72	P. 1.5.2, 2.7	GOST 18826-73	P. 1.1.2, 2.7
GOST 4386-89	P. 1.4.2	GOST 18963-73	P. 1.3.2, 2.2, 2.7
GOST 4388-72	P. 1.5.2	GOST 19155-85	P. 1.4.2
GOST 4389-72	P. 1.5.2	GOST 19413-89	P. 1.4.2
GOST 4974-72	P. 1.5.2	GOST 23950-88	P. 1.4.2
GOST 18164-72	P. 1.5.2	GOST 24481-80	P. 2.2
GOST 18165-89	P. 1.4.2		

5. Validity term is extended until 01.01.95 by Resolution of Gosstandart of USSR as of 27.06.89, № 2098

6. RE-ISSUED (October 1992) with Modifications № 1, 2, approved in June 1988, September 1989 (IUS 11-88, 1-90)

State Sanitary and Epidemiological Surveillance Service of the Republic of Tajikistan
State Sanitary and Epidemiological Regulations and Standards

Drinking Water. Hygienic Requirements to Water Quality of Centralized Drinking Water Supply Systems. Quality Control.

Sanitary Regulations and Standards SanPiN 2.1.4.004-07

Ministry of Health Republic of Tajikistan Dushanbe, 2007

"APPROVED"
Chief Public Health Physician Republic of Tajikistan
_____A.
Mirzoev "_____" _____
_____2007.

SANITARY REGULATIONS AND STANDARDS

Drinking Water. Hygienic Requirements to Water Quality of Centralized Drinking Water Supply Systems. Quality Control. SanPiN 2.1.4.004-07

Drinking Water.
Hygienic Requirements for the Water Quality of Centralized Drinking Water Supply Systems. Quality Control.

1. General Provisions

1.1. These Sanitary Regulations and Standards have been developed in accordance with the Law of the Republic of Tajikistan "Concerning Provisions for the Sanitary and Epidemiological Safety of Population" (Articles 5 and 38) and Regulations on the Ministry of Health of the Republic of Tajikistan (Paragraph 7) approved by
Resolution of the Government of the Republic of Tajikistan as of
December 28, 2006, № 603.

1.2. Sanitary Regulations and Standards "Drinking Water. Hygienic Requirements to Water Quality of Centralized Drinking Water Supply Systems. Quality Control" (hereinafter referred to as the Sanitary Regulations) establishes hygienic requirements for the quality of drinking water, as well as water quality control regulations for water produced
and supplied by centralized drinking water supply systems of populated
areas (hereinafter referred to as water supply systems).

1.3. Sanitary Regulations are intended for executive authorities and local governments, companies, organizations, institutions and other legal persons (hereinafter referred to as organizations), public officials, citizens (entrepreneurs, without establishing a legal person, the activity of which relates to design, construction, operation of water supply systems and supply of drinking water to a population) and organizations that exercise state and departmental sanitary and epidemiological supervision.

1.4. Sanitary Regulations shall apply in respect to water supplied by water supply systems and intended for public consumption for drinking and domestic purposes, for use in raw food conversion and food production processes, storage and sales of

food products, as well as for the manufacturing of products that require the use of drinking quality water.

1.5. Hygienic requirements for the quality of drinking water, with non-centralized water supply, are established by other regulatory instruments.

1.6. Hygienic requirements for the quality of drinking water produced by autonomous water supply systems, in particular water treatment facilities, then sold to a population in bottles or containers, are established by specialist sanitary regulations and standards.

1.7. Requirements of these Sanitary Regulations should be met with development of state standards, construction codes in the field of public drinking water supply, design and technical documentation of water supply systems, and construction and operation of water supply systems.

1.7.1. The quality of drinking water supplied by water supply systems should meet the requirements of these Sanitary Regulations.

1.7.2. Indicators that feature regional peculiarities of drinking water chemical composition are established individually for each water supply system in accordance with the regulations specified in Annex 1.

1.7.3. Based on the requirements of these Sanitary Regulations, organizations that operate water supply systems shall develop a work program of water quality production control (hereinfter referred to as a work program) in accordance with the regulations specified in Annex 1. The work program shall be agreed upon by a city or district center of the State Sanitary and Epidemiological Surveillance Service (hereinafter referred to as the Center) and approved by relevant local government.

1.7.4. If accidents or malfunctions occur in water supply facilities and structures that result in or may result in deterioration of

drinking water quality and public water supply condition, the organization that operates the water supply systems shall immediately take measures for their resolution and notify the Center thereof.

An organization that exercises drinking water quality production control shall also immediately notify the Center of each outcome of laboratory testing of water samples that does not meet relevant hygienic standards.

1.7.5. In cases related to natural phenomena that cannot be foreseen or in accidental situations that cannot be immediately
1.7.6. resolved, temporary deviations from hygienic standards of drinking water quality concerning indicators of chemical composition that impact organoleptic properties may be allowed.

1.8. Supply of drinking water to a population is not allowed or water use is suspended in the following cases:

- within an established validity term of temporary deviations from hygienic standards, factors that affect the quality of drinking water are not properly dealt with;
- the water supply system fails to ensure production and supply of drinking water to a population that would meet the quality requirements of these Sanitary Regulations, resulting in a real danger to public health.

1.8.1. The decision to forbid or restrict the public use of drinking water from a particular water supply system is made by the local government's chief public health physician for the concerned area. The decision is based on a risk assessment and public health risks, both related to continued use of water that does not meet relevant hygienic standards and prevention from, or restriction of, its use for drinking and domestic purposes.

1.8.2. If the decision is made by local government to forbid or suspend the use of drinking water, organizations that provide for the operation of water supply systems shall develop, in coordination with the Center, and implement measures aimed at detecting and resolving factors affecting the quality and supply of a population with water that would meet the requirements of these Sanitary Regulations.

1.8.3. The local government and Center are required to notify the population of any decision to forbid or restrict the use of drinking water due to its quality, measures being taken, as well as recommended actions in such a situation.

2. Hygienic Requirements and Drinking Water Quality Standards

3. Drinking water should be safe from epidemic and radiation risks, have a harmless chemical composition and have favorable organoleptic properties.

3.1. The quality of drinking water should meet hygienic standards before entry into a distribution network and at water draw-off points of outdoor and indoor water supply network.

3.2. Safety of drinking water from epidemic risks is defined by the conformance of water to microbiological and parasitological standard indicators presented in Table 1.

Table 1.

Indicator	**Unit of Measure**	**Standard**
Thermotolerant coliform bacteria	Bacterial count in 100 ml 1)	NA
Common coliform bacteria 2)	Bacterial count in 100 ml 1)	NA

Total microbial count 2)	Colony-forming bacterial count in 1 ml	no more than 50
Coliphages 3)	Plaque-forming unit count	NA
Sulphite-reducing clostridia spores 4)	Spore count in 20 ml	NA
Giardia cysts 3)	Cyst count in 50 l	NA

Notes:

1) For the purposes of study, three-time tests of selected 100ml water samples are conducted.

2) Exceedance of standards is not tolerated for less than 95% of the 100 minimum samples tested per year from water draw-off points of outdoor and indoor water supply networks.

3) Quantitative tests are only conducted in water supply systems from surface water sources before supply of water to a distribution network.

4) Quantitative tests are conducted with assessments of water treatment technology's efficiency.

2.3.1. An assessment of microbiological indicators of drinking water quality, for each sample, implies an analysis of thermotolerant coliform bacteria, common coliform bacteria, total microbial count and coliphages.

2.3.2. If thermotolerant coliform bacteria, common coliform bacteria and/or coliphages are detected in a drinking water sample, repeated quantification is conducted for water samples in an expedited manner. In such cases, to determine the cause(s) of contamination, simultaneous testing for chlorides, ammonium nitrogen, nitrates and nitrites are performed.

2.3.3. If common coliform bacteria are present in a quantity greater than 2 per 100ml, and/or thermotolerant coliform bacteria, and/or coliphages are detected in multiple water samples, the sample will undergo further testing to identify possible pathogenic enteric bacteria and/or enteroviruses.

2.3.4. Drinking water tests for the presence of pathogenic enteric bacteria and enteroviruses are also conducted for epidemiological reasons by decision of the Center.

2.3.5. Water tests for the presence of pathogenic organisms may only be conducted in laboratories that have the capacity to deal with causative agents of a certain risk group and license for conducting such tests.

2.4. The harmlessness of drinking water, as it concerns chemical composition, is defined by water conformance to the following standards:

– water quality composite indices and concentration of harmful chemical substances most frequently occurring in natural water in the territory of the Republic of Tajikistan, as well as man-induced substances of global incidence (Table 2).

– concentration of harmful chemical substances entering or forming in the water during the process of water treatment in water supply systems (Table 3).
– concentration of harmful chemical substances entering water supply sources as a result of human economic activity (Annex 2).

Table 2

Indicator	Unit of Measure	Standards (maximum permissible concentration (MPC),	Nuisance Value 1)	Hazard Class
Composite indices				
Hydrogen ion concentration	pH units	in the range 6- 9		
Total dissolved solids (dry residue)	mg/l	1000 (1500)2		
Hardness, total	mol/l	7,0 (10)2		
Permanganate value	mg/l	5,0		
Oil products, total	mg/l	0,1		
Surfactants, anion-active	mg/l	0,5		
Phenol index	mg/l	0,25		
Inorganic substances				
Aluminium (Al^{3+})	mg/l	0,5	C.- т.	2
Barium (Ba^{2+})	-// -	0,1	- // -	2
Beryllium (Be^{2+})	- // -	0,0002	- // -	1
Boron (B, total)	- // -	0,5	- // -	2
Ferrum (Fe, total)	- // -	0,3 (1,0)2	орг	3
Cadmium (Cd, total)	- // -	0,001	С. т.	2
Manganese (Mn	- // -	0,1 (0,5)2)	Орг.	3
Copper (Cu, total)	- // -	1,0	- // -	3
Molybdenum (Mo, total)	- // -	0,25	С. Т.	2
Arsenium (As, total)	-//-	0,05	С.Т.	2
Nickel (Ni, total)	-//-	0,1	С.Т.	3
Nitrates (by NO3)	-//-	45	Орг.	3
Mercury (Hg, total)	-//-	0,0005	С.Т.	1

Lead (Pb, total)	-//-	0,03	-//-	2
Selenium (Se, total)	-//-	0,01	-//-	2
Strontium (Sr^{2+})	-//-	7,0	-//-	2
Sulphates (SO_4^{2-})	-//-	500	Opr.	4
Fluorides (F)				
For climatic areas				
In high-mountain conditions	-//-	1,5	C.T.	2
In mid-mountain conditions	-//-	1,2	-//-	2
In valleys	-//-	0,7	-//-	2
Chlorides (Cl^-)	-//-	350	Opr.	4
Chrome (Cr^{6+})	-//-	0,05	C.T.	3
Cyanides (CN)	-//-	0,035	-//-	2
Zinc (Zn^{2+})	-//-	5,0	Opr.	3
Organic substances				
aacyclo- HCH	-//-	0,002 3)	C.T.	1
aavero DDT (total isomers	-//-	0,002 3)	-//-	2
2,4 - D	-//-	0,03 3)	-//-	2

Notes:

1) The Limiting Nuisance Value of a substance, according to which a standard is established: ***«C.-T.»*** *- sanitary-toxicological,* ***«орг.»*** *- organoleptic.*

2) The figure indicated in brackets may be established by order of the Chief Public Health Physician in particular area for a water supply system, and based on an assessment of environmental epidemiology factors in a populated area and applicable water treatment technology.

3) Standards are adopted in accordance with the WHO's recommendations.

Table 3

Indicator	Unit of Measure	Standards (maximum permissible concentration (MPC), no	Nuisance Value1)	Hazard Class
Chlorine 1)				
residual free	mg /l	in the range 0,3-	Opr.	3
residual fixed	- // -	in the range 0,8-	Opr	3
Trichloromethane (water	- // -	0,2 2)	C. -t.	2
Ozone, residual 3)	- // -	0,3	Opr.	-
Formaldehyde (water	- // -	0,05	C. – t.	2
Polyacrylamide	- // -	2,0	- // -	2
Hydrated silica, intensified (for Si)	- // -	10	- // -	2
Polyphosphates (for PO_4^{3-})	- // -	3,5	Opr.	3
Aluminium- and ferrum-containing coagulants, residual quantities	- // -	See: indicators "Aluminium",	-	-

Notes:

1) With water decontamination by free chlorine, its time of contact with water should be at least 30 minutes, by fixed chlorine – a minimum of 60 minutes.

Control over the concentration of residual chlorine is exercised before the supply of water to a distribution network.

With the simultaneous presence of free and fixed chlorine in water,

their total concentration should not exceed 1,2 mg/l.

In certain cases, subject to agreement with the Center, an increased concentration of chlorine in drinking water may be permitted.

2) The standard is adopted in line with WHO's recommendations.

3) Control over the concentration of residual ozone is exercised after the mixing chamber with a guaranteed minimum contact time of 12 minutes.

2.5. If a few Hazard Class 1 & 2 chemical substances (standardized according to the sanitary and toxicological nuisance value) are detected in drinking water, the total ratios of detected concentrations of each substance and its respective maximum permissible concentration should not exceed 1. Calculation is made by the following formula:

$$\frac{C^1_{\text{факт}}}{C^1_{\text{доп.}}} + \frac{C^2_{\text{факт}}}{C^2_{\text{доп.}}} + \ldots + \frac{C^n_{\text{факт}}}{C^n_{\text{доп.}}} < 1$$

where C^1, C^2, C^n - concentrations of individual chemical substances of Hazard Classes 1 & 2: **факт.** (actual) and **доп.** (permissible).

2.6. Favourable organoleptic properties of water are defined by the conformance to standards specified in Table 4, as well as standard concentrations of substances that have impact on organoleptic properties of water provided in Tables 2 and 3 in Annex 2.

Table 4

Indicator	Unit of Measure	Standard, no more than
Odor	Score Points	2
Flavor	- // -	2
Color Index	Degrees	20 (35) 1)

Turbidity	FTU (Formazin Turbidity Unit) or mg/l (Coalin)	2,6 (3,5) 1) 1,5 (2) 1)

Note:
The figure indicated in brackets may be established by order of the Chief Public Health Physician in particular area for a water supply system, and based on an assessment of sanitary and environmental epidemiology factors in a populated area and applicable water treatment technology.

2.6.1. The presence of aquatic species or a surface film on drinking water detectable by the unaided eye are not permitted.

2.7. Radiation safety of drinking water is defined by its conformance to total α– and β–activity standards provided in Table 5.

Table 5

Indicator	Unit of Measure	Standard	Nuisance Value
Total α–radioactivit	Bq/l	0,1	radiological
Total β–radioactivit	-Bq/l	1,0	radiological

2.7.1. The identification of radionuclides present in water and the subsequent measurement of their individual concentrations may not exceed total activity standards. Evaluation of the concentrations detected is made in accordance with hygienic standards.

4. Drinking Water Quality Control.

4.1. In accordance with the Law of the Republic of Tajikistan "Concerning Provisions for the Sanitary and

Epidemiological Safety of Population", the quality of drinking water shall be subject to state sanitary and epidemiological supervision and production control.

4.2. Production control of drinking water quality shall be provided by the organization that operates the water supply system according to their work program. An organization that operates water supply systems according to their work program shall permanently control the quality of water at withdrawal points, before entry to distribution networks, as well as draw-off points for outdoor and indoor water supply networks.

4.3. The number and regularity of water sampling at withdrawal points for laboratory testing are established according to the requirements specified in Table 6.

Table 6

Types of Indicators	Number of samples during one year, no less than	
	For underground	For surface sources
Microbiological	4 (by seasons)	12 (every month)
Parasitological	Not conducted	- // -
Organoleptic	4 (by seasons)	- // -
Composite Indices	- // -	- // -
Inorganic and Organic Indicators	1	4 (by seasons)
Radiological	1	1

4.4. The types of indicators to be identified and the number of drinking water samples to be tested before water entry into a distribution network are established according to the requirements specified in Table 7.

Table 7

Types of Indicators	Number of samples during one year, no less than				
	For underground sources			For surface sources	
	Number of population supplied with water from a particular water supply system, x thousand people				
	До 20	20-100	More than	Up to 100	More than 100
Microbiological	50 1)	150 2)	365 3)	365 3)	365 3)
Parasitological	Not conducted			12 4)	12 4)
Organoleptic	50 1)	150 2)	365 3)	365 3)	365 3)
Composite Indices	4 4)	6 5)	12 6)	12 6)	24 7)
Inorganic and Organic Indicators	1	1	1	4 4)	12 6)
Indicators related to water treatment	Residual chlorine, residual ozone – at least once an hour, other reagents - at least once a shift				

Radiological	**1**	**1**	**1**	**1**	**1**

Notes:
1) The following regularity of water sampling is adopted – weekly, 2) – three times a week, 3) – daily, 4) – once a season, 5) – bimonthly, 6) – monthly, 7) – twice a month.

1. If the water in water supply lines from underground sources supplies a population of up to 20000 people and is not decontaminated, water sampling for microbiological and organoleptic tests shall be made at least once a month.

2. During high-water time and emergency situations, control of drinking water quality shall be enhanced, subject to agreement with the Center.

4.5. Production control of drinking water quality in a distribution water supply network shall assess microbiological and organoleptic indicators, with a regularity specified in Table 8.

Table 8

Number of population served, x thousand people	Number of samples per month
Up to 10	2
10-20	10
20-50	30
50-100	100
More than 100	100+1 samples for each 5 thousand people, more than 100 thousand people

Note:
The number of samples does not include mandatory control samples after repairs and other engineering work in distribution network.

4.6. Water samples from a distribution network shall be taken from street water intake facilities, at the most elevated and terminal sections of the network, as well as from faucets of indoor water supply lines of all houses that have booster pumps and local elevated water storage tanks.

4.7. Production control of drinking water quality, according to the work program, shall be exercised by the laboratories of organizations that run water supply systems or by other accredited laboratories under contract to conduct tests of drinking water quality.

4.8.

3.8 State sanitary and epidemiological supervision of drinking water quality is exercised by agencies and institutions of the State Sanitary and Epidemiological Surveillance Service of the Republic of Tajikistan in accordance with the standards of the Service, as scheduled, and for sanitary and epidemiological purposes.

3.9. To conduct laboratory tests (measurements) of drinking water quality, the application of metrologically certified methodologies are approved by Gosstandart of the Republic of Tajikistan and the Ministry of Health of the Republic of Tajikistan. Test samples shall be taken in accordance with the requirements of state standards.

Annex 1 (mandatory)

Regulations for establishing controlled drinking water quality indicators and drawing up a work program for drinking water quality production control.

1. The procedure for the arrangement of work programs requires a selection of indicators for drinking water chemical composition.

2. In accordance with Para 3.4 of these Sanitary Regulations, the selection of indicators for drinking water chemical

composition under permanent production control shall be made for each water supply system based on the assessment results of chemical composition of water supply sources, as well as drinking water production technology in water supply systems.

2.1. The selection of indicators for the chemical composition of drinking water for expanded research shall be made by organizations that run water supply systems, in collaboration with state sanitary and epidemiological agencies, in two stages by the city and district.

2.1.1At the first stage, in collaboration with state sanitary and epidemiological agencies, an organization that runs water supply systems shall review the following materials for at least 3 last years from:

state statistical accounting of companies and organizations, as well as other official data, on the composition and volume of wastewater entering water supply sources, above water withdrawal points and within their water catchment area;

– environmental protection agencies, hydrometeorological services, water resource management bodies, geological and subsurface resource management bodies, companies and organizations on the quality of surface, underground water and drinking water in water supply systems following the results of their water quality monitoring and production control;

– sanitary and epidemiological supervision agencies, following the results of sanitary surveys from companies and organizations that carry out economic activity (sources of contamination of surface and underground water), as well as outcomes of water quality surveys in public water use settings and in water supply systems;

– agricultural administrative bodies and organizations, on stock and overall inventory of pesticides and agrochemicals applied in the

water catchment area (for surface source) and within a sanitary protection zone (for underground source); based on the assessment, a list will be compiled that features the chemical composition of water, its water supply source and its hygienic standards in accordance with Annex 2 of these Sanitary Regulations.

2.1.2At the second stage, organizations that run water supply systems shall conduct expanded laboratory water research on the list of chemical substances compiled and indicators provided in Table 2 of these Sanitary Regulations.

1.2.2.1. For water supply systems that employ chemical reagent water treatment methods before the supply of water to a distribution network, the expanded laboratory research should also include the indicators specified in Table 3 of these Sanitary Regulations.

1.2.2.2. Expanded laboratory water research is conducted for one year at water withdrawal points of water supply systems and, when available, water treatment or water mixture of various water intake facilities – also before supply of water to a distribution network.

1.2.2.3. The minimum number of test water samples, depending on type of water supply source, allowed to ensure consistent information on the water quality during a year is considered:

- for underground sources – 4 samples a year, taken in each season;

- for surface sources – 12 samples a year, taken each month.

1.2.2.4. If it is necessary to receive more representative and reliable information on water chemical composition and concentration of substances in water, the number of water samples and sampling
regularity may be increased in accordance with set objectives for water quality assessment of a water supply source.

1.2.2.5. To conduct expanded water research, up-to-date universal physical and chemical water medium research methods (chromatography-mass spectrometry, etc.) should be employed to obtain the most complete information on water chemical composition.

2.2. Sanitary and epidemiological supervision agencies shall review the outcomes of expanded research on water chemical composition for each water supply system and, judging from public drinking water consumption, sanitary and epidemiological environment of a city, populated area or district; they shall then define potential public health risks of chemical substances present in the water.

2.3. Based on the assessment made, the Center shall propose a list of controlled indicators, number and schedule of drinking water test sampling for permanent production control.

3. Procedure to draw up a work program for drinking water quality production control.

3.1. Organizations that runs water supply systems shall, based on these Sanitary Regulations, develop a work program.

3.2. For a water supply system that has several water intake facilities, a work program shall be created for each water intake facility with respect to its specific features. For underground water intake facilities that have a joint sanitary protection zone and run a single aquifer, one work program may be established given the availability of hydrogeological rationale.

3.3. Work program should contain:

3.3.1. A list of controlled water quality indicators and their hygienic standards established by these Sanitary Regulations:

- microbiological and parasitological (Para 4.3., Table 1);
- organoleptic (Para 4.5., Table 4);
- radiological (Para 4.6., Table 5);
- composite (Para 4.4.1., Table 2);
- residual quantities of reagents (Para 4.4.2., Table 3);
- chemical substances selected for permanent control in accordance with regulations specified in Section 1 of this Annex (Para 4.4.1., Table 2 and Para 4.4.3., Annex 2 of the Sanitary Regulations).

3.3.2. Methodology to define controlled indicators.

3.3.3. Layout plan of water sampling sites − withdrawal points (in clean water cistern), and draw-off points of outdoor and indoor water supply networks.

3.3.4. Number of controlled water samples, schedule of water sampling for laboratory tests (measurement) and a list of indicators to be analysed in tested water samples.

3.3.5. Water sampling and water sample laboratory test schedule.

3.4. Number of test water samples and water sampling schedule shall be defined for each water supply system, considering proposals of state sanitary and epidemiological supervision agencies, but they should not be less than those established in Para 5.3., Table 6; Para 5.4., Table 7; and Para 5.5., Table 8 of these Sanitary Regulations.

3.5. A work program should plan for monthly review of water quality test results and establish a procedure for communicating test result information to water supply administration, state sanitary and epidemiological supervision agency, and local government.

3.6.

3.7. A work program shall be submitted to city and district state sanitary and epidemiological supervision agencies for consideration and further approval by administration of concerned local governments.

3.8. A work program shall be approved for a maximum term of 5 years. During the specified term, the work program may be amended and changed in agreement with the Center.

Annex 2 (mandatory)

HYGIENIC STANDARDS FOR CONCENTRATION OF HARMFUL SUBSTANCES IN DRINKING WATER

1. This list includes hygienic standards of harmful substances in drinking water. It contains individual chemical substances that can be identified by present analytical methods.

2. Chemical substances are listed according to the structure of organic and inorganic compounds. Each sub-section is an extension of
the corresponding section. Within sub-sections,
substanceare placed in order of increasing values of
their standards

If the molecular structure of an organic compound may be categorized simultaneously by several chemical classes, then it is listed by functional group with the largest range expansion index (a horizontal system of headings).
Organic acids, including pesticides, are standardized by anion,

regardless of the form in which such an acid is presented in the list (as acid, its anion, or its salt).

Elements and Cations (Para 1 of Section "Inorganic Substances") are standardized cumulatively for all degrees of oxidation, unless otherwise specified.

3. The list has the following vertical system of headings.

3.1. The first column provides the most frequently used names of chemical substances.

3.2.

3.3. The second column provides the synonyms for chemical substances and some generic/trivial and commonly accepted names.

3.4. The third column provides the values of maximum permissible concentration (MPC - ПДК) or approximate permissible level (ОДУ) in mg/l, where:

ПДК – maximum concentration when a substance does not have direct or indirect impact on the status of human health (with lifelong impact on human body), and does not deteriorate the hygienic conditions of water consumption;

ОДУ (marked with an asterisk*) – approximate permissible levels of substances in tap water developed on the basis of design and rapid test experimental toxicity forecast methods.

If **"отсутств."** ("missing") is indicated in the value of standards column, it means that the concentration of a particular compound in drinking water is beyond the detection limit of an applicable method.

3.5. The fourth column provides the Limiting Nuisance Value of substances, according to which a standard is established:

- **с.-т.** – sanitary and toxicological;
- **орг.** – organoleptic, with explanation of the nature of changed water organoleptic properties (**зап.** – changes the odor of water; **окр.** – renders color to water; **пен.** – causes foaming; **пл.** – forms a film on the surface of water; **привк.** – renders flavor to water; **оп.** – causes opalescence).

3.6. The fifth column provides the Hazard Class of a substance: 1 Class – extremely hazardous;

2 Class – highly hazardous;
3 Class – hazardous;
4 Class – moderately hazardous.

Classification is based on indicators that feature different hazard levels of chemical substances (drinking water contaminants) to human life or health depending on the toxicity, capacity to build up in the human body, capacity to have long term effects and limiting nuisance value.

Hazard classes of substances shall be taken into consideration with:
− the selection of substances subject to top-priority control in drinking water;
–
– the establishment of a sequential order of water protection activities that require additional investments;
– the justification of recommendations for replacement of highly hazardous substances with less hazardous ones in production processes;
– the priority development of selective methods for analytical control of substances in water.

HYGIENIC STANDARDS OF CONCENTRATION OF HARMFUL SUBSTANCES IN DRINKING WATER

Name of Substance	Synonym	Value of Standard in mg/l	Nuisance Value	Hazard Class
Inorganic Substances				
1. Elements, Cations				
Thallium		0,0001	с. -т.	2
Phosphorus, elemental		0,0001	с. -т.	1
Niobium		0,01	с. -т.	2
Tellurium		0,01	с. -т.	2
Samarium		0,024*	с. -т.	2
Lithium		0,03	с. -т.	2
Antimony		0,05	с. -т.	2

Tungsten		0,05	с. -т.	2
Argentum		0,05	с. -т.	2
Vanadium		0,1	с. -т.	3
Bismuth		0,1	с. -т.	2
Cobalt		0,1	с. -т.	2
Rubidium		0,1	с. -т.	2
Europium		0,3*	орг. привк.	4
Ammonia (by nitrogen)		2,0	с. -т.	3
Chrome (Cr^{3+})		0,510,0	с. -т.	3
Silicon		200,0	с. -т.	2
Natrium			с. -т.	2

2. Anions

Rhodanide ion		0,1	с. -т.	2
Chlorite ion		0,2	с. -т.	3
Chromide ion		0,2	с. -т.	2
Persulphate ion		0,5	с. -т.	2

Hexanitrocobaltian		1,0	с. -т.	2
Ferrocyanide ion		1,25	с. -т.	2
Hydrosulphide ion		3,0	с. -т.	2
Nitrite ion		3,0	орг.	2
Perchlorate ion		5,0	с. -т.	2
Chlorate ion		20,0	орг. привк.	3
Sulphurated Hydrogen	Hydrogen Sulphide	0,003	орг.зап.	4
Peroxide of Hydrogen	Hydrogen	0,1	с. -т.	2

Name of Substance	Synonyms	Value of Standard in	Nuisance Value	Hazard Class
Organic Substances				
1. Hydrocarbons				
Isoprene	2-methyl-1,3-butadiene	0,005	орг.зап.	4
Butadiene-1,3	Divinyl	0,05	орг.зап.	4
Butylene	But-1-ene	0,2	орг.зап.	3
Ethylene	Ethene	0,5	орг.зап.	3
Propylene	Propene	0,5	орг.зап.	3
Isobutylene	2-methylprop-1- ene	0,5	орг.зап.	3
1.2.1. alicyclic				
1.2.1.1. monocyclic				
Diclohexene	Tetrahydrobenz	0,02	с.-т.	2
Diclohexene	Hexahydrobenz ene	0,1	с.-т.	2
1.2.1.2. polycyclic				
Norbornene	2,3-dicyclo(2.2.1) hentene	0,004	орг.зап	4
Dicycloheptadi	Bicyclo(2,2,1) hepta-	0,004	орг.зап	4

	diene, nonbornadiene			
Dicyclopentadiene	Tricyclodeca-3,8-diene, 3a, 4,7,7a tetra-hydro-4,7-methano-1H-indene	0,015	орг.зап	3
Benzene		0,01	с.-т.	2
Ethyl Benzene		0,01	орг. привк.	4
m-Diethylbenzene	1,3- diethyl benzene	0,04	орг.зап	4
Xylene	Dimethylbenzene	0,05	орг.зап	3
Diisopropylbenzene	Di-1-methylethyl benzene	0,05	с.-т.	2
Monobenzyl toluene	3-Benzyl toluene	0,08	орг.зап	2
Butylbenzene	1-Phenylbutane	0,1	орг.зап	3
Isopropylbenzene	Cumene, 1-methylethylbenzene	0,1	орг.зап	3
Styrene	Vinyl benzene	0,1	орг.зап	3
a- Methyl Styrene	(1-Methylvinyl benzene	0,1	орг. привк.	3
Propynebenzene	1-Phenyl propane	0,2	орг.зап	3
n- tret - butyltoluene	1-(1,1 – Diethylmethyl)- –4-methylbenzen 1-methyl-4-tret-butyl benzene	0,5 ,	орг.зап	3
Name of Substance	Synonyms	Value of Standard in mg/l	Nuisance Value	Hazard Class
Toluene	Methylbenzene	0,5	орг.зап	4
Dibenzyltoluene	(3-methyl-4-benzyl) phenylphenylmethane	0,6	орг.зап	3

1.2.2.2. polycyclic				
Benzapyrene		0,000-0,005	с.-т.	1
1.2.2.2.1. biphenyls				
Diphenyl	Biphenyl, phenylbenzen	0,001	с.-т.	2
Alkyldiphenyl		0,4	орг.пл е нка	2
1.2.2.2.2 condensed				
Naphthalene		0,01	орг.за	4
2.Halogen-containing compounds				
2.1. aliphatic				
2.1.1. containing only saturated bonds				
Iodoform	Triiodomethane	0,0002	орг.зап	4
Tetrachlorohepta		0,0025	орг.зап	4
1,1,1,9-Tetrachlorononan		0,003	орг.зап	4
Butylchloride	1-Chlorobutan	0,004	с.-т.	2
1,1,1,5Tetrachloropent ane		0,005	орг.зап	4
Carbon tetrachloride	Tetrachloromathane	0,006	с.-т.	2
1,1,1,1,11-Tetrachloroundecane		0,007	орг.зап	4
Hexachlorobutan		0,01	орг.зап	3
Hexachloroethane		0,01	орг.зап	4
1,1,1,3-Tetrachloropropa		0,01	орг.зап	4
1-Chloro-2,3-dibromopropane	1,2-Dibromo-3-chloropropane	0,01	орг.зап	3
1,2,3,4-Tetrachlorobutan	nemagon	0,02	с.-т.	2
Pentachlorobutan		0,02	орг.зап	3
Perchlorobutan		0,02	орг.зап	3
Pentachloropropa		0,03	орг.зап	3
Dichlorobrommet	e	0,03	с.-т.	2
Chlorodibrommet	e	0,03	с.-т.	2
1,2-Dibromo-1,1,5-	Bromtane	0,04	орг.зап	3
1,2,3-Trichloropropane		0,07	орг.зап	3
Trifluorochlorpro	e Freon 253	0,1	с.-т.	2

Name of Substance	Synonyms	Value of Standard in	Nuisance Value	Hazard Class
1,2-		0,1	с.-т.	3
Bromoform	Tribromomethane	0,1	с.-т.	2
Tetrachlorometha		0,2	орг.зап	4
Chloroethyl	Chloroethane, ethylchloride, chloric	0,2	с.-т.	4
1,2-		0,4	с.-т.	2
1,2-Dichloroisobutan	2-methyl-1,2-cycholropropane	0,4	с.-т.	2
Dichloromethane	Methylene	7,5	орг.зап	3
Difluorochlorome	ne Freon-22	10,0	с.-т.	2
Difluorodichloro me	Freon-12	10,0	с.-т.	2
Methyl	1 1,1-	10,0*	с.-т.	2
2.1.2. contain ethylenic bonds				
Tetrachloropropa		0,002	с.-т.	2
2-Methyl-3-lorpropene-1-	Methallyl chloride	0,01	с.-т.	2
β-Chloroprene	2-chloro-1,3-butadiene	0,01	с.-т.	2
Hexachlorobutadiene	Perchlorobuta-1,3-diene	0,01	орг.зап	3
2,3,4-Trichlorobutan-1	2,3,4-Trichlorobut-1- ene	0,02	с.-т.	2
2,3-Dichloro-	2,3-Dichlorobuta-	0,03	с.-т.	2
1,1,5-Trichloropentene		0,04	орг.зап	3
Vinyl chloride	Chloroethene	0,05	с.-т.	2
1,3-Dichlorobutene	1,3- Dichlorobut -2-ene	0,05	орг.зап	4
3,4-Dichlorobutene-		0,2	с.-т.	2
Allyl Chloride	3-Chloroprop-1-	0,3	с.-т.	3
1,1-Dichloro-4-	Diene-1,4	0,37	орг.при	3

methylpentadiene-			к.	
Dichloropropene		0,4	с.-т.	2
1,3-Dichloroisobutylene	3,3-Dichloro-2-methyl-1-propene	0,4	с.-т.	2
1,3-Dichloroisobutyle	2-Methyl-1,3-dichloroprop-1-	0,4	с.-т.	2
1,1-Dichloro-4-Methylpentadiene-1,3	Diene-1,3	0,41	орг.зап	3
2.2. cyclic				
2.2.1. alicyclic				
2.2.1.1. monocyclic				
Hexachlorocyclopentadiene	1,2,3,4,5,5-Hexachloride-1,3-cyclopentadiene	0,001	орг.зап	3

Name of Substance	Synonyms	Value of Standard in	Nuisance Value	Hazard Class
1,1-Dichlorocyclohexane		0,02	орг.зап	3
1,2,3,4,5,6-Hexachlorocyclo-hexane		0,02	орг.зап	4
Perchlormethylene cyclopentene		0,5	орг.зап	4
Chlorocyclohexa		0,5	орг.зап	3
2.2.1.2. polycyclic				
1,2, 3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro	1,4,4a,5,8,8a-Hexahydro-1,2,3,4,10,10-hexachloro-1,4,5,8-endo	0,002	орг.прив к.	3
1,4,5,6,7,8,8-Heptachlor-4,7-	3a 4,7,7a-Tetrahydro-	0,05	с.-т.	2

endomethylene-3a,4,7,7a-tetrahydroindene	heptachlor-4,7-methano-1H-indene, heptachlor			
β-Dihydroheptachlori ne	2,3,3a,4,7,7a-Heptahydro-2,4,5,6,7,8,8-heptachlor-4,7-methano-	0,1	орг.зап	4
Polychloropinene		0,2	с.-т.	3
2.2.2. aromatic				
2.2.2.1. monocyclic				
2.2.2.1.1. with halogen atom in nucleus				
2,5-Dichloro-n-tret- butyltoluene	1,4-Dichloro-2-(1,1- dimethyl)-5	0,003	орг.зап	3
o-	1,2-	0,002	орг.зап	3
Chloro-n-tret-butyltoluen	1, Methyl-4-(1,1-dimethylethyl) -2-chlorobenzene	0,002	орг.зап	4
1,2,3,4-Tetrachlorobenze		0,01	с.-т.	2
Chlorobenzene		0,02	с.-т.	3
2,4-Dichlorotoluene	2,4-Dichloro-1-methylbenzene	0,03	орг.зап	3
1,3,5-Trichlorobenzene		0,03	орг.зап	3
2,3,5-Trichlorotoluene		0,03	орг.зап	3
o- & п-Chlorotoluene	o- & n-Chloromethyl	0,2	с.-т.	3
2,3,6-Trichloro-n- tret-		0,1	орг.зап	4
2.2.2.1.2. with halogen atom in side chain				
Benzyl chloride	Chloromethylbenz	0.001	с.-т.	2
Hexachlorometaxyl ene	1,3-Bis(trichloromethyl)	0,008	орг.зап	4

Name of	Synonyms	Value	Nuisance	Hazard

		Standard in mg/l	Value	Class
Hexachloroparaxyle	1,4-Bis(trichloromethyl) benzene	0,03	орг.зап	4
Benzotrifluoride	Trifluoromethylbenz	0,1	с.-т.	2
2.2.2.2. polycyclic				
2.2.2.2.1. biphenyls				
Momochlorodifenyl	Monochlorobipheny l	0,001	с.-т.	2
Dichlorodiphenyl	Дихлорбифенил	0,001	с.-т.	2
Trichlorodipheny	Trichlorobiphen	0,001	с.-т.	1
Pentachlorodiphenyl	Pentachlorodiphenyl	0,001	с.-т.	1
2.2.2.2.2. condensed				
2-		0,01	орг.зап	4
3.Oxygen-containing compounds				
3.1. alcohols and simple ethers				
3.1.1. monobasic alcohols				
3.1.1.1. aliphatic alcohols				
3-Methyl-3-butenol	Isobutenilcarbinol	0,004	с.-т.	2
Hexyl alcohol	Heptane-1-ol	0,005	с.-т.	2
3-Methyl-1-buten- 3-ol	2-Methylprop-2-ene-1-ol, cymethylvinylcarbino	0,005	с.-т.	2
Hexyl alcohol, straight-chain	Hexane-1-ol, amylcarbin	0,01	с.-т.	2
Hexyl alcohol, secondary	1-Methylpentan-1-ol, hexane-2-ol, methylbutylcarbi	0,01	с.-т.	2
Hexyl alcohol, tertiary	2-Methylpentan-2-ol, Diethylmethylcorbino l. Flotation reagent	0,01	с.-т.	2
Nonyl alcohol	Nonane-1-ol	0,01	с.-т.	2
Octyl alcohol,	Octane-1-ol,	0,05	орг.прив	3

straight-chain	heptylcarbinol		к.	
Butyl alcohol, straight-chain	Butan-1-ol, propylcarbin	0,1	с.-т.	2
Allyl alcohol	Prop-2-ene-1-ol vinylcarbinol	0,1	орг.при в.к.	3
Isobutyl alcohol	2-Methylpropane-1-ol, isopropylcarbinol	0,15	с.-т.	2
Butyl alcohol, secondary	Butyl-2-ol, methylisobut yl carbinol	0,2	с.-т.	2
Name of Substance	Synonyms	Value of Standard in	Nuisance Value	Hazard Class
Propyl alcohol	Propane-1-ol, ethylmethylcarbi	0,25	орг.зап	4
Isopropyl alcohol	Propane-2-ol, dimethylcarbi	0,25	орг.зап	4
Butyl alcohol. tertiary	Tret-butyl alcohol, dimethylethanol, trimethylcarbinol, 2-methylpropane-2-ol	1,0	с.-т	2
Amyl alcohol	Pentane-1-ol	1,5	орг.зап	3
Methyl alcohol	Methanol, carbinol	3,0	с.-т	2
3.1.1.1.1. halogen substituted monobasic alcohols				
Ethylenechlorohydrine	1-chloro-2-hydroxyethane,2-chloroethanol,2-chloroethyl chloromethylcarbinol, chloroethane-2-ol	0,1	с.-т	2
Alcohol 1,1,7-trihydrodecafluoroheptyl	П-3	0,1	орг.зап	4
Alcohol 1,1,3-trihydrotetrafluoropropyl	П-1	0,25	орг.зап	3
Alcohol 1,1,5	П-2	0,25	орг.зап	4

octafluoro pentyl				
Alcohol 1,1,9 trihydrohexadeca flu orononyl	П-4	0,25	орг.зап	4
Alcohol 1,1,13 trihydrotetraeic osa	П-6	0,25	орг.зап	3
Alcohol 1,1,11-trihydro	П-5	0,5	орг.зап	3
Alcohol β,β-dichloroiso	1,3-Dichloropropane-2-ol, dichlorohydrine, dichloromethylcarbin	1,0	орг.зап	3
Alcohol 1,1-dihydroperfluoroh eptyl	2,2,3,3,4,4,5,5,6,6,7,7,7-Tridecafluoroheptane-	4,0	с.-т	2
3.1.1.2. cyclic				
3.1.1.2.1. alicyclic				
Diclohexanol	Hexahydrophenol	0,5	с.-т	2
3.1.1.2.2. aromatic				
3.1.1.2.2.1. monocyclic				
3.1.1.2.2.1.1. phenols				
Phenol		0,001	орг.зап	4

Name of Substance	Synonyms	Value of Standard in	Nuisance Value	Hazard Class
m- & p-Cresol	m- & n-Methylphenol, 1-hydroxy-2(& 4)-	0,004	с.-т	2
O- & n-Propylphenol	1-Hydroxy-2(& 4)- propylbenzene	0,01	орг.за	4
Alkylphenol		0,1	орг.	3

Dimethylphenol	Xylenol	0,25	орг.зап	4
3.1.1.2.2.1.1.1. halogen substituted				
Chlorophenol		0,001	орг.зап	4
Dichlorophenol		0,002	орг.при в.к.	4
Trichlorophenol		0,004	орг.при в.к.	4
3.1.1.2.2.1.2. containing hydroxy group in side chain				
3.1. 1.2.2.1.2.1. halogen substituted				
3.1.1.2.2.2. condensed				
a-Naphthol	Naphth-1-ol, 1-	0,1	орг.зап	3
3-Naphthol	Naphth-2-ol, 2-	0,4	с.-т	3
3.1.2. simple ethers				
3.1.2.1 aliphatic				
Ethinylvinylbutyl ether	1-Butoxybut-1-ene-3- ine, butoxybutenine	0,002	орг.зап	4
Diethylacetal	1,1-	0,1	орг.зап	4
Ethoxylate of primary alcohols C12		0,1	орг.пена	4
Diethyl ether	Ethoxyethene	0,3	орг.при в.к.	4
Dimethyl ether	Methoxyment	5,0	с.-т	4
3.1.2.1.1. halogen substituted				
β,β-Dichlorodiethyl	1,1-Oxybis(2-chloro- ethane)	0,03*	с.-т	2
3.1.2.2. aromatic				
Diphenylolpropane 4	4-Isopropylidenediphenol	0,01	орг.при в.к.	4
m-	3-Phenoxytoluene	0,04	орг.	4
Anisole	Methoxybenzene	0,05	с.-т	3
3.1.3. polybasic alcohols and mixed compunds				
3.1.3.1 aliphatic polybasic alcohols				
2-Methyl-2,3-butanediol	Methylbutanediol	0,04	с.-т	2
Glycerine	Trioxypropane, propanephiol	0,06*	орг.пена	4

Name of Substance	Synonyms	Value of	Nuisance	Hazard Class

		in mg/l	Value	
Pentafluoride	2.2-Dimethyl-	0,1	с.-т	2
Ethylene glycol	Ethane-1,2-diol	1,0	с.-т	3
1,4-Butynediol	But-2-yne-1,4-diol	1,0	с.-т	2
1,4-Butanediol	Butane-1,4-diol	5,0	с.-т	2
3.1.3.1.1. . halogen substituted				
Monochlorohydrin	3-Chloropropane-1,2- diol, a-	0,7	орг.прив.к	3
3.1.3.2. polybasic phenols				
Pyrocatechin	1,2-Benzenediol, 1,2- dioxybenzene	0,1	орг.окр.	4
Pyrogallol	1,2,3,-Trioxybenzene	0,1	орг.окр.	3
Hydrochinone	1,4 Dioxybenzene	0,2	орг.окр.	4
5-Methylresorcin	5-Methyl-1,3-benzenediol	1,0	орг.окр.	4
3.1.3.2.1. halogen substituted				
2,2-Bis-(4-hydroxy- 3,5-dichlorophenyl)	Tetrachlorodiane	0,1	орг.прив.к	4
3.1.3.3. containing hydroxy and oxy groups				
3.1.3.3.1. aliphatic				
Alcohol 2-allyloxyethyl		0,4	с.-т	3
Diethylene glycol	2,2-Oxydiethanol	1,0	с.-т	3
Tetraethyleneglycol	2.2-Oxydiethylene-dioxydiethanol	1,0	с.-т	3
Pentaethyleneglycol	3,6,9,12-Tetraoxa-tetradecane-1,14-diol, Ethyleneglycoltetr	1,0	с.-т	3
3.1.3.3.2. aromatic				
3-Phenoxybenzyl alcohol	3-Phenoxyphenylmethanol 3-Phenoxybenzenemethanol	1,0*	с.-т	3
3.2. aldehydes and ketones				

3.2.1. containing only one oxo group				
3.2.1.1. aliphatic				
3.2.1.1.1. aliphatic compounds containing only saturated bonds				
Diethylketone	Pentane-3- on,3-oxopenta	0,1	орг.зап	4
Name of Substance	Synonyms	Value of Standard in	Nuisance Value	Hazard Class
Methylethylketone	Butane-2-on, 2-	1,0	орг.зап	3
3.2.1.1.1.1. halogen substituted				
Chloral	Trichloroacetald	0, 2	с.-т	3
Perfluoroheptanal hydride		0,5	с.-т	2
3.2.1.1.1.2. containing hydroxy- and oxo- groups				
Diacetone alcohol	4-Hydroxy-4-methylpentene-2	0,5*	с.-т.	2
3.2.1.1.2. containing double bond				
Acrolein	Propenal, acryl	0,02	с.-т	1
Mesityl oxide	2-Methylpent-	0,06*	с.-т	2
α-Ethyl-β-acrolein	2-	0,2	орг.зап	4
β-Methylacrolein	But-2-enal, croton aldehyde, 2-butenal	0,3	с.-т	3
3.2.1.2. cyclic				
3.2.1.2.1. alicyclic				
Diclohexanone		0,2	с.-т	2
Bromcamphora		1, 5*	орг.зап	3
3.2.1.2.2. aromatic				
3.2.1.2.2.1. containing monocyclic aromatic substituents				
Health Facility-Phenoxybenzaldehyde	3-Phenoxybenzaldehyde	0,2	с.-т	2
Acetophenone		0,1	с.-т	3

2,2-Dimethoxy-1,2-dimethylethanone	2,2-Dimethoxy-2-phenylacetophenon	0, 5*	орг.зап	3
Health Facility-Brombenzaldehyde	3-Brombenzaldehyde	0,02	с.-т	2
Pentachloroacetophe	1-(Pentachlorophenyl)	0,02	Орг. Прививк	3
3,3-Dimethyl-1-chloro- 1-(chlorophenoxy)		0,04	с.-т	4
Tetrahydrochinon	Diclohexane-1,4-dione, 1,4-dioxocyclohexane	0,05	орг.зап	3
Glutaric aldehyd	Glutaric dialdehyd	0,07	с.-т	2

Name of Substance	Synonyms	Value of Standard in	Nuisance Value	Hazard Class
Acetylacetonate		2,0	с.-т	2
Anthraquinone	9,10-Dihydro-9,10-dioxoanthracene	10,0	с.-т	3
3.2.2.1. *halogen substituted*				
2,3,5,6-Tetrachloro- p-	Chloranil, tetrachloroquione	0,01	орг.окр.	3
2,3-Dichloro-5-dichlormethylene-2	4,5-Dichloro-5-(dichloromethylene)- 4-	0,1	орг.зап	3
2,3-Dichloro-1,4-naphthoquinone		0,25	с.-т	2
1-		3,0	с.-т	2
2-	β-	4,0	с.-т	2
3.2.2.2.*containing hydroxo group*				
1,5-Dihydroxy-anthraquinone	1,5-Dihydroxy-9,10-	0,1	орг.окр.	3
1,8-Dihydroxy-anthraquinone	Dantrone	0,25	орг.окр.	3
1,2-	1,2-Dihydroxy-	3,0	с.-т	2

quinone	9,10-anthracenedione			
1,4,5,8,Tetrahydroxy- anthraquinone	1,4,5,8,Tetrahydroxy- 9,10-anthracenedione	3,0	с.-т	2
1,4-Dihydroxy-anthraquinone	Quinizarine	3,0	с.-т	2
3.3. carbon acids and their derivants				
3.3.1. carbon acids and their ions				
3.3.1.1. containing one carboxy group				
3.3.1.1.1. aliphatic				
3.3.1.1.1.1. containing only saturated bonds				
Stearic acid, salt	Octadecanoic acid	0,25*	орг.мутн	4
3.3.1.1.1.1.1. halogen substituted				
Acid α,α,β-trichloropropioni	Acid 2,2,3-richloropropio	0,01	орг.прив.к	4
Acid chloroenanthic	Acid 7-chloroheptanoic	0,05	орг.зап.	4
Acid monochloroacetic	Acid chloroacetic, salt	0,05	с.-т.	2

Name of Substance	Synonyms	Value of Standard in mg/l	Nuisance Value	Hazard Class
Acid chloroundecan	Acid-11-chloroundecanoic	0,1	орг.зап.	4
Acid chloropelargo	Acid 9-chlorononanoic	0,3	орг.зап.	4
Acid perfluorovaleric	Acid nonafluoropentanoi acid	с, 0,7	с.-т.	2
Acid α-monochlor	Acid 2-chloropropionic	0,8	орг.прив.к	3
Acid hydroperchloroenanthic	Acid 2,2,3,3,4,4,5,5,6,6,-7,7	1,0	с.-т.	2
Acid	Acid	1,0	с.-т.	2

perfluoroenanthi	perfluoroenanthi			
Acid 2,2-dichloropropioni c, sodium salt	Dalapon	2,0		3
Acid trichloroacetic		5,0	орг.зап.	4
3.3.1.1.1.1.2. containing aromatic substituents				
3.3.1.1.1.1.3. containing hydroxy, oxy- and oxo- groups				
Acid 5-(2,5-dimethylphenoxy) - 2,2-	Gemfibrozil	0,001	с.-т.	1
Acid phenoxyacetic	Acid glycollic, phenyl ether; acid hydroxyacetic, phenyl	1,0	с.-т.	2
Acid 2-(α-naphthoxy)	Acid 2-(1-naphthalenyl-	2,0	с.-т.	2
3.3.1.1.1.1.3.1. halogen substituted				
Acid 2,4-dichlorophenoxy α- oleic	Acid 4-(2,4-dichlorophenoxy)ol eic, 2,4-DM	0,01	с.-т.	2
Acid 2-methyl-4 chlorophenoxyol eic	Acid 4-(2-methylphenoxy)-4-chlorobutanoic	0,03	орг.зап.	3
Acid 2,4-dichlorophenoxy -α- propionic	Acid 2-(2,4-dichlorophenoxy) propionic, 2,4-DP	0,5	орг.прив к	3
3.3.1.1.1.2. containing unsaturated bonds				
Acid acrylic	Acid propane-2-ene- carboxylic	0,5	с.-т.	2

Name of Substance	Synonyms	Value of Standard in mg/l	Nuisance Value	Hazard Class
Acid methacrylic	Acid 2-methylpropane-2-ene-carboxylic	1,0	с.-т.	3

3.3.1.1.1.2.1. oxo- and halogen-containing				
Acid α,β-dichloro-(3- formyl acrylic)	Acid 4-oxo-2,3-dichloroisocroton, acid mucochloric	1,0	с.-т.	2
3.3.1.1.2. cyclic				
Acid chrisanthemic, salt	Acid 2,2-Dimethyl-3- propenyl-1-cyclopropane-carboxylic, salt; acid 3- isobutenyl-2,2-dimethyl- 1-	0,8	с.-т.	3
Acids naphthenic		1,0	орг.зап.	4
Acid benzoic, salt		0,6	орг.при в к	4
3.1.1.2.2.1. halogen substituted				
Acid 2-chlorobenzoic	Acid o-chlorobenzoic	0,1	орг.при в к	4
Acid 4-chlorobrnzoic	Acid p-chlorobenzoic	0,2	орг.при в к	4
Acid 2,3,6-trichlorobenzoic		1,0	с.-т.	2
3.3.1.1.2.2.2. containing hydroxy-, oxy-, oxo groups				
Acid 2-hydroxy-3,6-		0,5	орг.окр.	3
Acid 2-methoxy-3,6-dichlorobenzoic	Acid 2-methoxy-3,6-dichlorobenzoic, dianate	15,0	с.-т.	2
3.3.1.21. aliphatic				
Acid malonic	Acid cis-bugene dione	1,0	орг.зап.	4
Acid hexandioic, salt	Acid hexane dione, salt, acid 1,4-butane	1,0	с.-т.	3

Name of	Synonyms	Value of	Nuisance	Hazar

		Standard in mg/l	Value	Class
Acid decanedio	Acid 1,8 octane	1,5	c.-т.	3
3.3.1.22. aromatic				
3.3.1.2.2.1. halogen substituted				
3.3.2. esters				
3.3.2.1. esters of monobasic acids				
3.3.2.1.1. aliphatic				
3.3.2.1.1.1 saturated				
3.3.2.1.1.1.1. unsubstituted				
3.3.2.1.1.1.1.1. alcohols containing only saturated bonds				
Methylacetate	Acid acetic, methyl ether; methyl acetate	0,1	c.-т.	3
Ethylacetate	Acid acetic, ethyl ether; ethyl acetate	0,2	c.-т.	2
3.3.2.11.1.1.2. containing double bonds				
Cis-8-dodecynil acetate	Acid acetic, Z-dodec-8-ynil ether; 7- dodec-8-ynil ether of	0,00001	орг.зап.	4
Vinylacetate	Acid acetic, vinyl ether; vinyl ether of acetic acid	0,2	c.-т.	2
3.3.2.1.1.1.1.3. polybasic alcohols				
3.3.2.1.1.1.1.4. alcohols containing hydroxy-, oxy-, oxo- groups				
Ethylidenediacetate	Acid acetic, 1-acetoxyethyl ether: acetoxyethyl	0,6	c.-т.	2
3.3.2.1.1.1.2. halogen substituted				
2,4,5-Trichloro-	Acid 2,2-dichloropropionic, 2-			

(2,4,5-

dichloropropionate	trichlorophenoxy) ethyl ether; 2-(2,4,5-trichlorophenoxy) ethyl ether of 2,2-	2,5	с.-т.	3
Name of Substance	Synonyms	Value of Standard in mg/l	Nuisance Value	Hazard Class
2,4,5,-Trichlorophenoxyethy ltrichloroacetate	Acid acetic, trichloro-2- (2,4,5-trichlorophenoxy) ethyl ether; trichloro-2(2,4,5-trichlorophenoxy) ethyl ether of acetic acid; hexonate	5,0	с.-т.	3
3.3.2.1.1.1.3. containing hydroxy-, oxy-, and oxo- groups				
Ethyl ether of lactic acid	Acid 2-hydroxypropionic, ethyl ether	0,4	с.-т.	3
Acid acetoacetic, methyl ether	Methylacetoacetate, methyl ether of acetoacetic acid	0,5*	с.-т.	2
Isopropyl ether of lactic acid	Acid 1-hydroxypropionic, 1-methylethyl ether	1,0	с.-т.	3
Acetopropylacetate	Acid acetic, 4-oxopentyl ether, 4-oxopentyl ether of	2,8*	с.-т.	2
3.3.2.1.1.1.3.1. halogen substituted				
γ-chlorocrotyl ether of dichlorophenoxy	4-Chlorobut-2-enyl ether of 2,4-dichlorophenoxy-	0,02	орг.зап.	4
α-Methinebenzylic ether of 2-chloroacetoacetic	Acid 2-chloro-3-oxo-oleic, 1-phenylethyl ether	0,15	с.-т.	2

Octyl ether of 2,4-dichlorophenoxy	Acid 2,4-dichlorophenoxyacetic, octyl ether	0,2	огр. зап.	3
Butyl ether of 2,4-acetic acid	Acid 2,4-dichlorophenoxyacetibutyl ether; butyl 2,4-D; 2,4-DB	0,5	орг. зап.	3
3.3.2.1.1.2. containing double or triple bonds				
3.3.2.1.1.3.1. monobasic alcohols				
Ethyl acrylate	Acid acrylic, ethyl ether; ethyl ether of	0,005	орг. зап.	4

Name of Substance	Synonyms	Value of Standard in	Nuisanc Value	e Hazard
Ethyl ether of 3,3- cymethyl-4,6,6- trichloro-5-hexonic acid	Acid 3,3 –dimethyl-4,6,6-trichloro-5-hexonic, ethyl ether	0,008	орг. зап.	3
Butylacrylate	Acid acrylic, butyl ether; butyl ether of acrylic acid	0,01	орг. прив	4
Methylmethacrylate	Acid 2-methyl-2-propenoic methyl ether; methyl ether of	0,01	с.-т.	2
Butyl ether of methacrylic acid	Acid methacrylic, butyl	0,2	орг. зап.	4
Methylacrylate	Acid acrylic, methyl ether;	0,02	орг.	4
Ethyl ether of β, β-dimethylacrylic	Ethyl ether of 3-methylbut-2-ene acid	0,4	ог. зап.	3

3.3.2.1.1.2.2. polybasic alcohols				
Monomethacrylic ether of ethylene glycol	Acid methacrylic, 2-hydroxyethyl	0,03	с.-т	4
3.3.2.1.2 cyclic				
3.3.2.1.2.1. alicyclic				
Methyl ether of 2,2-dimethyl-3-propenyl-1-propane carboxylic acid	Acid 2,2-dimethyl-3-methylprop-1-enyl)-cyclopropane-1-methyl ether; methyl of chrisanthemic methylchrisantemate	0,61	орг. зап.	4
3.3.2.1.2.1.1 containing oxo- groups				
3.3.2.1.2.2. aromatic				
Methylbenzoate	Acid benzoic, methyl ether; methyl ether of benzoic acid;	0,05	орг.привк	4
Acid *n*-toluic, methyl ether	Acid 4-methylbenzoic, methyl ether; methyl ether of *n*-toluic acid	0,05	орг. прив	4

Name of Substance	Synonyms	Value of Standard in mg/l	Nuisance Value	Hazard Class
3.3.2.1.2.2.1. with aromatic substituent in alcohol				
3.3.2.2. esters of dibasic acids				
3.3.2.2.1 aliphatic				
3.3.2.2.1.1. saturated				
3.3.2.21.1.1. aliphatic saturated alcohols				
3.3.2.2.1.1.2. unsaturated alcohols				
3.3.2.21.2. containing double or triple bonds				
Diethyl ether of maleinic acid, diethyl	Acid maleinic, diethyl ether	1,0	с.-т	2
3.3.2.2.2. aromatic				

Dimethylphthalate	Acid phthalic, dimethyl ether; dimethyl ether	0,3	с.-т.	3
Dimethyl ether of tetrachloroterephth alic acid	Acid tetrachloroterephthalic, dimethyl ether;	1,0	с.-т.	3
Dimethylterephthalate	Acit terephthalic, dimethyl ether; dimethyl ether	1,5	орг. зап.	4
3.3.3. anhydrides and acid halides				
Dichloroanhydrid of terephthalic	Acid terephthalic dichloroanhydride; terephthaloyl chloride; benzenedicarbonyldichlo	0,02	орг. зап.	4
Dichloroanhydrid of 2,3,5,6-tetrachloroterephthalic acid	Acid 2,3,45,6-tetrachloroterephthalic, dichloroanhydride; dichloride; 2,3,5,6-tetrachloro-1.4-carbonyldichloride	0,02	орг. зап.	4
Dichloroanhydrid of isophthalic	Acid isophthalic dichloroanhydride: isiphthaloylchloride: benzenedicarbonyldi	0,08	орг. зап.	4

chloride

Name of Substance	Synonyms	Value of Standard in mg/l	Nuisanc Value	e Hazard Class
4. Nitrogen-containing compounds				
4.1. Amines and their salts				
4.1.1. primary				
4.1.1.1. containing one amino group				
4.1.1.1.1. aliphatic				
4.1.1.1.1.1. containing only saturated bonds				

Amines C16-C20		0,03	орг. зап	4
Amines C10-C15		0,04	орг. зап	4
Monoisobutylamine	2-Methyl-1-proparamine	0,04	орг. прив	3
Amines C7-C9		0,1	орг. зап	3
Monopropylamine	Propylamine	0,5	орг. зап	3
Monoethylamine	Ethylamine	0,5	орг. зап	3
tret-Butylamine		1,0	с.-т.	3
Monomethylami	Methylamine	1,0	с.-т.	3
Isopropylamine		2,0	с.-т.	3
Monobulamine	Butylamine	4,0	орг. зап	3
4.1.1.1.1.1.1. containing oxy-, oxo-, carboxy- groups				
Isopropanolamine	1- Amino-2-hydroxypropa	0,3	с.-т.	2
Monoethanolami	2-Aminoethanol	0,5	с.-т.	2
4.1.1.1.1.2. containing unsaturated bonds				
Ionoallylamine	Allylamine	0,005	с.-т.	2
4.1.1.1.1.2.1. containing oxy-, oxo-, hydroxy- and carboxy- groups				
Vilyl ether of monoethanolami	2-(Ethinyloxy)ethanamin	0,006	орг. зап	3
4.1.1.1.1.2.2. acid amides				
Acrylamide	Propenamide, acid acrylic	0,01	с.-т.	2
Methacrylamide	Acid methacrylic, amide	0,1	с.-т.	2
Methylolmethacryl	Acid methacrylic, amide	0,1	с.-т.	2
N, N-Dimethylamine	KF-6	0,2	с.-т.	2
4.1.1.1.2. cyclic				
4.1.1.1.2.1. alicyclic				
4.1.1.1.2.2. aromatic				
4.1.1.1.2.2.1. monocyclic				
Alkylaniline		0,003	с.-т.	2

Name of Substance	Synonyms	Value of Standard in	Nuisance Value	Hazard Class
2,4,6-Trimethylaniline	2,4,6- Trimethylaniline, mesidine	0,01	с.-т.	2
Aniline	Phenylamine,	0,1	с.-т.	2
n-Butylaniline	*n*-Aminobutyl benzene	0,4	орг. зап	3
м-Toluidine	3-Methylaniline	0,6	с.-т.	2
n-Toluidine	4-Methylaniline, aminomethyl benzene	0,6	орг. зап	3
4.1.1.1.2.2.1.1. halogen substituted				
Dichloroaniline	Dichlorobenzeneamine	0,05	орг.	3
Bromotoluine	Bromotoluidine (mix of *o, м, n*- isomers)	0,05*	орг. зап	4
м-Trifluoromethylaniline	3-(Trifluoromethyl) benzeneamine, 3-aminobenzotrifluoride	0,02	с.-т.	2
м-Chloroaniline	3-Chlorobenzeneamine	0,2	с.-т.	2
n-Chloroaniline	4-Chlorobenzeneamine	0,2	с.-т.	2
2,4,6-Trichloroaniline	2,4,6-Trichlorobenzeneamine	0,8	орг. привк	3
2,4,5-Trichloroaniline	2,4,5-Trichlorobenzeneamine	1,0	орг.пл е нка	4
4.1.1.1.2.2.1.2. containing hydroxy-, oxo-, carboxy- groups				
o-Aminophenol	1-Amino-2-hydroxybenzene, o-hydroxyaniline	0,01	орг. окр	4
n-Anisidine	4-Methoxyaniline	0,02	с.-т.	2
o-Anisidine	2-Methoxyaniline	0,02	с.-т.	2
n-Phenetidine	4-Ethoxyaniline, aminophenetol	0,02	с.-т.	2
n-Aminophenol		0,05	орг. окр	4
Phenylhydroxylam	N-Phenylhydroxylamine	0,1	с.-т.	3
м-Aminophenol	1-Amino-3-hydroxybenzene	0,1*	орг. окр	4
Acid 4-aminobenzoic		0,1	с.-т.	3

Acid 5-aminosalicylic	Acid 5-amino-2-hydroxybenzoic	0,5	орг. окр	4
Acid 3-aminobenzoic		10,0	орг. окр	4
4.1.1.1.2.2.1.2.1. halogen substituted				
4-Amino-3-		0,1	орг. окр	4
4.1.1.1.2.2.1.3. acid amides				
Benzamide		0,2*	с.-т.	3

Name of Substance	Synonyms	Value of Standard in mg/l	Nuisance Value	Hazard Class
4.1.1.1.2.2.2. aromatic condensed				
1-Aminoanthraquinone		10,0	с.-т.	2
4.1.1.2. containing two or more amino groups				
4.1.1.2.1. aliphatic				
4.1.1.2.1.1. containing only saturated bonds				
Hexamethylene di	1,6-Diaminohexane	0,01	с.-т.	2
Hydrazine		0,01		
1,12-Dodecamethylene diamine	1,12-Dodecanediamine 1,12	0,05	с.-т.	3
Ethylenediamine	1,2-diaminoethane	0,2	орг.зап	3
4.1.1.2.1.1.1. containing hydroxy-, oxo- and carboxy- group				
Tetraoxypropylet	Lapromol 294	2,0	с.-т.	2
4.1.1.2.1.1.2. acid amides				
4.1.1.2.1..2. containing unsaturated bonds				
Diallylamine				
Alkylpropylene dia		0,16	орг.зап	4
4.1.1.2.2. aromatic				
4.1.1.2.2.1. monocyclic				
o-Phenylenediami	1,2- diaminobenzene, phenylene-1,2-diamine	0,01	орг.окр	3

Phenylhydrazin		0,01	с.-т.	3
4,4-Diamino-diphenyl	4,4- Oxybisbenzeneamine	0,03	с.-т.	2
м,п-Phelilenediamin	Diaminobenzenephenylenediamide			
4.1.1.2.2.2. condensed polycyclic				
1,4-Diamino-anthraquine	1,4- Diamino- 9,10-anthracenedione			3
1,5-Diamino-anthraquinone	1,5- 9,10-Diaminoanthracene-diene	0,02	орг.окр.	4
4.1.2. secondary				
4.1.2.1. containing only aliphatic				
Diisobutylamine	Bis(2-methylpropyl)-amine, 2- methyl-N-(2-methylpropyl)-1	0,07	орг.прик	4
Dimethylamine		0,01	с.-т.	2

Name of Substance	Synonyms	Value of N Standar	uisance Value	Hazard Class
Isopropyloctadecyl	N-Isopropyloctadecylamine	0,1	орг.плен ка	4
Diethylenetriamine	N-(2-aminoethyl)-1,2-ethandiamine, 2,2-diaminodiethylamine	0,2	орг.зап	4
Dipropylamine	N-propyl -1-	0,5	орг.пи	в
Diisopropylamin	N-isopropyl-	0,5	с.-т.	3
Ethylbutylamine	N-ethyl - butaneamine	0,5	орг.пр ивк	3
Dibutylamine	N-butyl -1 - butaneamine	1,0	орг.зап	3
Diethylamine		2,0	с. – т.	3
4.1.2.1.1. containing hydroxy-, oxy-, oxo-, carboxy- groups				
Diethanolamine		0,8	орг.пр ивк	4
4.1.2.1.2. oximes				

Acetone oxime		8,0	с.-т.	2
4.1.2.1.3. hydroxamic acids				
4.1:2.2. containing cyclic substituents				
4.1.2.2.1. containing alicyclic substituents				
N-ethylenecyclohexyla mine		0,1	с.-т.	4
4.1.2.2.1.1. derivants of urea with one alicyclic substituent				
4.1.2.2.2. containing monocyclic aromatic substituents				
4 Aminodifenylam	N-Phenyl-1,4 – benzenediamine, N-	0,005	с.-т.	2
Diphenylamine	N- phenylbenzeneamine	0,05	орг.зап	3
N- Methyl aniline		0,3	орг.зап	2
N-Ethyl-o-toluidine	N-Ethyl-2-methylaniline	0,3	орг.зап	3
N-Ethylmethatolui	N-Methyl-N-ethylaniline	0,6	с.-т.	2
N-Ethylaniline	N-Ethylbenzeneamine	1,5	орг.зап	3
4.1.2.2.2.1 containing hydroxy-, oxy-, oxo-, carboxy- groups				
4-Amino-2-(2-hydroxyethyl)-N- ethylaniline		0,2	орг.зап.	3
n-acetaminophenol	Acetic acid, (4-hydroxyphenyl) amide; Paracetamol; 4-	1,0	орг.привк.	3

Name of Substance	Synonyms	Value of N Standard in	uisanc Value	eHazard Class
N-Acetyl-2-aminophen		2,5	орг. окр	4
4.1.2.2.2.2. oximes				
Cyanbenzaldoxi		0,03	орг.	4

sodium salt			зап.	
n-Quinonedioxime	2,5 – Cyclohexanediene – 1,4- dione dioxime	0,1	с.-т.	3
Cyclohexaneoxime		1,0	с.-т.	2
4.1.2.2.3. acid amides				
3-chloro-2,4 – dimethyl-valeranilide	Acid 2-methylpentoic, 4- methyl-3-chloroanilide; solan	0,1	орг. зап.	4
Salicyl anilide		2,5	орг. зап.	3
4.1.2.2.2.4. urea derivants with one aromatic substituent				
M-Trifluoromethylphenylurea	1-(3-Trifluoromethylphenyl) urea	0,03	орг. привк	4
4-Chloro-2-butynil-N-(3-	Acid 4- chlorophenyl-carbamino, 4 – chlorobut -2 ynil ether, carbine	0,03	орг.з	4
3-Methylphenyl – N – methylcarbamat	Acid methyl carbamino, methylphenyl ether;	0,1	орг. зап.	3
Isopropylphenylca	Acid phenyl carbamino	0,2	орг. зап.	4
Isopropylchlorophenylcarbamate	Acid 3 – chlorophenyl carbamino, isopropyl ether	1,0	орг. зап.	4
	1-Hydroxy-3-methyl-1-phenylurea; meturine	1,0	с. т.	3
	Acid 3-tolyl-carbamino 3 – (N-methoxycarbonyamino)	2,0	с.	3
4.1.2.2.3. containing polycyclic aromatic constituents				
1- Chloro-4-benzoilaminoanthra quinone		2,5	с. т.	3

Name of	Synonyms	Value of	uisan	e Hazard

Substance		Standard in mg/l	Value	Class
4.1.2.2.3.1. urea derivants with condensed aromatic substituent				
1 – Naphthyl – N methyl	Acid methyl carbamino, naphth – 1 yl ether; servin	0,1	орг. зап.	4
4.1.3. tertiary				
4.1.3.1. containing only aliphatic substituents				
Triallylamine		0,01	с. т.	2
1 – Butylbiguanidine	Glybutide	0,01*	с. т.	2
Triisooctylamine	N, N – Diisooctylisooctaneamine	0,025	с. т.	2
Trimethylamine		0,05	орг. зап	4
Trialkylamine C7 – C9		0,1	с. т.	3
Alkyldimethylamine		0,2	с. т.	3
N, N*-Diethylguanidine	1,2 – Diethylguaniline mono	0,8	с. т.	3
Tributylamine		0,9	орг. зап	3
Triethylamine		2,0	с. т.	2
4.1.3.1.1. nitriles				
Malononitrile	Propanedinitrile, dicyanomethane	0,02	с. т.	2
Acetone cyanohydrin	Acid 2-hydroxy -2– methylpropanoic, nitrile; 2- hydroxymethyl propanonitrile,	0,035	с. т.	2
Alkylaminopropio nitrile C17		0,05	орг. пена	4
Adiponitrile		0,1	с. т.	2

Allyl cyanide	Acid but – 3-enoic, nitrile	0,1	с. т.	2
Isocrotonic nitrile	2 – methyl-2-propenenitrile	0,1	с. т.	2
Crotonitrile	Acid but -2 –enoic, nitrile	0,1	с. т.	2
Succinonitrile	Butanedinitrile	0,2	с. т.	2
Acetonitrile	Acid acetic, nitrile	0,7	орг. зап	3

Name of Substance	Synonyms	Value of Standard in	Nuisance Value	Hazard Class
Calcium cyanamide	Acid carbamino, nitrile, Compound with calcium	1,0	с. т.	3
Acrylonitrile		2,0	с. т.	2
Dicyandiamide	Cyanoguanidine	10,0	орг. привк	4
4.1.3.1.2. containing hydroxy-, oxy-, oxo-, carboxy- groups				
Triisopropanolami	Tripropylamine	0,5	с. т.	2
Triethanolamine		1,0	орг. привк	4
Ethyl ether of N- benzoil -N-(3,4-dichlorophenyl) - 2	Ethyl–N-benzoil-N-(3,4-dichlorophenyl)alaninate, suffix	1,0	с. т.	2
Methyldiethanolamine	Bis (2-hydroxyethyl) methylamine, 2,2 - (N-methylamino)	1,0	с. т.	2
4.1.3.1.3. amides				
Dimethylacetam		0,4	с. т.	2
Diethylamide of	N,N – Diethyl-2-(1-	1,0	с. т.	2

(naphthoxy)propionic acid	naphthalenyloxy)-propaneamide			
4.1.3.1.4. urea derivants with several aliphatic substituents				
N,N-Dimethylurea	1,3 - Dimethylurea	1,0	с. т.	2
N,N – Dimethylcarbamide		6,0	с. т.	2
4.1.3.2. containing cyclic substituents				
4.1.3.2.1. urea derivants with alicyclic substituents				
3-(Hexahydro-4,7-methaneindan-5-yl)	Herban	2,0	с. т.	2
4.1.3.2.2. containing aromatic substituents				
N,N – Diethyl-n-phenylenediamin	ЦПВ, 1,4- aminodiethyl-anilinesulphate	0,1	с. т.	2
N,N-Diethylaniline	N,N – Diethylbenzeneamine	0,15	орг. окр.	3
Alkylbenzyldimethyl-ammonium		0,3	орг. пена.	3
Name of Substance	Synonyms	Value of Standard in mg/l	Nuisance Value	Hazard Class
Alkylbenzyldimethyl-ammonium		0,5	орг. пена	3
N-(C7-9)Alkyl-N-phenyl-n	Product C-789	0,9*	орг. окр.	3
Ethylbenzylaniline	N-Phenyl-N-ethyl-benzenemethaneimine	4,0	с.-т.	2
4.1..3.2.2.1. nitriles, isonitriles				
Benzyl cyanide	Isocyanomethyl-benzene	0,03	орг. зап.	4
Isophthalonitrile	1,3-	5,0	с.-т.	3

	isophthalonitrile, 1,3-			
4.1.3.2.2.2. amides				
4.1.3.2.2.3. urea derivants with one or several aromatic substituents				
Diphenylurea	N,N-Diphenylurea carbanilide	0,2	орг. зап.	4
N-Trifluoromethyl-phenyl-N, N-dimethylurea	1,1-Dimethyl-3-(3-trifluoromethylphenyl)urea, cotoran	0,3	орг. пленка	4
Diethylphenylurea	Centralite (dimethyl-diphenyl urea)	0,5	орг. прив.	4
N´-(3,4-Dichlorophenyl) - N,N-dimethyl	1,1-Dimethyl-3-(3,4dichlorophenyl) urea, ciuron	1,0	орг. зап.	4
4.1.4. quaternary ammonium compound salts				
Methyltrialkylam		0,01	с.-т.	2
Alkyltrimethylam		0,2	с.-т.	2
Chlorcholine chloride	N,N,N-Trimethyl-N-(2-chloroethyl) ammonium	0,2	с.-т.	2
4.2. oxygen- and nitrogen-containing				
4.2.1. nitro- and nitroso compounds				
4.2.1.1. aliphatic				
Nitromethane		0,005	орг. зап.	4
Trinitromethane	Nitroform	0,01	орг. окр.	3
Tetranitromethane		0,5	орг. зап.	4
Nitropropane		1,0	с.-т.	3
Nitroethane		1,0	с.-т.	2
Name of Substance	Synonyms	Value of Standard in	Nuisance Value	Hazard Cl

			ости	
4.2.1.1.1. containing hydroxy-, oxy-, oxo-, carboxy groups				
Dinitrodiethylene glycol	Dihydroxyethyl ether dinitrate, diethylene glycol dinitrate	1,0	с.-т.	3
Dinitrotriethylene		1,0	с.-т.	3
4.2.2. cyclic				
4.2.2.1. alicyclic				
Chloronitrosocycl	1-Nitroso-1-chlorocyclohexane	0,005	орг.зап	4
Nitrocyclohexane		0,1	с.-т.	2
4.2.1.2.2. aromatic				
4.2.1.2.2.1. monocyclic				
Nitrobenzene		0,2	с.-т.	3
Trinitrobenzene		0,4	с.-т.	2
Dinitrobenzene		0,5	орг.зап	4
2,4-Dinitrotoluene		0,5	с.-т.	2
4.2.1.2.2.1.1.halogen substituted				
м-Trifluoromethyl	1-Nitroso-3-trifluoromethylbenzene	0,01	орг.зап	3
Nitrochlorobenzene	Nitrochlorobenzene (mix of 2,3,4 isomers)	0,05	с.-т.	3
Nitrosophenol		0.1	орг.окр	3
2,5-Dichloronitrobenzene	1,4-Dichloro-2-nitrobenzene	0,1	с.-т.	2
3,4-Dichloronitrobenzene	4-Nitro-1,2-dichlorobenzene	0,1	с.-т.	3
Dinitrochlorobenz	2,4-ДDinitro-1-chlorobenzene	0,5	орг. зап	3

4.2.1.2.2.1.2. containing hydroxy-, oxy-, oxo-, carboxy groups				
n-4-Nitroethoxybenzene	4-Nitroethoxybenzene	0,002	с.-т.	2
n-Nitrophenol	4-Nitrophenol	0,02	с.-т.	2
2-sec.-Butyl-4,6-dinitrophenol-3,3-dimethylacrylate	2-(1-Methylpropyl)-4,6-dinitrophenyl-3-methyl-2- buteneoate, morocide, acricide, endozan, 2-sec.-butyl-4,6- dinitrophenol-	0,03	с.-т.	2
2,4-Dinitrophenol		0,03	с.-т.	3
Name of Substance	Synonyms	Value of Standard in mg/l	Nuisanc Value	e Hazard Class
2-Methyl-4,6-dinitrophenol		0,05	с.-т.	2
м-Nitrophenol	3-Nitrophenol	0,06	с.-т.	2
o-Nitrophenol	2- Nitrophenol	0,06	с.-т.	2
n-Nitroanisole	4-Nitromethoxybenzene	0,1	орг. привк	3
2-(1-Methylpropyl)-4,6-	Dinoseb	0,1	орг.окр.	4
Acid *м*-nitrobenzoic	Acid 3-nitrobenzoic	0,1	орг.окр	4
Acid *n*-nitrobenzoic	Acid 4-nitrobenzoic	0,1	с.-т.	3
Methylethyl-[2-(1-ethylmethylpropyl)	Acid 2-sec-butyl-4,6- dinitrophenyl, isopropyl ether; dinobutone; citazol;	0,2	орг. пленка	4
o-Nitroanisole	2-Nitroanisole	0,3	орг. привк	3
2,4,6-Trinitrophenol	Acid picronitric	0,5	орг.окр	3
2-[(p-Nitrophenyl	Oxyacetylamine	1,0	орг. зап	4

acetylamin ol ethan-1-				
4.2.1.2.2.1.2.1. halogen substituted				
n-Nitrophenylchl oro	4-Nitro-α-chloromethyl-benzenemethanol,	0,2	орг. зап.	4
Acid 3-nitro-4-chlorobenzoic		0,25	орг. прив	3
Acid 5-nitro-2-chlorobenzoic		0,3	орг. прив	4
Acid 2,5-dichloro-3		2,0	с.-т.	2
2,4-Dichlorophenyl-4- nitrophenyl	2,4-Dichloro-1-(4-nitrophenoxy)benzene, nitro chlorine, toccorn	4,0	с.-т.	2
4.2.1.2.2.1.3. containing amino-, imino-, diazo groups				
4-Nitro-N,N-diethylaniline		0,002	орг.о кр	3
2-Nitroaniline	*o*-Nitroaniline	0,01	орг.о кр	3
N-Nitrosodiphenyl amine	Diphenylnitrozamin	0,01	с.-т.	2
Name of Substance	Synonyms	Value of Standard in	Nuisance Value	e Hazard
2,4-Dinitro-2,4-diazopentane	N,N'-Dimethyl-N,N-dinitromethanediamine	0,02	с.-т.	2
4-Nitroaniline	*n*-Nitroaniline, 4-	0,05	с.-т.	3
Dinitroaniline	Dinitrobenzeneamine	0,05	орг. окр	4
3-Nitroaniline	3-Nitrobenzeneamine, *м*-nitroaniline	0,15	орг. окр	3
Indotoulidine	N-(4-Amino-3-methylphenyl)-	1,0	с.-т.	2

4.2.1.2.2.1.3.1. halogen substituted				
4-Chloro-2-nitroaniline	4-ZChloro-2-nitrobenzeneamine	0,025	орг. окр	3
2,6-Dichloro-4-nitroaniline	2,6-Dichloro-4-nitrobenzeneamine	, 0,1	орг.	3
3,5-Dinitro-4-diethylaminobenzotrifluoride	Nitrophor	1.0	орг. зап	4
3,5-Dinitro-4-dipropylaminobenzo trifluoride	2,6-Dinitro-N,N-dipropyl-4- trifluoromethylaniline, treflan	1,0	орг. зап	4
4.2.1.2.2.1.3.2. containing hydroxy-, oxy-, oxo-, carboxy- groups				
2,4,4-Trinitrobenzanilide	Acid 2,4,6-trinitrobenzoic, anelide	0,02	с.-т.	2
n-Nitrophenylamine ethanol	2-[(4-nitrophenyl) amino]ethanol, oxyamine	0,5	орг. зап	4
4.2.1.2.2.2. condensed aromatic				
Dinitronaphthalene		1,0	орг. окр	4
Acid 1-nitroanthra	Acid 0,10-dihydro-1-nitro-9,10-dioxo-2-anthracene	2,5	с.-т.	3
4.2.2. ethers and salts of hydrogen nitrate and nitrous acid				
Butylnitrite	Acid nitrous, butyl ether	0,05	орг. зап	4
1-Nitroguanidine		0,1	с.-т.	2
5. Sulphur-containing compounds				
5.1. thio compounds				
5.1.1. containing C-S-H group				
Methylmercaptan		0,0002	орг. зап	4
Allylmercaptan		0,0002	орг. зап	3

Name of Substance	Synonyms	Value of Standard in	Nuisance Value	Hazard Class

B-Mercaptodiethylamine	2-(N,N)-Diethylaminoethanethiol	0,1	орг.зап	4
5.1.2. containing C-S-C group				
Dimethylsulphide		0,01	орг. зап	4
3-Methyl-4-methylthiophenol	Methylthiomethylphenol, 3-methyl-4-	0.01	орг. привк	4
2-Methylthio-O-methylcarbam	3-Methylthio-2-butanone-o- (methylaminocarbonyl) oxime, dravin 755	0,1	орг. зап	3
4-Chlorophenyl-2,4.5-trichl	1,2,4-Trichloro-5-[4-(chlorophenyl)thio]benzene?, animert	0,2	орг. пленка	4
Divinylsulphide	Vinylsulphide, 1,1-thio, ethene	0,5	орг. зап	3
5.1.3. containing C-S-S-C group				
Dimethyldisulphide		0,04	орг. зап	3
5.1.4. containing C=S group				
Carbon disulphide		1,0	орг. зап	4
5.1.4.1. thiourea derivants				
5-Propyl-N-ethyl- N-butylthiocarbam	Acid butyl(ethyl) thiocarbamic, S-propyl ether; tillam	0.01	с.- т.	3
Thiourea	Thiocarbamide, diamide of thiocarbamic acid	0,03	орг. зап	3
S-(2,3-Dichloroallyl) - N,N-isopropylthio-	Acid disopropyl-thiocarbamic, S-(2,3-dichloroprop-2-	0,03	орг. зап.	4
S-Ethyl-N,N'-dipropylthi	Acid diisopropylthiocarbamic, S-ethyl ether; eptam	0,1	орг. зап	3

Acid amidine thioacetic	Carboxymethylisothioure a	0,4	с.-т.	2
1.2- Bis-methoxycarbonyl - thioureidbenzen	Acid 1,2-phenylene bis(iminocarbonothioyl) biscarbamic, diethyl ether; topsin; nemafax;	0,5	орг. привк.	3
Name of Substance	Synonyms	Value of Standar d in	Nuisanc e Value	Hazar d Class
5.1.4.2. derivants of dithiocarbamic acid				
Tetraethyl thiuram disulphide	N,N,N',N'-Tetraethyl-thiuram	Отсутст.	орг. зап.	3
Acid N-methyldithio carbamic, N-methylamine salt		0,02	орг. зап.	3
Ammonium methyldithiocarbamate	Acid methyldithio-carbamic, sodium salt;	0,02	орг. зап.	3
Ammonium ethylenebisthiocarbamate	Acid 1,2-ethylene-bisthiocarbamic , diammonium	0.04	орг. зап.	3
S-Ethyl-N-ethyl-N-cyclohexylthiocarbonate	Ronit, cycloate	0,2	с.-т.	3
Zinc ethylene-bis-dithiocarbamate	Acid N,N'-ethylene-bisdithiocarbamic , zinc salt; zineb	0,3	орг. мутн.	3
Ammonium dimethyldithiocarbamate	Acid dimethyldithioca rba mic,	0,5	с.-т.	3
Tetramethyl thiuram disulphide	Tertamethyl thiuramide-	1,0	с.-т.	2

	thiuram D			
5.1.4.3. xanthogenates				
Butylxanthogenate	Acid thiolcarbonic, butyl ether	0,001	орг. зап.	4
Isoamylxanthogenate	Acid thiolcarbonic, isoamyl ether; isopentylxantho	0,005	орг. зап.	4
Isopropylxanthogenate, salt	Acid thiolcarbonic, isopropyl ether,	0,05	орг. зап.	4
Ethylxanthogenate, salt	Acid thiocarbonic, ethyl ether, salt	0,1	орг. зап.	4
5.1.5. containing C-N=S group				
5.1.6. sulphonium salts				
4-Hydroxy-2-methyl-phenyl dimethyl-sulphonium chloride		0,007	орг. зап.	4
Name of Substance	Synonyms	Value of Standard in	Nuisance Value	Hazard Class
5.2. compounds containing sulfur directly bonded with oxygen				
5.2.1. sulphoxides				
5.2.2. sulphones				
N-*н*-Butyl-N-(*n*-methyl benzenesulphonyl) urea	1-Butyl-1-(*n*-toltsulphonyl) urea, bugamide	0,001*	с.-т.	1
N-Propyl-N'-(p-chloro-benzenesulphonyl) urea	3-Propyl-1-[(*n*-chlorophenyl)sulph onyl] urea, chlorpropamide	0,001*	с.-т.	1
4,4'-Dichlorodiphenyl-sulphone	1,1'-Sulphonyl-bis(4-chlorobenzene), di4-	0,4	с.-т.	2

	chlorophenyl)sulphone			
4,4'-Diaminodiphenylsulphone	4,4'-Sulphonyldianiline	1,0	с.-т.	2
5.2.3. sulphinic acids and their derivants				
Acid p-toluene-sulphinic, salt	Acid 4-methyl-benzene-sulphinic, salt	1.0	с.-т.	2
5.2.4. sulphonic acids and their derivants				
5.2.4.1. aliphatic sulphoacids and their salts				
Methyltrialkylammonium		0,01	с.-т.	3
Olefin sulphonate C15-C18		0,2	с.-т.	2
Olefin sulphonate C12-C14		0,4	орг. пена	4
Acid N-methyl-thionamic		0,4	с.-т.	2
Alkyl sulphonates		0,5	орг. окр.	4
5.2.4.2. aromatic				
5.2.4.2.1. monocyclic				
5.2.4.2.1.1. sulphoacids and sulphonates that do not contain any other substituents, except for alkyl residues				
Alkylbenzenesulphonates	Chloric sulphonol	0,5	орг. пена	4
5.2.4.2.1.1.1. containing residual substituents				
1,4-Bis(4-methyl-2-sulphophenylamino)-5,8-	Chrome dye, anthraquinone green, 2G	0,01	орг. зап.	4
Name of Substance	Synonyms	Value of Standard in	Nuisance Value	Hazard Class
Acid 4-nitroaniline 2-sulphonic, salt	4-Nitroaniline-2-sulphoacid salt	0,08	орг. окр.	4
Acid aminobenzene-3-sulphonic	Acid aniline sulphonic, acid aniline-x-	0,7	орг. окр.	4

Acid 3-nitroaniline- 4-sulphonic	Acid 4-amino- 2-nitrobenzene sulphonic, acid 3-	0,9	орг. окр.	4
n-Chlorobenzene-sodium sulphonate	4-Chlorobenzenesul phoacid, sodium salt;	2.0	с.-т.	2
5.2.4.2.1.2. ethers of aromatic sulphoacids				
5.2.4.2.1.3. acid halides of aromatic sulphoacids				
Benzenesulphochloride	Benzenesulphonyl-	0,5	орг. зап	4
5.2.4.2.1.4. amides				
n-butylamide of benzene sulphonic acid	Acid benzene sulphonic, *n*-butylamide; N-	0.03	с.-т.	2
Benzenesulphamide	Acid benzene sulphonic, amyl	6,0	с.-т.	3
5.2.4.2.2 condensed polycyclic				
Acid bis(*n*-butyl-aniline) anthraquinone-3,3-	Acid dye, anthraquinone green, H2C	0.04	орг. окр	4
Acid 1,8-diamino-naphthalene-4-	C-acid	1.0	орг. зап	4
2-Naphthol-6-sulphoacid	6 -Hydroxy-2-naphthalene-sulphoacid,	4,0	с.-т.	3
5.3 ethers and salts of sulphuric and sulphurous acids				
4-Chlorophenyl-4-chlorobenzenesulphonate	Ethersulphonate	0,2	орг. привк	4
2-Aminoethyl ester of sulphuric acid	Acid 2-aminoethyl	0,2	С.-т.	3
n-Methylaminephenol sulphate	Metol	0,3	орг. окр	3

Alkyl sulphates		0,5	орг. пена	4

Name of Substance	Synonyms	Value of Standard in	Nuisance Value	Hazard Class
Triethanolamine alkylbenzenesulphonate		1,0	орг. Пена	3
6. Phosphorus-containing compounds				
6.1. containing C-P bond				
6.1.1. phosphines and phosphonium salts				
Tris(diethylamino)-2-	Cefos	2,0	орг. Зап.	3
6.1.2. oxides of tertiary phosphines				
Triisopentylphosphine oxide	Acid tris(3-methyl- butyl) phosphorus	0,3	с.-т.	2
Dioctylisopentylphosphine oxide	(3-Methylbutyl) dioctylphosphine oxide	1,0	с.-т.	3
6.1.3. Phosphonates				
Acid 2-chloroethyl-phosphonic, bis(2-chloroethyl) ester	Diester of 2-chloroethylphosphonic acid	0,2	с.-т.	2
Acid vinylphosphonic, bis(β-β	O,O-Bis(2-chloroethyl)vinyl phosphonate	0,2*	с.-т.	2
O,O-Diphenyl-1-hydroxy- 2,2,2-trichloroethylphosphon		0,3	орг. Пена	3
O-(2-Chloro-4-methylphenyl)	(4-Methyl-2-chlorophenyl)	0,4	орг. Зап.	4
N'-isopropylamido-chloromethylthiophosphonate	N-sec-butylamido-chloromethylthion	0,4	орг. Зап.	4
Oxyhexylidendiphosphonate		0,5	с.-т.	3
Oxyheptylidendiphosphonate		0.5	с.-т.	3
Oxynonylidendiphosphonate		0,5	с.-т.	3

Oxyoctylidendiphospho		0,5	с.-т.	3
Acid oxyethylidendiphosphonic	Acid hydroxyethane-1,1	0,6	орг. Привк	4
Acid 2-chloroethyl-phosphonic, 2-chloroethyl ester	Monoester of 2-chloroethylphosphonic acid	1,5	с.-т.	3
Name of Substance	Synonyms	Value of Standard in	Nuisance Value	Hazard Class
Acid 2-chloroethyl-phosphonic	Ethrel, ethephon	4,0	с.-т.	2
Acid 2-hydroxy-1,3-propylenediamine-N,N,N',N'-tetramethylene-	ДПФ-1Н	4.0	орг. Привк.	4
6.2. derivants of phosphoric and phosphorus acids				
6.2.1. phosphites				
Trimethylphosphate		0.005	орг. Зап	4
Trifenylphosphate	O,O,O-Trifenylphosphat	0,01	с.-т.	2
Dimethylphosphite		0,02	орг. Зап	3
6.2. 3. amides of phosphoric acid				
6.2.2. phosphites				
O,O,O-Tricresylphosphate	Tricresylphosphat	0,005	с.-т.	2
O,O,O-Tributylphosphate	Tributylphosphate	0,01	орг.привк	4
O,O,O-Trixylenylphosphate	Trixylenylphosphate	0,05	орг. Зап	3
O,O-Dimethyl-O-3-(carb-1-phenylethoxy)-propene-2- yl-2-phosphate	Acid 3-dimethoxy-phosphoryloxycrotonic 1-phenylethyl ester;	0,05,	с.-т.	2
O,O-Dimethyl-O-(1,2-3,4,5-tetrachlorophenyl) 2	Vinylphosphate	0,2	орг. Привк	3

O,O,O-Trimethylphosphate	Trimethylphosphate	0,3	орг. Зап	4
6.2.2.1. halogen substituted				
O,O-Dimethyl-(1-hydroxy- 2,2,2-trichloroethyl)phosphon	Chlorophos	0,05	орг. Зап.	4
O,O- Dimethyl-O-(2,2-dichlorovinyl)phosphate	O-(2,2-Dichlorovinyl)-O,O-dimethylphosphat	1.0	орг. Зап.	3
Dichloropropyl(2-ethylhexyl)phosphate		6,0	орг.	4
6.2.2.2. thiophosphates				
S,S,S-Tributyltrithiophosphate	Butiphos	0,0003	орг. Прививк	4

Name of Substance	Synonyms	Value of Standard in mg/l	Nuisance Value	Hazard Class
O-Cresyldithiophosphate	Dithiophosphate cresylic	0,001	орг. зап.	4
O,O-Dimethyl-S-ethyl-mercaptoethyldithiophosphate	O,O-Dimethyl-S-(2-ethyl-thioethyl) dithiophosphate, M-81	0,001	орг. зап.	4
O,O-Dimethyl-O-(3-methyl-4-methylthiophenyl)-thiophosphate	Acid thiophosphonic, O,O-dimethyl-O-(3-methyl-4-methylthio) phenyl ester; sulphidophos; baytex	0,001	орг. зап.	4
O-(4-Methylthiophenyl)-O-ethyl-S-propylthio-phosphate	Bolstar, gelothion, sulprophos	0,003	орг. зап.	4

Acid bis(2-ethyl-hexyl)dithiophosphoric	Acid dithiophosphoric O,O-bis(2-ethyl-	0,02	с.-т.	2
O,O-Diethyl-S-carbo-ethoxymethylthiophospha	Acetophos	0,03	орг. зап.	4
O,O-Dimethyl-S-carb-ethoxymethylthiophospha te	Acid 2-(dimethoxy-thiophosphor yl-thio)acetic,	0,03	орг. зап.	4
O,O-Dimethyl-S-(1,2-dicarboethoxyethyl) dithiophosphate 8888	Acid 2-(dimethoxy-thiophosphory l-thio)butanedio	0,0-5	орг. зап.	4
O,O-Diethyl-S-benzyl-thiophosphate	S-Benzyl_O,O-diethyl-	0,05	с.-т.	2
Acid O-phenyl-O-ethylthiophosphoric, salt		0,1	орг. зап.	4
Dibutyldithiophosphates	Acid dithiophosphor ic O,O-dibutyl	0,1	с.-т.	2
Dibutylmonothiophosph ate		0,1	орг. зап.	3
Acid dimethyl-dithiophosphoric	Acid O,O-dimethyl-	0,1	орг.зап.	4
S-(2-Acetamidoethyl)-O,O	Amiphos	0,1	орг.зап.	4
Acid diethyl-dithiophosphoric	Acid O,O-diethyldithiophosp ho ric	0,2	орг. зап.	4
Diethyldithiophosphate	Acid diethyldithio-	0.5	орг.зап	3

	phosphoric, salt			
Name of Substance	Synonyms	Value of Standard in mg/l	Nuisance Value	Hazard Class
O-Methyl-O-ethyl-chlorothiophosphate	Diether	0,002	орг. зап.	4
O-Phenyl-O-ethyl-chlorothiophosphate		0,005	орг. зап.	3
O-(4-Brom-2,5-dichlorophenyl)-O,O-dimethylthiophosphate	Bromophos	0.01	орг. ап.	4
Monomethyldichlorothio-phosphate	O-Methyldichlorothio phosphate	0,01	с.-т.	2
Monoethyldichlorothio-phosphate	O-Ethyldichloro-thiophosphate	0,02	орг. зап.	4
O-(2,4-Dichlorophenyl)-S-propyl-O-ethyl-thiophosphate	Etaphos, prothiophos, tokuiton, bideron	0,05	орг. зап.	3
Diethylchlorothiophosphate	O,O-Diethylchloro-phosphate	0,05	орг. зап.	4
Dimethylchlorothiophosphate	O,O-Dimethyl-chlorothiophosphate	0.07	орг. зап.	3
O-Methyl-O-(2,4,5-trichlorophenyl)-O-ethylthiophosphate	Trichloromethophos phate-3	0.4	орг. зап.	4
O,O-Dimethyl-O-(2.5-dichloro-4-iodophenyl) - thiophosphate	Iodophenphos	1,0	орг. зап.	3
6.2.2.2.2. nitrogen-containing				
O,O-Diethyl-O-(4-nitrophenyl) thiophosphate	O-(4-Nitrophenyl)-O,O-diethylthio-phosphate, thiophos	0.003	орг. зап.	4
O,O-Dimethyl-S-(N-methyl-N-formylcarbamoylmethyl) dithiophosphate	O,O-Dimethyl-S-(N-methyl-N-formylaminomethyl) diophosphate, antio	0,004	орг. зап.	4

O,O-Dimethyl-O-(4-nitrophenyl)phosphate	Metaphos	0,02	орг. зап.	4
Butylamide O-ethyl-S-phenyldithiophosphoric acid	O-Ethyl-S-phenyl-N-butylamidodithiophosphate, phosbutyl	0,03	орг. зап.	4
O,O-Dimethyl-S-(N-mehylcarbamidomethyl) -dithiophosphate	O,O-Dimethyl-S-phenyl-(2-(N-methylamino)-2-oxoethyl)dithiophosphate, phosphamide, rogor	0.03	орг. зап.	4
Name of Substance	Synonyms	Value of Standard in mg/l	Nuisance Value	Hazard Class
O,O-Dimethyl-O-(4-cyanphenyl)thiophosphate	Cyanox	0,05	орг. зап.	4
O,O-Dimethyl-O-(3-methyl-4-nitrophenyl) thiophosphate	Methylnitrophos	0.25	орг. зап.	3
O,O-Dimethyl-S-2-(1-N-methylcarbamoylethylmercato)ethylthiophosphate	Ilval, vamidothion	0,3	орг. зап.	4
N-(β,β-O,O-Diisopropyldithio phosphorylethyl) benzenesulphonamide	O,O-Diisoproplyl-S-2-phenylsulphonyl-aminoethyldithio-phosphate, prefar, benzulid, betasan	1,0	с.-т.	2
6.2.4. salts of phosphoric acid and organic bases				
1,2,4-Triaminobenzenephosphate		0,01	орг. привк.	3
Acid p-aminobenzoic, phosphate		0,1	орг. зап.	3
7. Heterocyclic compounds				
7.1. oxygen-containing				
7.1.1. containing three-membered cycle				
Propylene oxide	1,2-Epoxypropane, methoxyran	0.01	с.-т.	2
Epichlorohydrin	1-Chloro-2,3-epoxypropane	0.01	с.-т.	2
7.1.2. containing five-membered cycle				

Chloromaleic anhydride	Dichlorobutanedione	0,1	с.-т.	2
Furan (furfurane)		0,2	с.-т.	2
2-Methylfuran	Silvan	0,5	орг. зап.	4
Alcohol furfuryl	Fur-2-ylmethanol, 2-hydroxy-methyl furan, 2-	0,6*	с.-т.	2
Furfurol	2-Furaldehyde	1.0	орг. зап.	4
5-Nitrofurfuroldiacetate	(5-Nitro-2-furanyl) methanediol	2,0*	С.-т.	2
7.1.3. containing six-membered cycle				
5,6-Dihydro-4-methyl-2H- pyran	Methyldihydropyran	0.0001	с.-т.	1
4-Methyl-4-hydroxytetrahydropyran	4-Methyltetrahydro- 4-ol-2H-pyran,	0,001	с.-т.	2

Name of Substance	Synonyms	Value of Standard in mg/l	Nuisance Value	Hazard Class
Dimethyldioxane	5,5-Dimethyl-1,3-dioxane	0.005	с.-т.	2
4-Methyl-4-hydroxyethyl-1,3-dioxane	4-Methyl-4-ethanol-1,3-dioxane, dioxane alcohol	0.04	с.-т.	2
7.1.4. polycyclic				
Chlorendic anhydride	Acid perchloro-born-5-ene-2,3dicarb-oxylic, anhydride	1,0	орг. зап.	3
7.2. nitrogen-containing				
7.2.1. fife-membered cycle with one atom of nitrogen				
Cyclohexylamide of dichloromaleic acid	Cymid	0,04	орг. зап.	4

7.2.2. six-membered aliphatic cycle with one atom of nitrogen				
Piperidine		0,06	с.-т.	3
4-Amino-2,2,6,6-tetramethylpiperidine	Aminetriacetonamine	4,0	с.-т.	2
Triacetonamine	2,2,6,6-Tetramethyl-piperidine-4-one	4,0	с.-т.	2
7.2.3. six-membered aromatic cycle with one atom of nitrogen				
N-Methyl pyridinium chloride	1-Methyl pyridinium chloride	0.01	орг. зап.	4
Heptachloropicoline	2-Trichloromethyl-2,4,5,6	0.02	с.-т.	2
Hexachloropicoline	2-Trichloromethyl-2,4,5	0.02	с.-т.	2
Hexachloraminopicoline	4-Amino-2-thrichloro-methyl- 3,5,6-trichloropyridine	0.02	с.-т.	2
Pentachloroaminopicoline	4-Amino-2-trichloro- methyl-3,5	0.02	с.-т.	2
Pentachloropicoline	2-Trichloromethyl-	0.02	с.-т.	2
Tetrachloropicoline	1-Chloro-6-(trichloromethyl) pyridine	0.02	с.-т.	3
2,5-Lutidine	2,5-Dimethylpyridine	0.05	с.-т.	2
α-Picoline	2-Methylpyridine	0.05	с.-т.	2
Pyridine		0,2	с.-т.	2

Name of Substance	Synonyms	Value of Standard in mg/l	Nuisance Value	Hazard Class
Acid 4-amino-3,5,6-trichloropicolinic	Acid 4-amino-3,5,6-thrichloro-2-	10.0	с.-т.	3

	pyridinecarboxylic, picloram			
Potassium 4-Amino-3,5,6-trichloropicolinate	Acid 4-amino-3,5,6-trichloro-2-pyridinecarboxylic potassium salt: chloramp	10.0	с.-т.	2
7.2.4. polycyclic with one atom of nitrogen				
5-Acetoxy-1,2-dimethyl- 3-	Acetoxyirdol	0,004*	с.-т.	2
6-Brom-5-hydroxy-3- carbethoxy-1-methyl-2	Thioirdol	0,004*	с.-т.	2
2-Chlorocyclohexyl-thio- N-phthalimide	Acid phtalic, N-(2- chlorocyclo-hexyl- imide	0,02	орг. зап	4
N-Trichloromethyl-thiophthalimide	Phthalan	0,04	орг. зап	4
6-Brom-5-hydroxy-4- dimethylamino-3- carbethoxy-1-methyl-2-	Arbidol	0,04*	с.-т.	3
O,O-Dimethyl-S-phthalimidomethyl-dithiophosphate	Phthalophos, imidane	0,2	орг.пр ивк	3
Trichloromethylthiotetrahy drophthalimide	Captan	2,0	орг. зап	4
7.2.5. five-membered cycle with several atoms of nitrogen				
1,3- Dichloro-5,5-dimethylhydantoin	5,5-Dimethyl-1,3-dichloroimidozoli-2,4-dione. dichlorantine	отсуст	с.-т.	3
1-(2-Hydroxy-propyl)-1- methyl-2-pentadecyl-2-	Carbozolin, SPD-3	0,2	с.-т.	2
1-Phenyl-3-pyrazolidone	Phenidone	0,5	орг. окр	3
5,5-Dimethyl-hydantoin		1,0	Орг.пр ивк	3

Name of Substance	Synonyms	Value of Standard in mg/l	Nuisance Value	Haza Class
7.2.6. six-membered cycle with two atoms of nitrogen				
Sulphapyridazine	6-(*n*-Aminobenzene-sulphamido)-3-methoxypyridazine; sulphanilic acid, N-(6-methoxypyridazine -3-yl)amide	0,2*	с.-т.	2
O,O-Diethyl-O-(2-isopropyl)-4-methylpyrimidine-6-thiophosphate	O-(2Isopropyl-6-methyl-pyrimidine- 4-yl)-O,O-diethylthiophosphate, bazudin	0,3	орг. зап	4
N—(2-Aminoethyl) piperazine	1-(Aminoethyl) piperazine)	0,6	с.-т.	2
1-Phenyl-4,5-dichloro-pyridazone-6		2.0	с.-т.	3
1-Phenyl-4-amino-5-chloropyridazone-6	5-Amino-2-phenyl-4-chloropyridazine-3(2H)-one, phenazone	2,0	с.-т.	2
4-Amino-6-chloro-pyrimidine	6-Chloro-4-pyrimidineamine	3,0*	орг. окр.	3
4-Amino-6-methoxy-pyrimidine		5,0*	орг.о кр.	3
Oxyethylpiperazine		6,0	с.-т.	2
Diethylenediamine	Hexahydropyrazine, piperazine	9,0	орг. зап.	3
7.2.7. six-membered cycle with three atoms of nitrogen				
2-Chloro-4,6-bis-(ethylamino)-*sym*-triazine	2,4-Bis(M-ethylamino)-6-chloro-1,3,5-triazine, simazine	отсутст.	орг. флот.	4
2-Chloro-4,6-bis(ethylamino)-*sym*-triazine-2-oxy derivative	2-Oxy derivative of simazine	отсутст.	орг. флот.	1
O,O-Dimethyl-5-(4,6-di-amino-1,3,5-triazine-2-yl-methyl) dithiophosphate	Sayfos, menazon, saphicol, dithion	0,1	с.-т.	3

Cyclotrimethylenetrinitro amide	1,3,5-Trinitro-1,3,5-perhydrotriazine, hexogen	0,1	с.-т.	2
4,6-bis(Isopropylamino) -2-(N-methyl-N-cyanamino)-1.3.5-triazine	Metazine	0,3	орг. привк.	4
2-Amino-4-methyl-6-methoxy-1,3.5-triazine	2-Amino-4-methyl-6-methoxy-*sym*-triazine	0,4*	орг. ривк.	3
Name of Substance	Synonyms	Value of Standard in mg/l	Nuisanc Value	Haza Class
2-Chloro-4,6-bis (isopropylamino)-*sym*-triazine	2,4-Bis(N-isopropylamino)-6-chloro-1,3,5-triazine, propazine, insolube simazine	1,0	орг. зап.	4
2-Methylthio-4,6-diisopropylamino-*sym*-triazine	2-Amino-4-(N,N-diisopropylamino)-6-methylthio-1,3,5-triazine, prometrin	3,0	орг. зап.	3
Acid cyanuric	1,3,5-Triazine-2,4,6(1H,-3H,5H) -trion	6,0	орг. ривк.	3
7.2.3. polycyclic with several atoms of nitrogen				
1,2-Bis(1,4,6,9-tetranitrotricyclo[4,4,1,1,4, -9]-dodecano)ethylidene dihydrochloride	ДХТИ 150А	0,015	с.-т.	2
Dipyridyl	Bipyridyl	0,03	орг. зап.	3
1,2,3-Benzotriazole		0,1	с.-т.	3
Methyl-N-(2-benzimidazolyl) carbamate	Acid 1H-benzimidazole-2-yl-carbamic, methyl ether	0,1	орг. пленка	4
3-Cyclohexyl-5,6-tri	3-Cyclohexyl-6,7-			

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methyleneuracyl	dihydro-1H-cyclo-pentapyrimidine-2,4 (3H,5H)-dione, hexylur	0,2	с.-т.	2
1,1-Dimethyl-4,4'-dipyridyldimethylphosphate		0,3	орг. зап.	3
Dipyridylphosphate		0,3	орг. зап.	4
Methyl-1-butylcarbamoyl-2-benzimidazole-carbamate	Sevin	0,5	орг. пленка	4
Hexamethylenetetramine	1,3,5,7-Tetraazatri-cyclodecane, urotropine, aminoform, formin	0,5	с.-т.	2
5-Amino-2(*n*-aminophenyl)-1H-benzimidazole		1,0	с.-т.	2
Triethylideamine	1,4-Diazobicyclo-[2,2,2]octane, DABCO	6,0	с.-т.	2
7.2.9. containing more than six atoms in cycle				
S-Ethyl-N-hexamethylene-thiocarbamate	Acid hexahydro-1H-azepine-1-thiocarboxylic S-ethyl ether; yalan	,0.07	орг. зап.	4
Name of Substance	Synonyms	Value of Standard in mg/l	Nuisance Value	Hazar Class
Hexamethylenimine hydrochloride		5,0	с.-т.	2
Cyclotetramethylene-tetranitroamine	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocin, octagen	0,2	с.-т.	2
7.3. containing				
2-Chlorothiophene		0,001	орг. зап	4
Tetrahydrothiophene-1. 1-dioxide	Sulpholane, tetra-methylene sulphone	0,5	орг. зап.	3
Thiophene	Thiofuran	2,0	орг. зап.	3

7.4. composite				
7.4.1. containing nitrogen and oxygen as heteroatoms				
Codein(e)		отсутст.		
Morphine		отсутст.		
O,O-Diethyl-S-(6-chlorobenzoxazolinylmeth yl)dithiophosphate	S-(2,3Dihydro-3-oxo-6-chlorobenzoxazol-	0.001	орг. зап.	4
Tetrahydro-1,4-oxazine	Morpholine	0.04	орг.п ривк	3
Benzoxazolone-2	Benzoxazol-2(3H)-	0.1	с.-т.	2
3-Chloromethyl-6-chlorobenzoxazolone	6-Chloro-3-chloromethy	l 0,4	с.-т.	2
7.4.2. containing nitrogen and sulphur as heteroatoms				
Dibenzthiazoledisulphide	2,2'Dithiodibenzothiazole thiofide	отсутст	орг. зап	3
2-Butylthiobenzothiazo	Butylcaptax	0,005	орг. зап	4
3.5-Dimethyltetrahydro-1,3,5	3,5-Dimethylperhydro-1,3,5-thiadiazine	0,01	орг. зап	4
Benzethiazole		0,25*	орг. зап	4
2-Hydroxybenzenethiazo	2-(3H)-Hydroxy-benzothiazolon	1.0	с-т.	2
2-Mercaptobenzothiaz	Benzothiazole-2- thiol	5,0	огр зап	4
8. Organoelement compounds				
8.1. mercury compounds				
Ethylmercurchloride	Granozan	0.0001	с-т.	1
Mercury diethyl		0.0001	с-т.	1
8.2. tin compounds				
Tetraethyltin	Tetraethyl stannane	0.0002	с-т.	1
Name of substance	Synonyms	Value of Standard	Nuisance Value	Hazard Class
Bis(tributyltin) oxide		0,0002	с-т.	1
Tributylmethacrylate	Tributyl(2-methyl-			

tin	oxo-2-propenyl)oxystannane	0,0002	с-т.	1
Dicyclohexyltin oxyl	Dicyclohexyloxostannane	0.001	с-т.	2
Tricyclohexyltin chloride		0,001	с-т.	2
Dichlorodibutyltin	Dibutyldichlorostannane	0-.002	с-т.	2
Diethyltin dichloride	Dichlorodiethylstannan	e0,002	с-т.	2
Tetrabutyltin	Tetrabutyl	0,002	с-т.	2
Ethylenebis(thioglycolate) dioctyltin		0,002	с-т.	2
Dibutyltinoxide	Dibutyloxostannane	0.004	с-т.	2
Dibutyldilauratetin	Bis(dodecanoyloxy)-	0,01	с-т.	2
Dibutyldiisooctylthioglycol atetin	Bis(isooctyloxycarbony thio)dibutylstannan	l 0,01	с-т.	2
Diethyldioctanoateti n	Diethylbis(octanoyl ox y)tannane, diethyldicaprylateti	0,01	с-т.	2
Diisobutylmaleatedioctyltin		0,02	с-т.	2
Sulphidedibutyltin	Dibutyltin sulphide	0,02	с-т.	2
Tributyltin chloride	Chloretributylstannane tributylchlorostann	0,02	с-т.	2
8.3. lead compounds				
Tetraethyl lead		осутст.	с-т.	1
8.4. arsenic compounds				
8.5. silicon compounds				
Trifluoropropisilan		1,5	ог. при	4