On approval of requirements for fish protection devices of water intake and escape facilities

Unofficial translation

Order of the Minister of Agriculture of the Republic of Kazakhstan dated May 31, 2019 No. 221. Registered in the Ministry of Justice of the Republic of Kazakhstan on June 4, 2019 No. 18783.

Unofficial translation

In accordance with subparagraph 20) of paragraph 1 of Article 9 of the Law of the Republic of Kazakhstan dated July 9, 2004 "On protection, reproduction and use of fauna", I HEREBY ORDER:

1. To approve the attached requirements for fish protection devices of water intake and escape facilities.

2. To recognize as invalid the order of the Minister of Agriculture of the Republic of Kazakhstan dated January 19, 2015 No. 18-05 / 22 “On approval of requirements for fish protection devices of water intake facilities” (registered in the Register of state registration of regulatory legal acts under No. 10292, published on February 27, 2015 in the legal information system "Adilet").

3. The Committee for forestry and wildlife of the Ministry of Agriculture of the Republic of Kazakhstan, in the manner prescribed by law, to ensure:

1) state registration of this order in the Ministry of Justice of the Republic of Kazakhstan;

2) within 10 (ten) calendar days from the date of the state registration of this order, its sending in the Kazakh and Russian languages to the Republican state enterprise on the basis of the right of economic management "Institute of Legislation and Legal Information of the Republic of Kazakhstan" for official publication and inclusion in the Reference Control Bank of regulatory legal acts of the Republic of Kazakhstan;

3) within 10 (ten) calendar days after the state registration of this order, sending its copy for official publication in periodicals;

4) placement of this order on the Internet resource of the Ministry of Agriculture of the Republic of Kazakhstan after its official publication;

5) within 10 (ten) working days after the state registration of this order, submission of information to the Department of Legal Services of the Ministry of Agriculture of the Republic of Kazakhstan on implementation of measures provided for in subparagraphs 1), 2), 3) and 4) of this paragraph.

4. The supervising vice minister of agriculture of the Republic of Kazakhstan shall be authorized to oversee the execution of this order.

5. This order shall come into force 10 (ten) calendar days after the day of its first official publication.

Minister of agriculture of the
Republic of Kazakhstan *S. Omarov*

Approved
by the order of the
Minister of agriculture of the
Republic of Kazakhstan
dated May 31, 2019 № 221

Requirements for fish protection devices of water intake and escape facilities

Chapter 1. General provisions

1. These requirements for fish protection devices of water intake and escape structures (hereinafter referred to as the Requirements) are developed in accordance with subparagraph 20) of paragraph 1 of Article 9 of the Law of the Republic of Kazakhstan dated July 9, 2004 " On protection, reproduction and use of fauna" and determine the requirements for fish protection devices of water intake and escape facilities.

2. Basic concepts used in these Requirements:

1) an escape facility - a culvert designed to discharge (pass) water from a reservoir to prevent it from overflowing, as well as for useful passes to the lower pool;

2) fish protection device (hereinafter - FPD) - a device to prevent the ingress of fish resources and other aquatic animals into water intake and escape facilities;

3) water intake facility - a complex of structures and devices for water intake from water bodies.

3. It is not allowed to put into operation the water intake and escape facilities without FPD in accordance with subparagraph 2) of Article 88 of the Water Code of the Republic of Kazakhstan dated July 9, 2003.

Chapter 2. Requirements for FPD

4. When operating the FPD of water intake and escape facilities, the efficiency coefficient of the FPD is determined according to the calculation of the effectiveness of the FPD given in Appendix 1 to these Requirements.

5. Depending on the estimated flow rate of water intake and discharge, the FPD are installed in accordance with Appendix 2 to these Requirements.

6. During the operation of the FPD of water intake facilities, the cell diameters of the fish protection screen of the FPD depending on the sizes of fish resources and other aquatic animals are installed in accordance with Appendix 3 to these Requirements.

7. The following requirements are established during the operation of FPD of escape facilities:

1) the speed of water approaching to the FPD should not exceed the blowing speed for juvenile fish resources and other aquatic animals;

2) FPD should not impede the passage of water, while being protected from the effects of snags and ice formation.

8. Designing of the FPD is carried out on the basis of scientific research and design and survey work, which defines:

1) species and size composition indicating the minimum size of protected fish resources and other aquatic animals;

2) the period of their concentration and migration;

3) vertical and horizontal distribution and concentration of fish resources and other aquatic animals;

4) the location of spawning grounds, wintering pits, fodder sites and areas of active downstream migration of juvenile fish resources and other aquatic animals;

5) the blowing speed of the flow for the protected juvenile fish resources and other aquatic animals.

9. When using the fixed networks and gratings, the following requirements are established :

1) cell sizes, flow rate, clogging and the possibility of cleaning, conditions of navigation are taken into account;

2) are installed in both pools of hydroelectric facilities to block the approach of fish resources and other aquatic animals to undesirable places and their directing to the inlets of fish passage facilities;

3) the network is made of galvanized wire or kapron and is hanged on floats or on pile supports;

4) the gratings are made of metal rods, the gaps between the rods are taken depending on the purpose of the gratings and the size of fish resources and other aquatic animals.

10. When using electric layers, the following requirements are established:

1) the length of the electrodes located in the layer section is set depending on the depth of the water, taking into account the fact that the electrodes do not reach the bottom of the reservoir and its surface by 0.1-0.3 meters;

2) the effective value of the electric field strength and the distance between the electrodes are set in accordance with the sizes of fish resources and other aquatic animals;

3) the electrode system must be freely hanging (hung on a cable, mounted on floats or fixed on piles), to ensure a more stable vertical position, the lower part of the pipes is filled with concrete;

4) a pulsed alternating current with a pulse duration and pause in the range of 0.02-0.35 seconds is provided.

11. Scientific research in the field of protection, reproduction and use of fauna is carried out by legal entities accredited as subjects of scientific and (or) scientific and technical

activity, in the manner determined by the legislation of the Republic of Kazakhstan in accordance with paragraph 5 of Article 22 of the Law of the Republic of Kazakhstan dated July 9, 2004 "On protection, reproduction and use of fauna."

12. The water intake from the sea is allowed only under the condition of equipping the water intake facilities with the FPD with the installation of technical devices for continuous monitoring of the effectiveness of the FPD in accordance with paragraph 14 of Article 262 of the Environmental Code of the Republic of Kazakhstan dated January 9, 2007.

Appendix 1
to the Requirements for fish
protection devices of water intake
and escape facilities

Calculation of effectiveness of fish protection devices

1. The indicator of fish protection efficiency (Kef) is the ratio of the amount of fish resources and other aquatic animals held by the fish protection device (hereinafter - FPD) to the amount of fish resources and other aquatic animals falling into the water intake and escape (pass) facility in the absence of such a device, expressed as a percentage:

Kef = (N2T - N1T) / (N2T) x 100,

where:

N1T - the amount of fish resources and other aquatic animals that have fallen into the water intake and discharge (pass) for the estimated period T in the presence of a FPD;

N2T - the amount of fish resources and other aquatic animals that got into the water intake and discharge (pass) for the same estimated period T in the absence of FPD.

2. The indicator of fish protection efficiency is determined experimentally - by observing the ingress of fish resources and other aquatic animals into the water intake and discharge (pass), alternately in the presence and absence of FPD.

In case of impossibility to dismantle FPD, Kef is determined by the difference in the concentration of fish resources and other aquatic animals in front of the FPD and behind it according to the formula:

Kef = (C2 - C1) / C2 x 100,

where:

C1 - the concentration of juvenile fish resources and other aquatic animals behind the FPD;

C2 – the concentration of juvenile fish resources and other aquatic animals in front of the FPD.

3. The effectiveness of FPD for juvenile fish resources and other aquatic animals larger than 12 millimeter is:

not less than 70% for water intake facilities;

not less than 60% for escape facilities.

4. If the juvenile dies in contact with the FPD (flat nets, jet reactive cylinders) and in the fish outlet (if the FPD with a fish outlet), the fish protection efficiency indicator is calculated by the following formula:

Kef = (N2T - (N1T + N3T)) / N2T x 100,

where:

N1T is the amount of fish resources and other aquatic animals that got into the water intake and discharge during the estimated period T in the presence of the FPD;

N2T is the amount of fish resources and other aquatic animals that have fallen into the water intake and discharge for the same estimated period T in the absence of the FPD;

N3T is the amount of fish resources and other aquatic animals that died during the estimated period T after contact with the FPD.

The value of N3 is determined by the sum of the amount of fish resources and other aquatic animals settled on the FPD (n1), killed after contact with the FPD (n2) and killed during passage of the fish outlet branch (n3): N3 = n1 + n2 + n3.

The work to determine the amount of juveniles (N3) that die when contacting with FPD is carried out as follows:

n1 - is determined by calculating the quantities of fish resources and other aquatic animals on FPD;

n2 is the amount of juvenile fish resources and other aquatic animals that died after being separated for survival, caught below the FPD when the water intake and discharge were working;

n3 - the amount of dead juvenile fish resources and other aquatic animals after being separated for survival that underwent fish outlet.

Appendix 2
to the Requirements for fish
protection devices of water intake
and escape facilities

Installation of fish protection devices depending on the calculated flow rate of water intake and discharge

Fish protection devices		Calculated flow rate of water intake and discharge, m3 / sec			
group (on the method of protecting fish resources and other aquatic animals)	type	less 0,5	from 0,5 to 5,0	from 5,0 to 10,0	over 10,0
Barrier	Mesh jet reactive cylinder, installed in transit flow	+	-	-	-
	Flow head mounted in transit flow	+	-	-	-
	Conical single-lane fish catcher with fish outlet (cone)	-	+	+	+
	Conical single-lane fish catcher with fish outlet	+	+	-	-

	Vertical mesh, perforated or filter screens of V- and W shape in plan with sections up to 25 meters long	+	+	+	+
Fencing out	Umbrella-shaped head for water intake and discharge	+	+	-	-
Concentrating	Fish protection hub with vertical separation of fish resources and other aquatic animals; block sections for 5, 10 and 25 m3 / sec with block application	-	+	+	+
Note: other types of fish protection devices may be used in agreement with the territorial division of the authorized body in the field of protection, reproduction and use of fauna according to the calculation of the effectiveness of fish protection devices to these requirements.					

Appendix 3
to the Requirements for fish
protection devices of water intake
and escape facilities

Cell diameters of mesh fish catching screens depending on the size of fish resources and other aquatic animals

The body length of fish resources and other aquatic animals, millimeter	12	15	20	30	40	50	60	70
Hole diameter, millimeter	1,5	2	3	4	6	7	8	9
Note: with square holes in the screen, the indicated dimensions correspond to the diagonal of the cell.								