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γ -RADIOACTIVITY IN WATERS OF AYDARKUL LAKE

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γ -radioactivity of probes of water and bottom deposits selected in April (2004) from the depth of 1 m in central (Farish region) and west (Nurabad region) in parts of Aydarkul lake was researched. Probes of bottom deposits were also taken from the bank area. Water probes were prepared in 2 ways - by direct selection of water to 1 liter Marinelli vessel v_1 and - by preliminary evaporation of water from 5 liters till 1 liter at temperature of 60-70 °C directly in Marinelli vessel v_5 . The probes of bottom deposits were brought till air dry condition and also as water probes, were hermetically sealed in Marinelli vessel.

The measurements of spectrums were held on scintillation γ -spectrometer with NaJ(Tl) $\emptyset 63 \times 63$ mm after maturing natural probes of water v_1 during $t_0 > 0.5-2$ and all probes v_1, v_5 and d after $t_1 \geq 45$ days (for radioactivity balance restoration). In spectrums of probe of V , γ -activity of ^{40}K and sub rows of ^{222}Rn , ^{226}Ra and ^{228}Ac were seen and in spectrums of probes d - also ^{137}Cs and ^7Be .

In spectrums of waters v_1 the components of ^{222}Rn - $V(^{222}\text{Rn}) = V_1(t_0) - V_1(t_1)$, natural radionuclides $V(\text{NRN}) = (V_5(t_1) - V_2(t_1))/4$ of the background $F_v = (5V_1(t_1) - V_2(t_1))/4$ in spectrums of bottom deposits accepting background component same as and in probes of water $F_D = F_V$ (densities of probes d and v are comparable), $D(\text{RN}) = D(t_1) - F_V$ component was determined. Then, using spectrums of standard volume sources of ^{226}Ra , ^{232}Th and ^{40}K , and in case of d probes and ^{137}Cs from the set of OMACH with density of fillers $\rho \approx 1000$ g/l, spectrums $V(\text{NRN})$ and $D(\text{RN}) = D(t_1) - F_V$ were factorized to compound spectrums ^{40}K , ^{137}Cs and sub rows of NRN ^{226}Ra and ^{228}Ac and their specific activities were determined. Taken data are shown in table.

Table

Probes	$A_{\min} - A_{\max}$, Bq/kg					
	^{222}Rn	^{226}Ra	^{228}Ac	^{40}K	^{137}Cs	^7Be
V	4-6	0.2-0.6	0.3-0.6	20-30	-	-
d	-	20-27	21-29	490-570	12-27	29-40