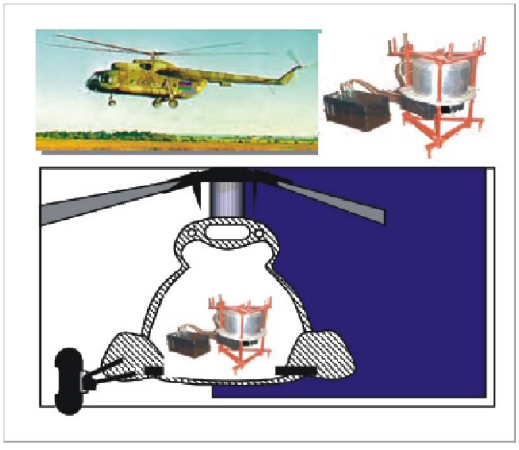
The Devices for Radiation Monitoring designed in Azerbaijan

The new global projects in the Eurasia region are realized. The production and transportation of Caspian energy resources, restoration of the Great Silk Way, operation of nuclear reactors and radiation technology require permanent Radiation monitoring for Environment. The new devices and equipment for Radiation Monitoring have been designed in the Azerbaijan National Aerospace Agency during the last years. Some of characteristics of these apparatus are given below:

1-Airgammaspectrometer

Spectrometer of full absorption on the basis of scintillation type NaI (TI) units of detection used as device for displaying, processing and storage of information



Sensible volume, litter	nearly 20
Energetic registration band, keV	100-3000
Energetic resolving power on 662 keV, %	15
Number of registration channels	1024

Flights should be carried out by non-regular tacking at the height 200 ì upon flight speed to 300 km/hour. Reliability and possibility of long time period of continious work of proposed device allows to carry out mapping of area's radiation situation along predetermined route, the coordinates of which are determined by helicopter's high-precision navigational satellite system DGPS. Data received from synchronous measurements of natural radio-nuclides U(Ra), Th and K in three working energetic windows 1,35-1,55 MeV, 1,65-1,85 MeV and 2,5-2,8 MeV and geodesy coordinates are brought in to on-board computer's date base. The special software for processing make it possible to develop the map of radiation situation of prearranged scale for determined area and record the initial condition of environment at the moment of measurement.

2. Marine gamma survey

Realization of gamma survey of seabed makes it possible to determine initial background of seabed's gamma field at the beginning of well drilling work. Further periodic monitoring of radiation situation will be based on the results of initial condition of seabed's gamma-field. By for this purpose an original device was developed for determination of percentage content of major components of gamma field, namely, of natural radio-nuclides U-238, Th-232 and K-40 in three working energetical windows: 1,65-1,85 MeV. 2,5-2,8 MeV and 1,35-1,55 MeV using Cs-137(0,662 MeV) for calibration.
The reliability and possibility of long period of continuous work of proposed device allows to carry out

mapping of area's radiation situation at sea conditions along predetermined route, the co-ordinates of which are determined by high-precision navigational satellite system DGPS. Data received from synchronous measurements of radiation background and geodesy co-ordinates are brought in to on-board computer's date base. The special software for processing make it possible to develop the map of radiation situation of pre-arranged scale for determined area and record the initial condition of environment at the moment of measurement.

3. Dose rate meter DRG 01 Az

The device **DRG-01 Az** is designed for radioactive sources searching and an exposure dose rate measurements of gamma radiations. The device is handle sensor with the remote block of detector.

Distinguishing features of the device **DRG-01Àz** are as follows;

- •high speed ,
- •high sensitivity,
- •ease of using,
- •portable construction.

Specifications

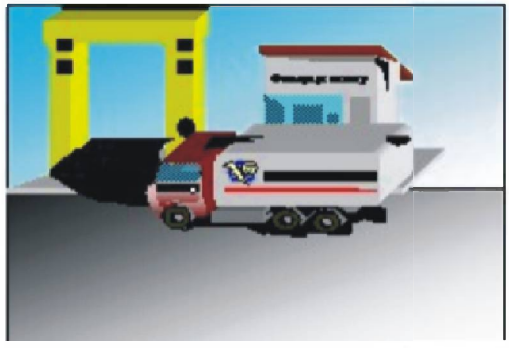
Range of energy, MeV	0,1-3,0
Range of measurement of dose rate of gamma radiations, mR/h	
I range	0,005- 2,00
II range	0,050- 20,0
Mean error of measurement for Cs-137 (MEM),%	no more 20
Time of continuous operation, h	no less 6,0
Time of installation of an operatingduty, min	no more 1,0
Overall dimensions:	
Block of detection,mm	∅55x280
Block of registration, mm	220x95x65
Mass, kg	2,0

4. Stationary radiation post

Designed for tracking the radioactive materials during their transfer at custom. High sensitivity of SRP guarantees reliability of radiation control.

Technical Specifications :

Size of plastic scintillation detector,mm	1000x50x50
Energetic band of registered gamma- radiation, MeV	from 0,1 up to 3
Range of working temperatures:	
Blocks of detecting, ^{0}C	from -10 to +40
Panel of signalling, ^{0}C	from 0 up to +40
Sensitivity of SRP for gamma- radiation	
of Cs-137, imp/s for 1μR / hour	10
Distance between blocks of detecting and panel, m	10
Work's regime, hour	24



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