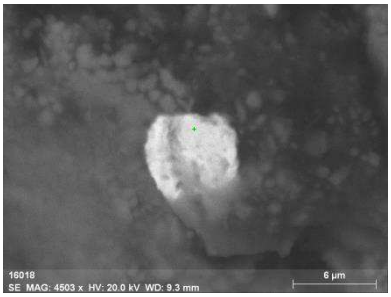

Fig. Gold particle in the ash residue of human organism

Thus, the results of this research determine in what chemicals some elements occur in highest and lowest concentrations in human organism. Genesis of these particles is mostly natural, but also there are man-made particles, which show the geochemical conditions of environment.

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REGULARITIES OF SPATIAL DISTRIBUTION OF URANIUM AND RADIUM ON THE INKAY FIELD (REPUBLIC OF KAZAKHSTAN)

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The Inkay field is is the largest sheeted and infiltration field in Kazakhstan and the CIS. Ore-bearing zones of the field are traced from the northeast to the south at distance about 55 km with their general width from 7 to 17 km.

The field is opened in 1976 by party No. 27 (the chief V. N. Plekhanov, the chief geologist N. N. Petrov) during search of recognaissance drilling. In 1979-1983 preliminary investigation was made, and in 1981-1991 the first stage of the detailed investigation was carried out by specially created expedition No. 7. During this period natural multiborehole experiment on uranium extraction by way of underground leaching was carried out and as a result it was confirmed not only high profitability of uranium production with this method, but also it was confirmed basic possibility of passing extraction from uranium ores of other components: scandium, rhenium, rare-earth elements.

The folded base on a field lies at a depth up to 2-3 km and it is presented by terrigeno- siliceous Cambro-Ordovician formations.

The MZ-KZ coal mine of deposits begins the multicoloured, rather dense gravel and sandy-argillaceous formations localized in falls of the surface of mid and late Paleozoic level. They are hypothetically senomansky age. The Ore-hosting complex is presented by Mynkuduksky and Inkuduksky horizons of Upper Cretaceous.

The uranium mineralization is localized almost in all lithological rock varieties with a certain inclination to average-grained sand. The structure and quantitative ratio of the detrital material, both rock-forming and accessory, don't differ practically from field ores of Mynkuduk horizon.

The bulk of uranium concentrates in rocks of clay aleuritic filler. Texture of ores is disperse, finely disseminated. Structure is interstitial.

The uranium mineralization is presented by pechblende and coffinite in the ratio: on the whole for the field 82 and 18% respectively, for the mineralization in the Inkuduksky horizon – 77 and 23%, and for the mineralization in Mynkuduksky horizon – 87 and 13%.

Siderite, calcite, native selenium, sphalerite, chlorite, polianite, apatite and pyrites (seldom marcasite) are discovered in authigene mineralization besides uranium minerals. [2]

Various methods of research, including the radiometric one are used on the field. The dependence of results of radioactive balance product measurement on radioactive decay, capacities of ore congestion, etc. is the main lack of radiometric methods of approbation on young uranium fields of hydrogenous type. Imbalance in the number of products of radioactive decay leads to results falsifications so long as the content of uranium 238 is not identified by gamma-ray intensity, and concentration of radium 226 and products of its disintegration is determined by intensity of gamma radiation. Radioactive imbalance is usually connected with those products of radioactive decay of uranium ranks, possessing sharply various geochemical properties. They show tendency to division and spatial isolation, especially in the conditions of a hyper genesis zone. As well as all alkali-earth elements, radium possesses the only form of oxidation +2, it is inclined to a complex formation a little. There is as a form of Ra2 ion + in water solutions. Chlorides, bromides, iodides, sulfides and radium nitrates are soluble in water. Its sulfates, carbonates, phosphates, chromates, fluorides and oxalates are slightly soluble in water. Uranium is complexable: carbonate, sulphatic, fluoride, phosphatic and hydroxyl. [1]

The period of time (1,7 million years) is necessary for establishment of radioactive balance between uranium and all products of its disintegration (provided these products won't be removed from places of their formation). The

falsifications of the uranium true content values, connected with changes of effective atomic numbers and capacities of ore congestions, are also improved by means of correction introduction in results of the radiometric data interpretation (coefficient of radioactive balance Krr). Correction size for radioactive disbalance between uranium and radium is estimated according to the formula:

$Krr = CRa / C_U$,

where CRa – the content of radium expressed in terms of equilibrium uranium,

C_U – the content of uranium in ores.

The main problem is that Krr on young fields is displaced towards either uranium or radium. On the Inkay field it was accepted for 1 that leads to incorrect geological and technological conditions of the uranium production.

We suppose tasks to be solved during research. They are following:

1. To carry out interpretation of geophysical data, notably gamma ray logging and KND;
2. To compare geophysical data (gamma ray logging and KND) with the results of geochemical researches;
3. To create the distribution of U and Ra on the basis of geophysical researches in the plan and on sections;
4. To create the volumetric geological and mathematical model of Krr distribution;
5. To make recommendations about the rational complex of geological and technological researches.

The practical importance is the allocation of sites with the radium and uranium component. The purpose of it is to produce more effectively U by UBL (underground borehole leaching). All will reduce the price of works and increase productivity.

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GEOTECHNICAL STUDIES OF VLADIVOSTOK HILLS FOR CONSTRUCTION PURPOSES

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For professional developers who traditionally deal with vast territories, undulating Vladivostok area is very interesting: it provides all the features for perfect reproduction technology terraced housing on the principle of "one hill per one house." This approach implies building activities on the entire area or vacant hill slope (slopes of hills empty at the moment make up about a third of the urban area of Vladivostok) which concentrate on low-rise building to maximizes the potential of local landscapes and economic literacy to build infrastructure - both in terms of networks utility and social communications [1].

At the same time the hills of Vladivostok, where intensive housing construction, including high-rise buildings have been recently initiated, are under-explored geologically and in most cases studies show that the soils on the slopes of the hills are not able to ensure the stability of the foundations of buildings and structures [2]. The fact that construction standards that govern engineering surveys for the construction, have been developed for the central and central Russia, and geology in the Far East of the country is varied and quite complicated are not taken into account. It differs in Kamchatka from that one characteristic for Sakhalin, Yakutia and the Primorye territory. Therefore, existing methods in Primorye engineering research are suitable for the Ussuri or Spassky, and for Finds Dalnegorsk and even more for Vladivostok they do not provide complete and accurate information for future design and construction of safe housing.

The territory of Vladivostok and especially coastal hill slopes are very difficult to build a platform. Geological and soil structure of most hills of the city is chaotic and has a localized nature. Like a puff pie, wherein all the layers are mixed and then placed vertically, horizontally, the overlap is arranged at an angle. With this structure, soil drilling point leads to large errors and evidently cannot give an objective view for the area development. As a result, in Vladivostok in some areas of the construction site they failed at the stage of pile driving though there were cases when an apartment house was built on the slope of the hill box in the middle and slid sinking [2].

Nowadays in Vladivostok while selecting a construction sites a serious engineering research using modern methods and tools is not available to carry out. If developers knew exactly the structure of hill soils, many of them would never have started any construction, at least, high-rise structures. Nevertheless, building on slopes of hills is conducted quite actively. It is necessary to seriously consider the issues of engineering studies since tomorrow we may encounter problems concerned with emergency foundations, cracked walls and primarily, unsafe high-rise buildings.

As it is mentioned above, layered structures - the soils and rocks on the slopes of hills are the most frequently observed. For example, it may be as follows: the top plate solid rock, then a layer of crushed stone on which this upper part is based both on a layer of oil, and then again there is a solid rock. If such a ground has to sustain large house loads with vibrations that upper plate rock moves out down like a clockwork and building collapses. Stratification in the soil reaches the point that sometimes occurs between monolithic slabs of emptiness. In such emptiness piles and borax fail completely. In today's practice of engineering research, there are cases when the drilling stumbles on some rocky ground and a construction customer stops drilling operation as it is clear that the solid rock is underlying. If the engineer prospector requires a more detailed study of the soil, he will found out that there is a risk of building an in safe house in a dangerous place.