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CHERNOBYL, AS THE PARAMETER OF THE QUALITY OF THE AUTHORITY

Introduction

The United Nations have recognized Chernobyl as a problem of a global level. According to experts of this organization, the damage, which was put by Chernobyl accident to all countries, is one billion dollars. Ukraine needs not less than 200 billion US dollars from this sum. Therefore the approach to the solution of the questions of Chernobyl problematic directly characterizes the quality of management of our state and ability of its heads to solve global problems on modern scientific and technological level.

The world (the EU, the Big Seven), adequately estimating the size of the problem, helps us to solve it and it is ready to help further, demanding only demonstration of the high responsibility and efficiency. Unfortunately, expectations of the countries - sponsors were not justified yet. Ex-president L.Kuchma spreading the speculative , consumer approach to Chernobyl on international scene , has shown poor quality of management of the problem both outside and inside the country.

It explains the long absence of the new political initiatives expanding a spectrum of the international help and unloading the national budget, and also the delegation of the responsibility on the subordinate heads having primitive tasks. It causes the sharp reduction of volumes of humanitarian and other international help for the last 10 years, dissociation of efforts on overcoming consequences of this technogenic accidents. The downturn of a rank of the problem inside the country has caused the sharp decrease reduction of the quality of management by the solution of Chernobyl problems and it has resulted in absence of the significant results in work.

Chapter 1

WHO CONTROLS THE CHERNOBYL PROBLEM AND HOW HE DOES IT

It is known, that without the international help it is capable to stabilize, and especially, to improve the radiation-ecological situation in Ukraine . But it is possible ,in general, to solve cardinally the primary goals in the nearest years :

- To move fulfilled fuel from reactors of time storehouse HOJAT-1 and of the pools of endurance to the dry storehouse HOJAT-2 ,which is being built (intended for long storage);
- To erect a new protective envelope above the object "Shelter";
- To dismantle power units I, II, III CHAES;
- To return the polluted territories in economic using .

The answer is unequivocal - everything will fail. The government of Ukraine is not capable to involve the volume of financial assets which is needed, and it cannot find required manpower resources (because of restrictions on a doze of a radioactive irradiation), which are necessary for doing all the volume of dangerous and complex works , the full list of which is not finished yet for today. But it is possible to improve the position .

Unfortunately, Ukraine strongly discredited itself in a Chernobyl question , that reduces probability of allocation to it annual, stably great volume of the gratuitous international help. Till 1994 the situation was still tolerant as in the Verhovna Rada the Commission (later - Committee) on questions of Chernobyl accident worked, and there was the one-profile part in the Cabinet of Ministers - Minchernobyl, which was carrying out the general coordination of all works. They were trusted the international state and charitable bodies and funds, and it was very important.

The existing plan has been destroyed in 1996. The rank of management has considerably been reduced by Chernobyl problems, the coordination of works center has disappeared from the uniform .

In the Verhovna Rada the profile committee has hasty been liquidated. The management of a Chernobyl problematic began to be carried out by several departments –The Ministry for the Power Generating Industry, Minecology, the Ministry of Emergency Measures, The Ministry of Labor, The Ministry of Health, etc. It was known that managing function between the departments , which were answering first of all for the direct profile tasks, was obviously and obscurely smashed . And who from them has succeeded in Chernobyl affairs?

For some reasons of the Soviet period the nuclear branch always was another kind for the Ministry of fuel and power of Ukraine . Therefore after disintegration of the USSR it was necessary to create in the structure of the Ministry of the Power Generating Industry of Ukraine « the state in the state »- NAEK "Energoatom", to whom the management of atomic engineering of Ukraine have been completely transferred . Thus the nuclear stations which are included in NAEK, have ceased to be legal persons and today are actually deprived of civil rights.

CHAES stayed in a little bit other position as after a stop of the power unit №3 it has been deduced from "Energoatom" and began to submit directly to the Ministry of the Power Generating Industry. However it has not improved it's tasks , as in a separation from professional and financial powerful association (NAEK) the management of the station began to degrade, because the tasks of CHAES did not become actual for the Ministry of the Power Generating Industry and its heads.

The greater bewilderment in many professionals was caused with recent transfer to the structure of the ministry for the Chernobyl atomic power station, HOJAT-2 and object "Shelter". After that step, the management of the hard tasks of Chernobyl zone began to be carried out by the state body, which is absolutely incompetent in Chernobyl affairs . In fact nobody begins to assert seriously that two - three professionals in this ministry can effectively organize the solution of the problems of Chernobyl station which scale is higher than opportunities of all Ministry of Emergency Measures . The hard consequences of this short-sighted decision , which has finally buried an opportunity of efficient control by Chernobyl affairs at a high state level, will be seen very soon .

As to the MINECOSECURITY, it was created in concrete political aims and practically does not supervise Chernobyl questions already for a long time . In a result any of these ministries did not conduct and does not conduct some serious works on Chernobyl subjects, they only furiously intrigue against any attempt of intrusion into the « sphere of influence » , and have war among themselves for the control over the state and international financing of this sphere.

It is not necessary to wait for any changes for the best in their attitude to Chernobyl affairs , as in last years the professionals - experts continually supervise the named management of executive authorities , and there is an exchange between "policies - ministers" or « effective managers ».

<u>"The successes" of the last years as the result of the mentioned reasons are :</u>

1. The backlog on erection of "Shelter - 2" is 5 years, when all our first state heads and politics convinced that it's construction is rather important .

2. The backlog on introduction in work HOJAT-2 ("dry" storehouse of the fulfilled nuclear fuel) - is 4 years. And today nobody will tell precisely with what hardware it will start working (at the most favorable condition - in 4 years). And it is in a situation when the condition of the temporal HOJAT-1, which is filled with the fulfilled fuel, can become critically emergency at any moment .
3. The backlog of construction of the enterprises on processing liquid and firm radioactive waste products - is 2 years.

The listed works are financed from means of the international help, they are supervised by the authoritative organizations, but all are naturally failed.

Besides that, CHAES is in the unnatural condition of " expectation of work », for 4 years, of removal the station from operation because of impossibility to unload fuel from reactors in almost filled HOJAT-1, or in unfinished HOJAT -2. Annually the state budget spends 250 million grivnas (it is spent more than 1 billion for nothing) on the maintenance of artificial "frozen" station. In view with a delay of start-up in work of HOJAT -2 and with impossibility of the unloading of nuclear fuel from reactors of station, its main task will be done for 3 years (with the time for a unloading of fuel) and will demand again not less than billion money from the budget.

Chapter2

CHERNOBYL OBJECTS AND PROJECTS

Status HOJAT -1 in the list of "Chernobyl" problems

Approximately in 200 meters from the Shelter, in the northwest corner of platform CHAES there is a storehouse of the fulfilled nuclear fuel (HOJAT -1), hastily entered in operation by autumn of 1986. It's term of operation is determined in 30 years (till 2016).

During the construction of HOJAT -1 the simplifications which have expressed in refusal of construction and installation of " unit of hot cutting » have been admitted. This unit was necessary for doing the operations connected with the sending OJAT on the radiochemical factory for processing fuel making up and extraction of isotopes of uranium and plutonium from them. Such factory (PT-2) has started to build near Krasnoyarsk more than twenty five years ago, but have not finished till this day because of lack of means.

"Wet" storehouse HOJAT-1 has five compartments of the pool of endurance (BV) for storage of fulfilled nuclear fuel (OJAT), one of which is reserve (4320 places). BV represents usual pool with the depth of 11 meters which bottom is almost at the ground level, and walls are reveted with stainless steel (one layer). The capacity of HOJAT -1, without reserve compartment BV is 17280 places.

The storage of seven-meter OTVS is carried out in special cases (a pipe with a bottom) which are vertically shipped in water. The layer of the water above OTVS is three meters and is the unique biological protection which save the personnel from radioactive radiation. The constructive scheme of water delivery in BV excludes the downturn of the water level at the usual operation. But in case of occurrence of strong leaks of the pool which are connected with cracks in the corrosion-proof facing (as it was on the Leningrad atomic power station), or as a result of occurrence SCP in one of the compartments of the pool, can be a downturn of the water level and the exposure of OTVS. Thus capacity of a doze of radioactive radiation in the storehouse will exceed 1000 roentgen in one hour, that it will be extremely inconvenient to carry out there any emergency - regenerative works. Now in HOJAT -1 about 16 thousand OTVS are kept . Total activity, which is contained in them, is about to 1 billion curie . In comparison with radioactive pollution of territory as a result of explosion on 4-th block CHAES, pollution from failure on HOJAT -1 will be submitted by more long-living radionuclides , with a half-life period in thousand years. There are only isotopes of plutonium more than four tons in OTVS. Therefore failure with the water removal in HOJAT -1 can become one more unprecedented event in a history of the atomic engineering, made on the Ukrainian ground. Then Ukraine will finally lose the chance to become the European country and become forever famous as « the native land of Chernobyl ».

What to do not to admit such development of events? It is necessary to transfer more likely fuel from HOJAT -1 to dry storage in the new storehouse. However, HOJAT -2 which is already built

does not correspond real requirements of nowadays, that the full overload in it of nuclear fuel from HOJAT -1 is practically impossible.

It is caused by that that from more than 4 thousand untight assemblages with the fulfilled fuel, which are kept today in pools of the endurance on the power units and in HOJAT -1, some hundreds OTVS (due to their overcuring in a mode of underwater storage) were already filled with water through defects in the enclosure. Such OTVS, which are sated with water and which are changing their geometrical sizes due to the swelling are impossible to be transferred to dry storage in HOJAT -2 because in production cycle the technology and devices for the reference with such assemblies are not stipulated by the project . There is no special equipment for their cutting , packing, and separate storage of fuel from these OTVS in HOJAT -2 . Therefore the part of untight fuel cartridges (with big defects of enclosure) will remain in HOJAT -1 which term of operation comes to an end in 10 years. There is a probability at the same time , that many OTVS, which are visually seems to be intact (but with microcracks in the enclosure and with moisture under the enclosure), will be kept in storage in HOJAT -2, that is categorically inadmissible while using the technology of long-term "dry" storage. The situation is also complicated with the help of qualitative revealing of untight fuel assemblies with defects such as « the gas thinness » there is no techniques, nor a instrumentation-hardware on CHAES .

The note of the author - the Project of new storehouse did not comprise specially stipulated conditions concerning untight heat-producing cartridges, and what this omission result in? There are more than 20 thousand fulfilled fuel assemblies on CHAES. Some hundreds of them became untight even during the work in the reactor. Everyone knew about it who worked with fuel. This circumstance could be taken into account beforehand, and it was necessary to pick up for work with untight OTVS a corresponding set of technologies and means.

There are questions about HOJAT -1 on which today is hardly possible to answer unequivocally. For example, nobody knows, whether there are cases with OTVS in HOJAT -1, at which POWER RODs are destroyed already , that there fuel tablets appear from them on a bottom of a case . Nobody considered subcriticism of BV the in system of planned condensed storage OTVS in assumption, that there is already a prorash of fuel tablets in the cases. Thus there is a redistribution of fuel on height of OTVS that demands the revision of conditions of their safe storage because that results in increasing of the factor of duplication of neutrons in the pool HOJAT.

It is impossible to exclude the presence of spills of the fuel on a bottom of pool, when we haven't convinced in the opposite yet . In the same HOJAT on the Leningrad atomic power station have found out, that the cases with the screwed bottom in a junction of a pipe and a bottom are rusting and losing durability. Nuclear fuel is the heaviest - the weight of fuel tablets in one POWER ROD - 3,5 kg, and in one OTVS - 130 kg. It means, that the weakened fastening of a bottom in a case with a high probability can not sustain the weight of a prorash of fuel from defective OTVS and then fuel tablets can appear at the bottom of the pool. It is necessary to remember, that the full prorash from two OTVS is enough, that in one and a half time to exceed safe value of weight of uranium on an isotope - 235, incorporated in Rules of nuclear safety PBA-06-08-77 [1]. Therefore I declare with the full responsibility , that the loss of management and general ministerial irresponsibility have made a basis for new failure in the most dangerous place of the Chernobyl atomic power station, in - HOJAT 1.

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There is no concrete confidence that the active zones of reactors on blocks 1, 2 and 3 of CHAES are possible to be unload without any problems for the same reason - because of the presence untight OTVS in them with damaged POWER RODs which changed their regular geometrical sizes.

"The Monument" the name of which is HOJAT -2

At the end of 1999, the contract (July, 7, 1999 № С-2/2/033) was signed between National nuclear energogenerating company " Energoatom " (NAEK) and consortium FRAMATOME, the construction of HOJAT -2 on "a turnkey" basis began on the distance of 2,5 km from CHAES .
The project is financed by the organization of donors from the fund of « nuclear safety ». The management of fund is carried out by the European Reconstruction and Development Bank (the investment of the EUROPEAN RECONSTRUCTION AND DEVELOPMENT BANK - 68,47 millions of euro, Ukraine - 35,94 millions of grivnas).
The technology of storage of OTVS - "dry", with maintenance of tightness and heat-conducting path from OTVS.
HOJAT -2 It is designed for storage of 25000 OTVS during 100 years? as asserted during the conclusion of the contract . Thus the resource of the equipment of HOJAT -2, used for preparation of the fulfilled fuel for storage, is 20 years.
First-order commissioning of object has been planned for July, 2002, and the end of the contract - in March, 2003.
Today it is possible to speak confidently, that in 1999 NAEK "ENERGOATOM" has made fatally erroneous step, the weight of which becomes more obvious very day (in the year 2000 the doctor of sciences G.Falko, the expert of the United Nations warned Ukraine about such outcome) .

The inquiry*(according to data of G.Falko [2]) - to choose the best project the tender was appointed , the applications on which were arrived from three international consortia. NAEK has received the actual control over carrying out the tender . All three projects were suggested in 1999 to Ukraine, were well familiar to our and foreign experts, because with the help of these projects storehouses on many atomic power stations in the different countries were built and are working now. To everyone's astonishment, NAEK has chosen the project of the consortium ,headed by French Framatome. To say, that it is the worse of three projects - is too softly. It is the most awful choice from all possible and that is the answer.*

The technology of NUHOMS which is on the basis of this project, has been made for fuel of the completely other type of reactors in comparison with Chernobyl RBMK (having other sizes of cartridges and, that is very important, their enrichment on uranium - 235). The technology is complex, and storehouses are dangerous and the roads are in operation. Besides, in general this technology belongs not to Framatome, but to the American company Vectra, which have been bankrupt at the end of 1997 after the Commission on nuclear regulation the USA (US Nuclear Regulatory Commission - USNRC) has forbidden manufacture of all components and systems NUHOMS, demanding (the increase of safety), making 2059 (!) corrections into its technology. Customers, including the largest power companies the USA (Pennsylvania Power and Light Company, Baltimore Gas and Electric Company, Duke Power, etc.), have incurred substantial damages because of the necessity to change urgently he project . And power station " Robinson " on which such storehouse had already been constructed, has made the decision in general not to use it in connection with imperfection of a design and the big working costs.

The technology *NUHOMS* is practically inapplicable for RBMK, because it does not provide the most important condition - required level of nuclear safety (the factor of duplication of neutrons in HOJAT -2 more than maximum permissible 0,95) and has few barriers of safety (actually one, instead of minimally allowable two), interfering an output of a radio-activity from storehouse. However these facts have not been taken into account by organizers of the tender in Ukraine, therefore and now, at the end of 2005, HOJAT -2 is not ready to work.

The functionaries of NAEK knew about lacks of project HOJAT which was chosen them, however examination of its Working project has not been carried out. As a result the object was built which has rough defects, that CHAES cannot completely use this storehouse even after making the greatest possible number of amendments. At the same time two technologies , which are more modern and widely used all over the world, have been submitted on the tender : consortium SGN-Walter Bau-Ansaldo (France - Germany-Italy) and EACL (Canada-Great Britain) which the committee of tender has rejected.

How workers of "ENERGOATOM" justified their choice? They showed only the difference in cost of the suggested projects [3]. The consortium, headed by Framatom, has offered the project of storehouse , the cost of which is 67 million euro; a consortium headed by SGN - in 98 million euro; a consortium , headed by EACL - in 127 million euro. It was allocated 68 million euro for the construction of storehouse of the European Reconstruction and Development Bank . Charges over this sum should be paid by Ukraine.

The note: the real expenses for creation HOJAT -2 make already 95 million euro today, and it is not final number. According to all available information, for input of this "monument" in work it is required to spend the same amount of money.

It is not difficult to present consequences of failure on the temporal storehouse HOJAT-1, especially when there is impossibility to unload nuclear fuel from it . And this situation was created not suddenly, it was predicted and sounded more than 6 years ago. Who has answered for i}? Nobody. The hostages of this situation was the personnel of CHAES, the Ministry of Emergency Measures and people of Ukraine..

The partial solution of this problem becomes possible only after complete construction of HOJAT -2, i.e. not earlier than 2010. And if there will be a big trouble in this time interval all of us will suffer from it. But the true originators think that problems of Chernobyl do not exist.

The Protective enclosure above the object "Shelter"

"Shelter" with it's 30 tons of the nuclear fuel which has left after the accident, is not the most nuclear dangerous object of a Chernobyl zone (exactly so much uranium have actually found out in it and written down). The theoretical opportunity of occurrence of chain reaction of division of nucleus is kept only in southern pool of endurance of 4-th power unit, where it has been compactly concentrated about 130 heat-producing cartridges by the moment of accident . The rest of the fuel is located more poorly (separate assemblies or their fragments), its location within the limits of the block and outside of its disorder, that makes the creation in "Shelter" of critical system to be impossible . It was proved to be true during 19 years of its operation, which had past after the accident. To create the critical system in "Shelter" from burnt out TBC, which are laying mixed up with the materials? which absorb the neutrons well , it is necessary not less than three tens densely located fuel assemblies with moderator of neutrons between them, but there are no such formations in "Shelter" .

There is no danger from a reactor of 4-th block, the active zone of which is empty. It is so empty, that people will periodically penetrate into it. The well-known researcher of "Sarcophagus"

Konstantin Pavlovich Checherov has told about it to the author: « The empty active zone through chinks, which are drilled from premises 427/2, 605/2 and 207/5 (under a corner upwards), for the first time has been finished shooting on video in autumn of 1988 by employees NIKIET under N.Zhukova's management. Later the camera was entered and was finished shooting through the chink (in a pipe) , rotating, empty mine of a reactor. This focus was thought up and was carried out by Ibraimov G.D., Berestov A.L. and Prianichnikov V.A.. In December, 1988 I.J. Mihajlov and I have penetrated through northern rolled gate in prehardware premise. And in 1989 we could, literally creep, direct in the mine of the reactor. The video shooting was carried out by G.D. Ibraimov with humeral chamber UMATIC, but the video recorder was at on his back, attached as knapsack, and he could not squeeze with it inside - he had to conduct shooting through a crack.

In 1995 we once again went to the mine of the reactor. There was no fuel in it , and the fuel was not added ».

It is visible, that the real danger of "Shelter", with its 50 millions curie of radio-activities, is not nuclear, but it is radiating. This danger also can be explained with tons of the radioactive dust ,which contain the fuel matrix, which can take off on industry site in the case of breaking-down of the constructions of Shelter. It was accepted two decisions about competition on the best scientific - engineering solution of "Sarcophagus - 2" for prevention of such outcome in December, 1991, by the Supreme Rada of Ukraine and the government. But qualitative competition has failed at that time because of scandalous intrigues, which were made by its organizers with French concern " BUIG " (Bouygues Group) [4]. It was necessary to return to this idea later. So in 1998 there was Plan SIP.

The work with it develops very quickly. By June, 1, 2001, during the first three years of realization of the project of new "Shelter" (Plan SIP), it has been spent 36,5 million dollars (proceeding from the analysis of expenses from Chernobyl fund " Shelter ", for advisers left about 1 million dollars a month) on the maintenance of foreign advisers of Group of management of the project (32 persons) . By today any brick is not put in the basis of new "Shelter", but expenses for the "support" of the project have made more than 250 million dollars. For comparison: the project of strengthening of support of beams B1/B2, which support the roof of old "Sarcophagus", cost about 3 million dollars.

From the very beginning The Ministry of the Power Generating Industry of Ukraine has failed to create effectively working vertical of management of Plan SIP, therefore there was no responsible approach in work with it. According to the Frame agreement between Ukraine and the European Reconstruction and Development Bank the responsibility for realization of the Plan SIP has been assigned to Ukraine, who delegated function of management and coordination of works (in frameworks SIP) Group of management of the project through CHAES . It was impossible to omit the responsibility , and probably therefore the European Reconstruction and Development Bank has wished and has undertaken function completely unusual for him -the technical management of the project, and began to do it with the help of the priorities, which are known to him.

How it has resulted? There multilateral "disorder" of opinions in work was expected , which can't be stopped by anybody in Ukraine . Therefore the impossibility to organize the work correctly , to find the reasonable variants of solutions of the problem caused the basic conflict - the experts, having considered recently accepted variant "ARCH",

have taken out the conclusion that this project is the least worked in the engineering plan and is potentially dangerous project. Its realization (on their data) is connected to risk of jamming of constructions of "ARCH" while its movement on the existing object.

According to the experts, the choice of "ARCH" passed under the strong pressure of the western structures. And now, as the western variant of a new protective enclosure is accepted, and is is going to be projected (basically) in the same place, significant financial assets will pass Ukraine again.

But the most important negative result of this project is that such new "Shelter" will be the same useless, as well as HOJAT -2, which was constructed by Framatom . It cannot provide the protection of people against a radioactive dust during the subsequent disassembly of separate constructions and roofs of old "Sarcophagus" and the disassembly of the block damaged by the accident. And it

contradicts the requirements of the Law (from April, 26, 2001) « About modification in some laws of Ukraine in connection with closing of the Chernobyl atomic power station » article 1 concretizes the definition of future of "Shelter - 2" by such addition: « The confinement - is the protective construction that includes a complex of the process equipment for extraction from the damaged power unit # 4 of CHAES materials that have nuclear fuel, radioactive waste products and other systems intended for activization of change of the given power unit on harmlessly safe system and to provide safety to the personnel, the population and an environment ».

The extremely high cost of its service is not less important factor, comparable to present charges of all Chernobyl atomic power station.

About the project of creation in a Chernobyl zone
The international center of processing and storage of the PAO

If to generalize all those few methods which are practically used at the reference with the PAO, the simple circuit will turn out: the highly active waste products are concentrated and isolated, mid -and low-active are diluted and sprayed. But today these decisions look hopelessly out-of-date.
Other industries have finished both with concentration and with delimiting waste products long time ago. We shall recollect, for example, a history of "growth" of chimneys, the height of which is two hundred and even three hundred meters. As the result, the same quantity of erupted by them pollution, poisoned the increasing territory, but with smaller concentration. But eventually the density of pollution grew up to critical size, forcing to search for other ways of disposal from harmful technogenic waste products. Now all progressive technologies in the industry are based on the principle of waterlessness . It appeared to be more favorable and economical. Only the nuclear industry, unfortunately, does not hasten to follow this unique correct way. Without exaggeration, it is the dirtiest branch today.

MAGATE estimated, that it will be unloaded about 260 thousand tons OJAT from reactors (there are above 400 of them in the world) by 2006 , 180 tons from them are directed ,on storage the rest is directed for processing. Therefore scales of a problem of processing of nuclear fuel and waste products, which are turning out from it - are huge. During processing of one ton of the fulfilled nuclear fuel arises (by the minimal estimations):

- 7,5 tons of firm radioactive waste products;
- 45 tons of highly active liquid waste products,
- 150 tons liquid mid-active waste products,
- 2000 tons liquid low active waste products.

Their total activity (on the average) is 600000 curie.

There is the question - where they are hidden?
The Great Britain and France used holes in the international agreements for a long time and the highly active waste products from such processing simply merged to Northern Atlantic. The same thing was done also by Japan. The USA, not the less polluted its territory , than Russia and Ukraine, several years ago have thought suddenly and have developed the program on clearing "ranges", cost in 200 billion dollars.
The affairs are much worse in Russia. In Krasnoyarsk - 26 (it is known as Krasnoyarsk mountain - chemical combine in Zheleznogorsk) and Tomsk - 7 (the Siberian chemical combine in Seversk) the PAO simply inject directly in the locations of the enterprises under the ground . And now, after only 30-40 years after the beginning of this practice, there were serious threats of their distribution for limits of the combine territories.

The affairs and in Chelyabinsk are not better. There from the beginning of 1950 on PO "Beacon" the old radiochemical factory, which is making "weapon" plutonium , is still functioning. In 1976 the line for processing the irradiated nuclear fuel, named PT-1 was opened at this factory, and "BEACON" has had an opportunity to process fuel of reactors ВВЭР-440, BN-350 and BN-600, and also fuel assemblies of transport reactors, research reactors and other power installations. How has it ended?

Each ton of the advanced fuel leaves about 2200 tons of radioactive waste products , liquid and firm after itself . Since October, 1951 on "Beacon" the mid-active waste products are merged in the lake Karachaj - an open reservoir of a natural origin which is used as the receiver and storehouse of liquid radioactive waste products till now . Mid-active waste products filter into so-called "lens" through Karachay . In the underground lens it is saved up more than 4 million cubometres of liquid radioactive waste products, which migrate with the speed of 80 m in a year in a direction of the river Misheljak (system Techa-Iset-Tobol-Ob-Severnyj Ledovityj Ocean), and also in a direction of water-fences of city of Chelyabinsk, lakes Uvildy and Argazi . The soil of the territories, adjoining to PO "Beacon", are polluted by long-living nuclide strontium - 90, cesium - 137, isotopes of plutonium and products of their disintegration. The level of pollution corresponds to the zone of an extreme ecological situation (this territory is recognized in the world as the most radioactively-infected), but there are no required measures on improvement of conditions . Why? Because there is no such volume of financial assets which is necessary for fundamental change in this problem and it is not expected in the future.

We are not in the better position. If in the nearest future national leaders of Ukraine will not change the attitude to the question of management of Chernobyl problems, the industry site of CHAES with its impurity will leave "dirty" territories of PO "Beacon" far behind very soon.

Now we shall try to reply:

1. Is it favorable to build in Ukraine manufacture on processing OJAT?
2. Is it favorable to store OJAT only (temporarily, or constantly)?
3. Is it favorable to process and store the PAO?

The first question

The world price of processing of one ton of OJAT - is about 1 million dollars. The price of the modern factory of processing OJAT, which has the productivity up to 1000 tons a year, is not less than 350 million dollars. It is necessary "to attach" storehouses of the Russian Open Society to it (highly active, mid-active and low active), at the rate of 2200 tons on each planned ton of OJAT to processing. It means, that every year work of the factory will be given 2,2 million tons of the PAO. Thus cost of storehouse of such volume, not considering expenses for its operation, will be about 1,5 billion dollars.

The comparison of incomes with charges gives the unfavorable result - the excess of charges over incomes exceeds 1 billion dollars.

For the inquiry - "specific" cost of "dry" storehouse for OJAT is approximately 8,5 thousand dollars on one ton of OJAT. "Specific" cost of storehouse for the PAO is equal, on the average is 500 dollars on one ton of the PAO. The figures are given on the Russian data.

The second question.

Cost of "temporal" storage of OJAT within 30 years is 988 thousand dollars for one ton, or 33 thousand dollars in a year for one ton.

Cost of "dry" storehouse OJAT with capacity of 10000 tons will cost not less than 100 million dollars.

As the result of taking on storage of 1000 tons of another's OJAT the annual receipts will be equal to 33 million dollars, or 330 million for 10 years. At first sight, the economic prospect at this project is present, especially if to take on storage not one but may be 5 thousand tons of OJAT. But then it is necessary to consider and estimate the charges on operation of storehouse OJAT (by the way, they are very high). And what is most important, it is its destiny together with stored in it OJAT, after the termination of the term of operation of storehouse. In fact it is temporal too .

The probability of return of OJAT to the country ,which has sent it on storage, moreover through some tens years - is simply zero. And here we again come to «the first question » (see above), to the serious economic losses.

Some experts crafty approve that the fulfilled nuclear fuel is very valuable material for power of the future as it comprises many sharing substances and valuable chemical elements. Thus they do not mention a problem of removal, processing and a burial place contained in OJAT radioactive splinters of division which make all this invention unprofitable and dangerous (see the question №1 higher).

The third question.

The problem which is really actual, is the reference with radioactive waste products, and this problem does not become covered by any international intergovernmental agreements.

The experience of the last years shows, that even the regions, which are with badly advanced economy, do not trust in increase of their well-being due to construction of storehouse of radioactive waste products in their territory. The problem consists not in technology, and in the policy, and it cannot be solved due to carrying out of any engineering researches. Here we need as minimum regional referendum.

The first reaction of the local population in the USA, Sweden, Australia, Russia, mentioning about the opportunity of construction in their region of constant storehouse of the PAO, was negative, and there are no hopes that after some time the reaction will change. Therefore all countries, which have the nuclear fuel cycle, are engaged in processing of the PAO. Thus they are solved to transport only firm waste products . The liquid PAO are stored on the place of their occurrence and they are only in temporal storehouses, or they injected under the ground, as in Siberia. The processing and storage of the PAO- the mechanism which is initially unprofitable. Therefore there is no country in the world, which would trade, or would be going to trade in the territory for accommodation on it the another's PAO.

The inquiry- the volume of radioactive materials in Ukraine is equal to 134 million in m3 (according to data of Usatenko A.I., expert NKPZU). Only on the industry site of CHAES there is 10 million in m3 with the general activity - is 10 million curie. It is without taking into account the fulfilled nuclear fuel the activity of which is expressed in billions curie.

Chapter 3

THE UNFAVOURABLE CONCLUSIONS

1. The loss of management of the Chernobyl problem by the supreme echelon of the government naturally conducts to the occurrence of new, scale accidents on the platform of the Chernobyl atomic power station.
2. HOJAT-2 in the work cycle of which, the equipment for cutting, packing and dry storage damaged (as the result of decompression and long storage in water) fuel assemblies is not stipulated, , cannot accept them in full volume from reactors and HOJAT-1.
   It can result in such situation, that in HOJAT-1 there will be a plenty (by my estimations - not less than 200 pieces) damaged assemblies, that will automatically transfer it in the status of one more "Sarcophagus".

3. The project of new "Shelter - 2" accepted in haste and without the sufficient analysis of consequences of its construction, will be embodied in one more useless and expensive "monument" to national bungling.

What is necessary to do to improve the situation

1. The structure of management of a Chernobyl problem requires radical revision, therefore the first step in realization of the new approach to the solution of this major problem is restoration of profile Committee in the Supreme Rada and creation uniform, specially the authorized central enforcement authority on questions of overcoming of consequences of Chernobyl accident. And the professionals should operate this body , not the politics at all.
   The experience on management of a Chernobyl problem , which was saved up in Ukraine (till 1996), has shown efficiency of such circuit. **The level of management of a Chernobyl problem should be adequate to its world status.**
2. The scale of Chernobyl tasks demands the coordinated work of several departments (including Ministry of Health, Ministry of Labor, MIDa) from one responsible center, therefore management of all Chernobyl subjects is necessary to transfer, as a minimum, to the first vice prime minister.
3. In 30-km to the zone of the Chernobyl atomic power station, there is no place to hide the radioactive waste products and OJAT . Therefore the waste products are planned to be sent to the factories on processing the PAO, which are staying near CHAES . It is the most logical to send OJAT for processing to Russia. There is no other output for Ukraine . The reliable storage of OJAT and the PAO, which was turned out after processing of a concentrate, is possible to provide only in the dry eternal storehouse, which is located in a rocky monolith. But there is no such storehouse in Ukraine and according to long-term (and ineffectual) conversations of the Cabinet of Ukraine on this theme it will never be present.

The list of the literature to the Part 6

1. The rules of nuclear safety while transportation fulfilled
Nuclear fuel (PBJA-06-08-77), the Appendix on page 18., M., 1978.
2. « Who decides instead of us, whether there will be a Radioactive future of our children ? »
G.Falko, « the Mirror of week », № 29, 1999.
3. « Who , how and why decides instead of us, whether there will be a Radioactive future of our children ? ». N.Vlasenko, M.Korotenko. « The mirror of week » № 48, 1999.
4. « Who has stolen « a green lawn » in Chernobyl? », Alla Jaroshinskaja, M., 25.04.2005.