WWR-M REACTOR

Brief Information about reactor state in 1992–1993

R. G. Pikulik

33 years of the WWR-M reactor operation have led to the necessity of the increased attention to the estimation of the operational life time of some reactor units and equipment. For that reason the special attention has been lately paid to technical examination of the equipment, of the pipe-lines, of the reactor systems and especially of the systems important for the operational safety. The results of technical examinations during the scheduled preventive maintenance (SPM) in periods 1992–1993 have demonstrated that the equipment and the pipe-lines are in satisfactory conditions; the defects in the equipment and the pipelines do not go beyond the limits established by the specified documentation. The defects are now controlled and do not prevent further reactor operation.

From June till July 1993 GOSATOMENERGONADZOR (GAEN) committee of Russia conducted a complex inspection of the WWR-M reactor. Though some deviations and violations of the technical specified documentation have been pointed to and presented at the committee conclusion, no exceeding of the limits and the conditions of the safety operation has been registered. The schedule of measures for correction of the registered violations , worked out in accordance with the results of inspections, has been consulted with the GAEN of Russia and accepted to comply. The financial source for this plan is not clear because Russian Academy of Science has not yet settled to allot the means for exploitation of large installations.

The GAEN has also established a new requirement for documentation to guarantee quality of produced works, it delays the giving of the permits for works to repair the reactor.

Concerning the nearest perspectives of the reactor operation, we should note the following. The passport is given till the end of 1995, but the GAEN makes more rigorous the requirements to the reactors and to the their safety. It leads to the large consumptions of time and resources to fulfill the requirements for the existing reactor design. The consumptions become comparable with the ones to perform the overall reconstruction of the reactor according to the new requirements. Concerning the reactor operation for physical research, main reactor operational characteristics are shown in a table. It should be noticed that the energy generation for the last two years is by 50% and 40% accordingly less then the year averaged energy generation for the whole time of reactor exploitation. It follows from the restriction of expenses for the reactor exploitation and from the increase of the bulk of reactor repairing works. Development of works on the liquid hydrogen cold neutron source (CNS), located in the core center and with the beam output on the upper reactor covers to the set-ups, drives out the overloading devices from the reactor covers and makes impossible to handle the vertical reactor channels simultaneously with the CNS operation. It has hardly reduced the irradiated possibility of the reactor and led to the reactor operation, if necessarily, only for the CNS or for the irradiation.

Table

Energy generation for 33 years	—	63983 Mw.days
Energy generation in 1993	—	1395 Mw.days
Averaged effective reactor power in 1993	—	10 Mw
Maximum power in 1993	—	14 Mw
Number of hours of reactor operation on megawatt power	—	3444
Number of other organizations working on reactor	—	5