X-85F001

# FIRST ATOMIC INDUSTRIAL ELECTRIC STATION IN RUSSIA

The efforts of the scientists and engineers of the Soviet Union in the field of design and construction of the World's first industrial atomic electrical power station were successfully completed in June 1954.

The atomic power station has become one of the operating industrial plants of the U.S.S.R.

What is the atomic power plant like?

Its main units are situated in this building.

Let us go inside.

This is the central hall. It is the heart of the atomic power station.

This is where the atomic reactor is installed.

The process of uranium nuclear fission, releasing atomic energy takes place in the reactor.

The reactor consists of a graphite cylinder surrounded by a heavy concrete shield, which protects the personnel of the plant from the effects of radiation.

The graphite cylinder is pierced by a number of channels.

These channels are filled with uranium.

These shots represent uranium nuclei.

Uranium nuclei in the pile are bombarded by elementary nuclear particles, called neutrons.

A neutron is approaching the nucleus.

On joining with the neutron the nucleus breaks up int two fragments, and new neutrons are released.

The fragments scatter with terrific velocity. The energy of their movement is the released atomic energy. It is gradually distributed among the surrounding uranium nuclei and is transformed into thermal energy which heats up the uranium. The chain reaction developing in the atomic pile generates an ever increasing amount of heat.

The water having become heated in the reactor, and having become radioactive, flows to the steam-generators...through special pipe-lines.

This the hall where the steam-generators are installed.

Each one of them has its own concrete shield.

In these steam-generators the hot water is utilized to produce steam.

X-85F201

SHEET (2)

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IN RUSSIA

The water heated in the reactor to 260-290 degrees C. flows through the tubes of the steam generator. During this circulation it gives up its heat to the water in the steam-generator.

Steam is produced as a result of this heat-exchange.

Leaving the steam-generators, the steam moves on to a conventional steam turbine.

These are pipe-lines through which the steam reaches the turbine

The atomic power station control is automatic.

The central switchboard and the control panel are installed in this hall. The control of all the units of the station is conducted from here.

The turbogenerator is operating a full capacity --- 5000 kilowatts.

The electrical energy generated by the atomic power station is transmitted to the transformer substation...from which it moves on to the utility supply of the district.

For the first time in history the machinery of plants and factories will work on the electric current produced not by the burning of coal or other conventional fuels, but by the utilization of a new kind of fuel -- nuclear fuel.