What is the external circuit of NPP cooling?

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The three forms of energy conversion at the NPP mean that its coefficient of efficiency (ratio of electricity generated to energy released during fission of uranium and/or plutonium in the nuclear fuel) is currently comparatively low, the ratio is not higher than 0.30-0.35 (30-35%). This means that for every nominal unit of electricity generated about 2 nominal units of heat must be released into the environment. To a certain extent it happens naturally (convection cooling of heated surfaces), however, the main method of cooling is ensured by the system of cooling condenser (sometimes called refrigerator) of the turbine.
Special engineering facilities are designed for this purpose. The basic principle employed is the thermal convection between steam generated by the NPP and the environment through special water circuit in the condenser. This water circuit is called the external cooling circuit of an NPP.
What makes this circuit different from other technological systems of an NPP is that it has the direct physical contact with the environment – some of its parts lack protective safety barriers. For this reason, there are strict requirements to ensure total exclusion of direct contact between the plant's steam and the external cooling water, in practice the requirement is always observed.