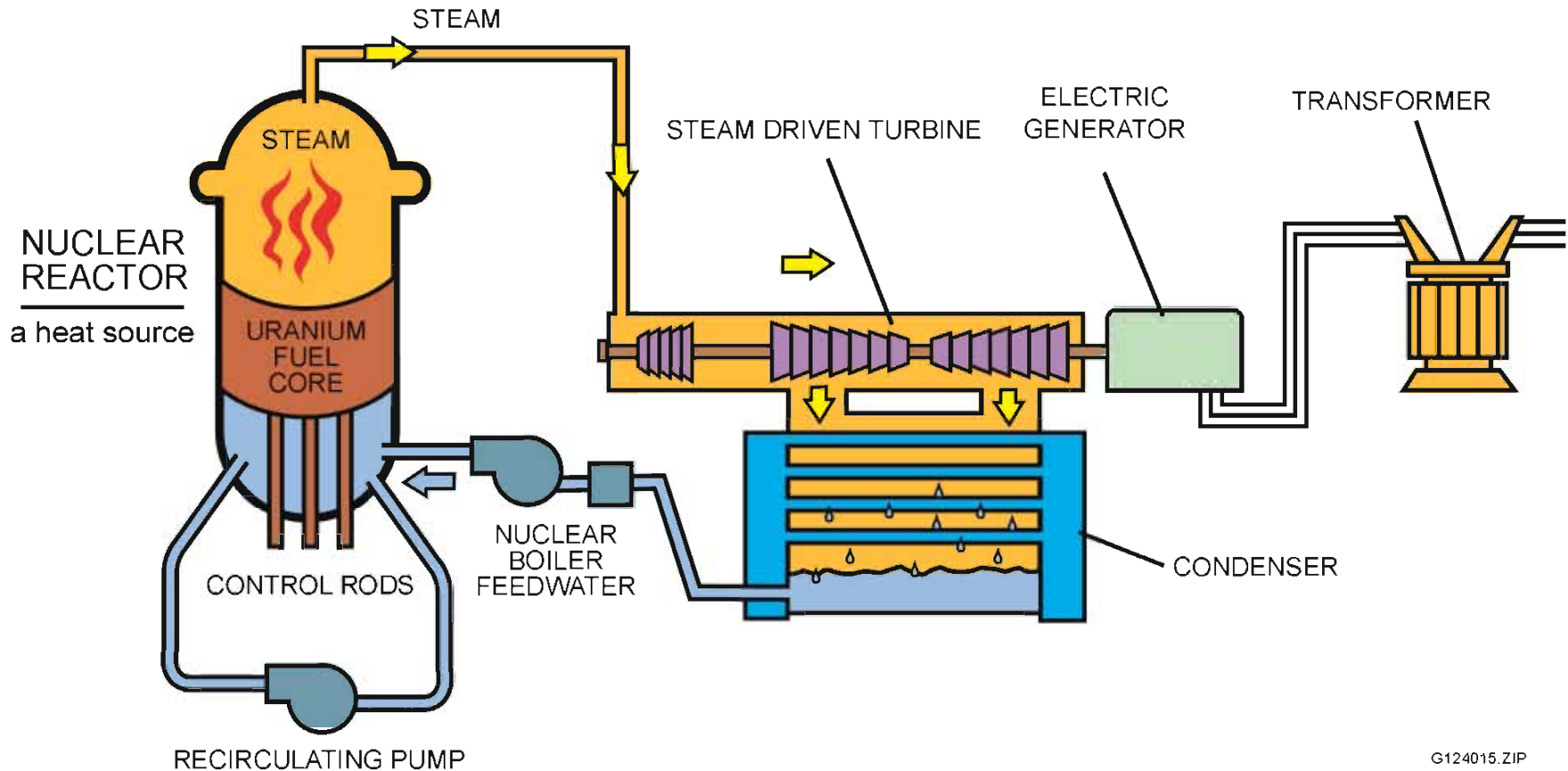


# How Electricity is Produced from Steam

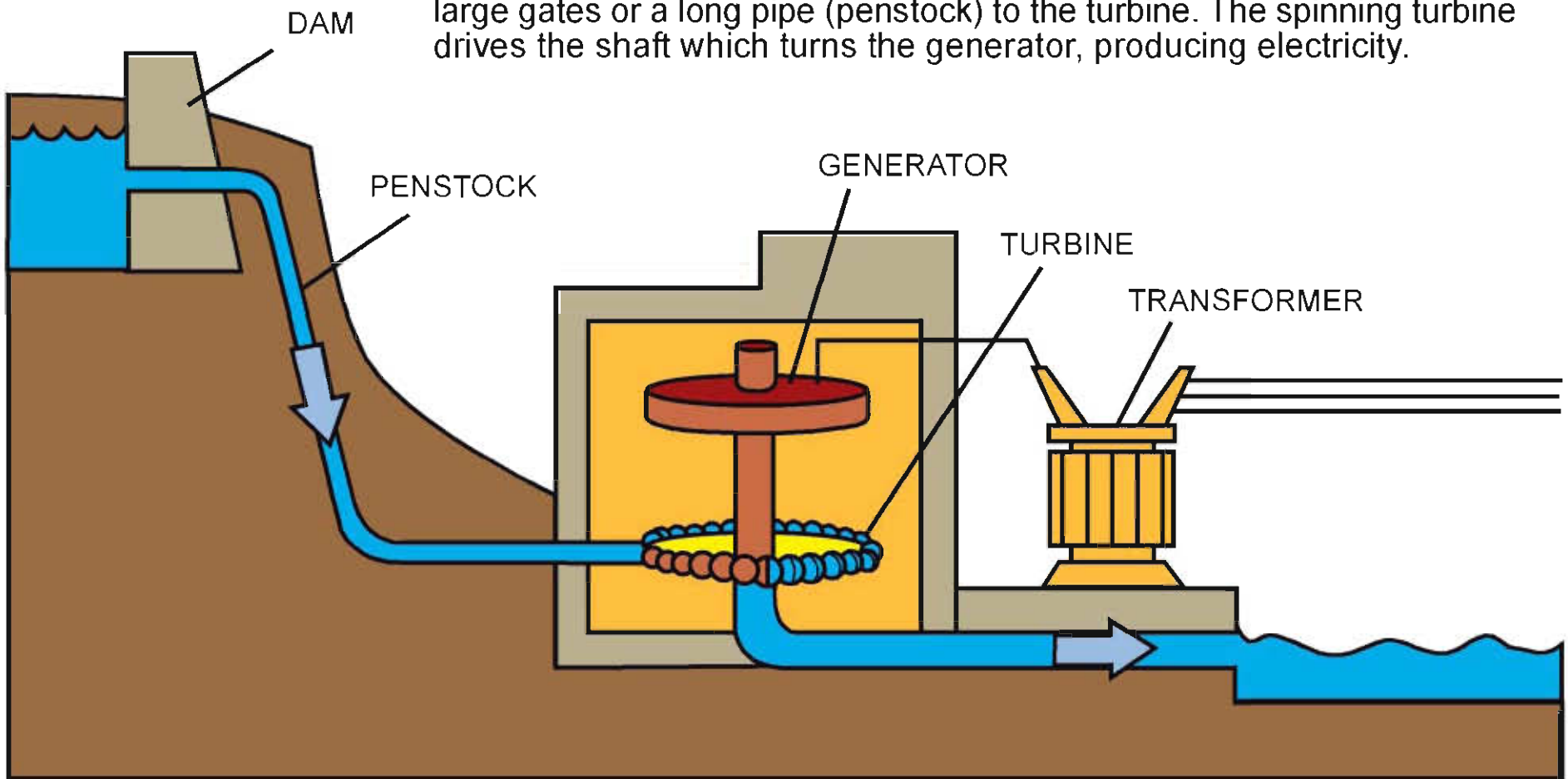
## How Cooper Nuclear Station works:

Cooper Nuclear Station uses small cylinder-shaped pellets of uranium dioxide contained in several hundred fuel assemblies which are housed inside a thick-walled steel, reactor tank. When neutrons strike uranium atoms, the atoms "fission" and create heat, which boils water to steam. Control rods regulate the heat of the water around the assemblies and therefore the number of neutrons that cause the uranium atoms to fission. The steam produced from the nuclear fission process turns a turbine to produce electricity, just like a coal plant or a natural gas facility.



# How Electricity is Produced from Water

Millions of tons of water are needed to run a hydroelectric plant. Water, which is held in a reservoir or lake behind a dam, must be higher than the power plant so it can fall with enough force to turn the huge steel blades of the turbine. From the reservoir, water plunges down through large gates or a long pipe (penstock) to the turbine. The spinning turbine drives the shaft which turns the generator, producing electricity.



# How Electricity is Produced from Wind

The turbines adjust so that the blades face into the wind. The wind blows against the blades and makes them turn, which also turns a shaft inside the nacelle. The shaft goes into a gearbox which increases the rotation speed for the generator. The generator uses electric and magnetic fields to convert the rotational energy into electrical energy. Electricity is generated at 600 volts and sent to a step-up transformer at each turbine site. These transformers increase the voltage to 34,500 volts for transmission to the substation. Another transformer in the substation increases the voltage to 115,000 volts and distributes it to NPPD's electrical grid.

