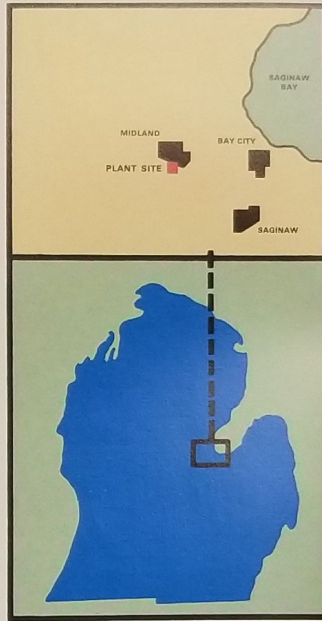




MIDLAND NUCLEAR POWER PLANT

An artist's rendition shows how the Midland Nuclear Power Plant will look when completed. Nuclear reactors will be housed in the cylindrical containment structures. Turbine generators will be in the large rectangular building. The plant and cooling ponds will be located on a 1,000-acre site south of The Dow Chemical Company's industrial complex at Midland, Michigan.

MIDLAND NUCLEAR POWER PLANT



The Nuclear Power Plant that Consumers Power proposes to build near Midland, Michigan, is to be the world's first industrial, dual-purpose nuclear energy center.

The plant will be capable of generating approximately 1.3 million kilowatts of electricity for the Michigan power pool and, at the same time, will be capable of delivering large quantities of process steam for industrial use by The Dow Chemical Company.

MULTI-MILLION DOLLAR PLANT

Michigan's expanding economy demands ever-increasing amounts of energy. The most economical way to meet these demands is to construct large, efficient power plants. The dual-purpose Midland Nuclear Power Plant is such a facility. Its construction will involve investment by Consumers Power Company of more than \$300 million.

It will have two generating units, each with a separate nuclear reactor. The first unit is scheduled to become operational early in 1974, the second early in 1975.

1,000-ACRE SITE

The plant is to be located on a 1,000-acre site south of Dow Chemical's industrial complex at Midland. However, buildings housing the reactors, turbine generators, auxiliary equipment, offices and other structures, and landscaped areas will require only a relatively small part of the site.

About 90 percent of the 1,000 acres will be used to construct a labyrinth of ponds. Cooling water for condensers in the turbine generator building will be taken from these ponds, used to condense steam into water, then returned to the ponds, slightly warmer, but otherwise unchanged. Over a period of days, this water will circulate through the ponds, gradually returning to normal temperature for reuse as cooling water.

URANIUM TO FUEL REACTORS

Each reactor in the Midland Nuclear Plant will be fueled with a 90-ton core of enriched uranium dioxide. These 90 tons of nuclear fuel will supply as much heat energy as 6.7 million tons of coal.

The plant will operate a year between refuelings. One-third of the nuclear fuel will be replaced annually.

HOW ELECTRICITY IS MADE

Basically, all steam generating plants make electricity the same way. Water is heated until it turns into steam. Steam pressure builds up in the boiler, and the steam is carried by pipes to the turbine generator. There it spins the turbine blades, generating electricity.

Although some power still is produced by hydroelectric facilities, most power plants in Michigan generate electricity with steam produced with coal, oil, or natural gas. Now, a new source of heat is available, and it becomes possible to generate large amounts of electricity with relatively small amounts of nuclear fuel.

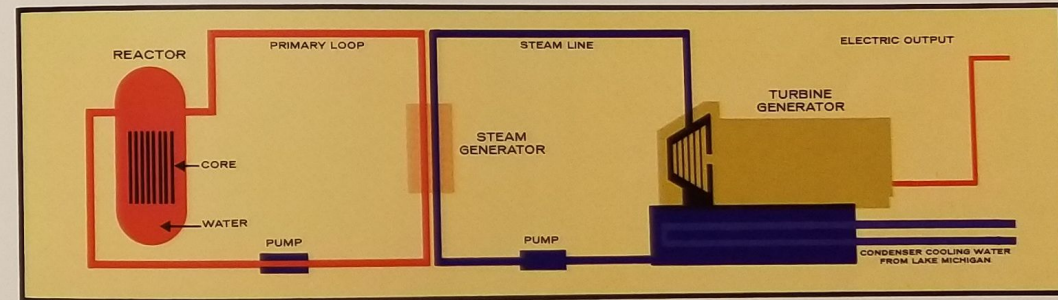
FISSION PRODUCES HEAT

In a nuclear power plant, bundles of uranium fuel are arranged in geometric relationship to one another. When neutron absorbing control rods are withdrawn, a nuclear reaction takes place. Billions of uranium atoms are caused to split, or fission, as they are bombarded with neutrons thrown off by the splitting of atoms nearby. This fissioning process produces heat within the reactor.

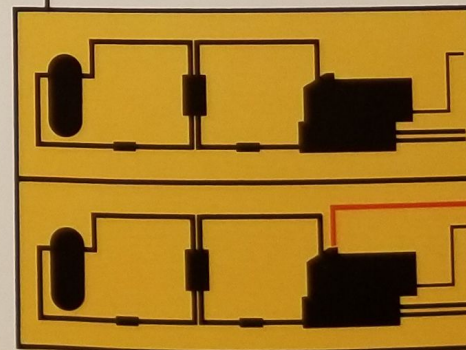
When both reactors and generating units of the Midland Nuclear Plant are operating at maximum capacity, uranium atoms will be splitting at the rate of 144 million trillion fissions per second.

Pressurized water, circulating within the reactor, is heated by the fissioning process and then pumped through the primary system to the steam generator. Here the heat contained in the pressurized water in the primary system is transferred through the walls of tubes in the steam generator to the secondary system where steam is produced.

The steam then moves through the steam lines to exert pressure against the turbine blades, causing the spinning action necessary for the generation of electricity.



The diagrammatic drawing above graphically portrays the operation of a nuclear power steam supply system. Nuclear fuel provides heat to make steam that turns the turbine generator.



Steam line to The Dow Chemical Company

The Midland Plant will have two identical nuclear power steam supply systems. Large quantities of process steam will be diverted from one of the steam lines (red line) and delivered to The Dow Chemical Company for industrial use.



Where "CP" stands for Continuing Progress in Nuclear Power

Consumers Power Company's Big Rock Point Nuclear Power Plant on Lake Michigan, five miles north of Charlevoix, Michigan.

A three-dimensional model of Consumers Power Company's Palisades Nuclear Power Plant, as it will look when completed. It is located on Lake Michigan, about five miles south of South Haven, and 35 miles west of Kalamazoo, Michigan.

NUCLEAR FACILITIES ARE EXPANDING

The Midland plant is to be Consumers Power's third nuclear facility. Its first, and the fifth investor-owned nuclear power plant to be built in the United States, is Big Rock Point Nuclear Plant, near Charlevoix. It is in regular operation, producing up to 71,000 kilowatts for the Company's electric system. At the same time, Big Rock Point plant continues an important nuclear power research and development program that was started when the plant began operating in 1962.

A second nuclear plant is under construction at Palisades, on Lake Michigan, about 35 miles west of Kalamazoo.

The Palisades Nuclear Power Plant will contain the largest electric generating unit yet installed in Michigan. It is scheduled to begin producing electricity in 1970, with an initial capacity of more than 710,000 kilowatts.



6.6 MILLION KILOWATT CAPACITY

Consumers Power serves more than one million electric customers in 61 of the 68 counties in Michigan's Lower Peninsula. The addition of the Palisades and Midland plants, plus a pumped storage hydroelectric plant to be built on Lake Michigan about four miles south of Ludington, will increase the Company's generating capacity to more than 6.6 million kilowatts.

The Palisades Nuclear Plant, and the proposed Midland Nuclear Plant and Ludington pumped storage hydroelectric project, are indications of how Consumers Power is building today for Michigan's tomorrow.