

NORTHERN INDIANA PUBLIC SERVICE COMPANY
NORWAY AND OAKDALE HYDRO ELECTRIC PLANTS
MONTICELLO, INDIANA

INTRODUCTION:

NIPSCO is the proud owner of two Hydro Electric Plants located near Monticello, Indiana. The Norway Hydro Electric Plant is located approximately one mile north of Monticello. The Oakdale Hydro Electric Plant is located approximately seven miles south of Monticello and approximately seven miles northwest of Delphi.

The Norway Hydro Electric Plant was put in service in 1923 and forms Lake Shafer. The Oakdale Hydro Electric Plant was put in service in 1925 and forms Lake Freeman.

HISTORY:

Two Norwegians, Hoarse Erasmus Hiorth (pronounced Yert) and Peter B. Smith, were the original settlers of the property that the town of Norway and the Norway Plant occupies. They purchased 293 acres of ground for \$1.25 per acre. The first dam and a saw mill was built at the Norway Plant location in 1836 by Hiorth. The dam was made of brush and stone. A flour mill was built at a later date below the dam for the settlers to grind their grain. There has since been many dams and mills at this location since Hoarse Erasmus Hiorth built the first dam.

Hiorth passed away in 1845 and willed all the property to his wife. His wife had a village named Mount Walleston platted. Mount Walleston was named in honor of the ship that brought Hoarse Hiorth to America and one street would be named Francis Street, in honor of the captain of that ship. The settlement of Mount Walleston was later known as Norway, Indiana, and Norway Road was originally named Hiorth Street.

Monticello Dam (Wilson Dam) was the first hydro electric dam built in the Monticello area. The first dam was built at this location in 1849 by the Monticello Hydraulic Company. In 1906 the Tippecanoe Electric and Power Company purchased the dam and installed the first hydro generators. At a later date the Interstate Public Service Company purchased the property and installed new machinery. This dam was in service until Oakdale Hydro Electric Dam was built and put in service November, 1925. Indiana Hydro Electric Power Company purchased the Norway Dam site and three other sites (Tioga, Oakdale and Springboro) south of Norway on December 30, 1921. Indiana Hydro hired Roger Freeman, in which Lake Freeman is named after, to engineer and design the four hydro plants, and John Shafer (Lake Shafer) performed studies for Indiana Hydro and took elevations around the lakes. Construction of the Norway Hydro Electric Plant was started in April, 1922, by Mansfield Engineering Co. of Indianapolis and finished in June, 1923. Construction of the Oakdale Hydro Electric Plant was started September, 1924, by L. E. Myers Co. of Chicago and finished November, 1925.

The plants were built by Indiana Hydro Electric Company and were ran by the Interstate Public Service Company. NIPSCO started leasing Norway and Oakdale in 1933 and bought the plants in 1944.

PLANT INFORMATION:

Norway and Oakdale Hydro Electric Dams are considered "Run of the River" dams and are not used for flood control. The water discharge through "Run of the River" dams is as close to the flow of the river as possible with out loosing efficiency on the generators. There are two main ingredients needed to control a "Run of the River" dam. They are the present discharge and the forebay level (lake level). By continually monitoring the forebay level the operator can figure an approximate flow of the river. Using the calculated flow of the river the operator can decide what water discharge is needed to raise or lower the forebay level. The forebay level at Norway is controlled within 2.4" range and Oakdale is controlled within a 3.5" range.

The lake formed by Norway Dam is Lake Shafer. Lake Shafer is approximately 10 miles long with a maximum depth of 30'. The average depth of the lake is 10' and covers approximately 1,291 acres of ground. The lake level at Norway is maintained between 645.00 to 645.20 feet above sea level. The lake level varies approximately 2.5" at Norway.

Norway has four generating units. During normal plant operations the small generating unit will discharge 520 cu ft/sec (3,890 gal/sec) of water through it's turbine and the three large generating units will discharge 915 cu ft/sec (6,844 gal/sec) of water through each generating unit's turbine. During times of flooding when the generating units are running at full capacity the total discharge for all four units would be 3,640 cu ft/sec (27,227 gal/sec).

Norway also has three (3) floodgates to discharge water after all the units are running at full capacity. Each floodgate is 30 ft wide and 22 ft high and will discharge up to 7,700 cu ft/sec (57,596 gal/sec) of water. With all three floodgates open to the maximum and all four units running at full capacity, the total discharge for the Norway Plant with the lake level in the normal range would be 26,740 cu ft/sec (200,015 gal/sec). The largest discharge of water in Norway's history is approximately 18,000 cu ft/sec (134,640 gal/sec).

The lake formed by Oakdale Dam is Lake Freeman. Lake Freeman is approximately 12 miles long with a maximum depth of 45'. The average depth of the lake is 16' and covers approximately 1,547 acres of ground. The lake level at Oakdale is maintained between 610.20 to 610.50 feet above sea level. The lake level varies approximately 3.5" at Oakdale.

