

# REASONER DAM

HUMBOLDT COUNTY, IOWA

## ABOUT THE DAM

The Reasoner Dam spans the West Fork the of the Des Moines River and is only one of two dams in the interior of Iowa that has an island at the middle of the structure, which is an unusual layout for low-head structures. The dam includes a lengthy millrace that diverted water to a powerhouse downstream.

While an earlier mill dam existed at this location (built in 1864), the current dam was built in 1911 to provide a pool for hydroelectric power generation. Construction was encouraged by a state-wide push for Iowa communities to electrify their neighborhoods by creating small power companies utilizing river resources. Due to the signficance of engineering and various distinctive architectural elements, the Reasoner Dam is recommended for eligibility on the National Register of Historic Places.

## QUICK FACTS

### BUILDER/CONTRACTOR

Tolz, King and Day, Inc.

### HISTORIC FUNCTIONS

Hydroelectric Dam, Reservoir

### CURRENT FUNCTIONS

Park, Dam

### MATERIALS

Reinforced Concrete

### PERIOD OF SIGNIFICANCE

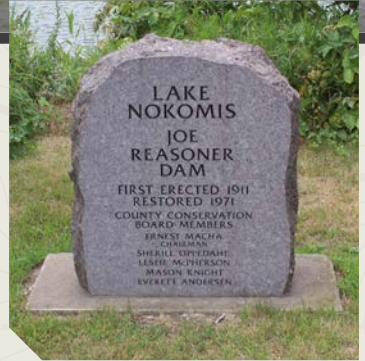
1911 - 1964

### CONSTRUCTION COST

\$100,000

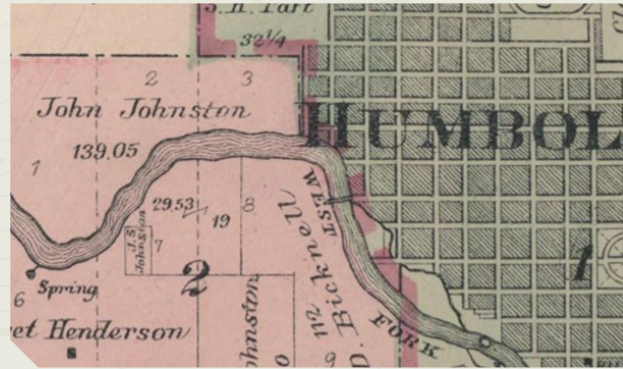
### NAMESAKE

Joe Reasoner, President of the Citizen Committee for Dam Repairs



# HISTORY

According to Pat Baker, historian at the Humboldt County Historical Museum, the first dam in this area was built in 1864. According to Swisher (1940), Reverend S. H. Taft built a dam across the Des Moines River and operated a flour mill at Humboldt. The county history relates that the sawmill and flour mill were built in 1864 by Reverend Taft, with operations beginning in 1865. The mill had three buhr stones. Taft was a very early resident of the Humboldt/Dakota City area. In 1866, prominent members of the community including judges, the sheriff, and county officials stated, "The colony, mill, and town enterprise to which Mr. Taft has devoted himself since he came into this State, has, in our opinion, done more to develop the resources of this section of the State, and advance the price of land, than any improvement which has preceded it".



In 1867, a millrace was cut with a dam located at the head. The work was completed by approximately 50 men for a cost of over \$17,000. This statement in the county history indicates a second dam was constructed in 1867 to assist with milling work on the river. In 1883, the mill belonged to a Mr. Rickard, who removed the wood dam and replaced it with a stone crib dam. The mill had a capacity of 100 barrels per day.

In 1900, a small electric light plant had been added to the east side of the mill in a detached structure. In 1909, the electrical plant was known as Humboldt Electric Light Company. In 1915, the mill still existed on the banks of the river, but the Northern Iowa Power Company built a facility just upstream of a dam. The city map shows the dam with an island at the center. By 1930, the mill was no longer present, and the plant was owned by Iowa Public Service Company. From a milling perspective, the current dam might have only serviced a mill for a few years. The Sanborn maps do depict a mill and powerhouse, but the facilities were located at the tail end of the millrace, which has its head at Reasoner Dam. Water flowed from the dam to the mill and powerhouse some 2,400 ft below Reasoner Dam. A second, smaller dam might exist or have existed at the tail end of the millrace.

## \$50,000 DAM IS BEING BUILT NOW

WILL CONSTRUCT IT ACROSS THE DES MOINES RIVER AT HUMBOLDT FOR POWER.

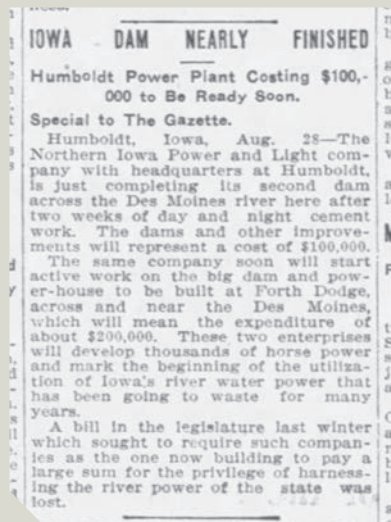
(By United Press.)

Humboldt, May 2.—The work on \$50,000 dam to be built across Des Moines river here has been commenced. It will furnish power Humboldt, Rolite, and Ft. Dodge. Work will be rushed as rapidly possible.

In 1911, plans for a hydroelectric dam were presented for Humboldt at the Northern Roller Milling Company and Humboldt Electric Light and Power Company location (owned by the same individuals). The plan was to build a concrete dam across the river and erect a new powerhouse. The cost was estimated at \$50,000 and approximately 1,200 hp would be produced. Plans were made by an engineer named "Tolz" of St. Paul, Minnesota (probably Tolz, King and Day, Inc. who also designed the Rutland Dam). But also in 1911, the dam is said to be under construction by the Northern Iowa Power Company. This might be a rebranding of the mill/electric company as Northern Iowa Power Company was based in Humboldt in 1911.

An older dam was present at this time, and it existed just upstream from the new concrete dam. The concrete dam was excavated to 5 ft below the riverbed. The width of the sluiceway was documented as 12 ft. The dam was reportedly 220 ft in length, 16 ft wide at the base, 14 ft tall, and the top was 4 ft wide. New cost estimates for construction totaled \$75,000. By the time of completion, the facility cost \$100,000.

Northern Iowa Power Company had multiple dams and holdings that serviced electricity and eventually went by the name "Northern Iowa Gas and Electric Company" in 1916 and also "Northern Iowa Light and Power Company". In 1925, Northern Iowa Gas and Electric merged with Central Iowa Power and Light Company of Fort Dodge. After a merger between Iowa Light, Heat, and Power Company in Northwest Iowa with Central Iowa Power and Light Company in 1927, the company became Iowa Public Service Company and the dam transferred ownership at that time. Repair work was completed on the west dam wall by Sande Construction Company in 1953. The plant ceased operations in 1963 or 1964. Additional utility acquisitions occurred in 1948, and in 1984, shareholders voted to make Iowa Public Service Company a subsidiary of Midwest Energy, followed by another merger in 1990 to form Midwest Resources. In 1995, Midwest Resources was merged with Iowa-Illinois Gas and Electric Company to form MidAmerican Energy.



After a flood in 1969, the center portion of the dam (island) washed out causing significant damage to the structure. A citizens committee was formed in 1970 to assist with funding of the dam reconstruction project to re-pool Lake Nokomis. The center section of the dam was rebuilt using four major and three minor sheet pile cells with 72 pilings in each cell. Each major cell is 30 ft in diameter and filled with aggregate from the Des Moines River. Riprap and concrete rubble were placed on top. Concrete work was also completed on the flanking sections of the dam. The dam repairs cost about \$118,160 and it was a cooperative effort between the community of Humboldt and the Humboldt County Conservation Board. Howard R. Green Company of Cedar Rapids undertook design work. The dam is named after Joe Reasoner, the president of the citizen's committee that helped fund the project, who was at the dedication ceremony in 1971.

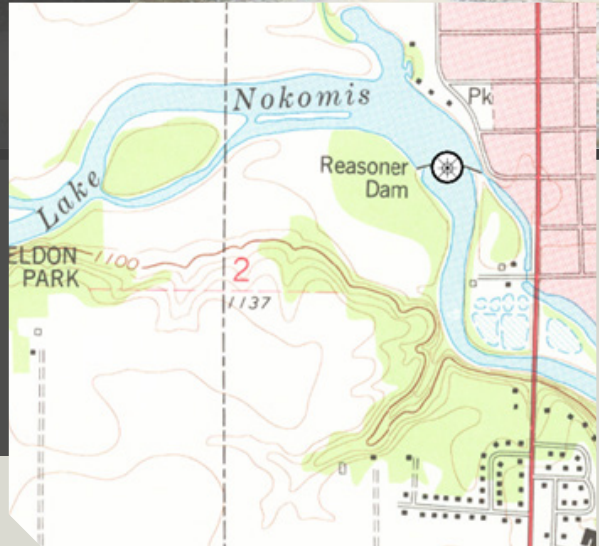
According to DNR records, after the center island construction episode, the remainder of the dam was rebuilt in 1980, but we could locate no information about a significant building episode. The 1981 inspection report indicates that the dam is made of reinforced concrete with an ogee shaped spillway between abutments. Two spillway sections were separated by an island. The east spillway has a sluice gate that flowed into a 3,000 ft long millrace that led to the powerhouse. The millrace was controlled by four 5 ft wide wooden sluice gates. The powerhouse was 48 ft wide by 52 ft long. It contained three horizontal drive turbines that were each connected to a 175-kW generator. The powerhouse was retired in 1963.



## What is the Iowa Low-Head Dam Project?

In 2020-2021, the Iowa Department of Natural Resources undertook a study of low-head dams throughout Iowa to determine which dams were historically significant. This study looked at low-head dams collectively so that future work on these resources could proceed smoothly.

As part of this project, the Iowa Department of Natural Resources hired the consulting firm, Impact7G, Inc. to develop a guide to assist project partners navigate the often complex laws and regulations associated with historically significant dams.



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