

Schoellkopf Power Station

Much has been written about the history of the Schoellkopf Power Plant in Niagara Falls, NY, USA. Rather than attempt to repeat that information, the reference below are very informative. This article will cover only the history of the power plant as I know it. This articles also contain great list of references for further information.

https://en.wikipedia.org/wiki/Schoellkopf_Power_Station

Historic Preservation Industrial Reconnaissance Survey: CITY OF NIAGARA FALLS, Niagara County, New York, NOVEMBER 2007, <https://buffaloah.com/surveys/nfindustrial.html>

The Schoellkopf Power Station is by far the most familiar to me, as my father was a generator operator in the facility until May 1956, a few weeks before it was destroyed by the collapse of June 7, 1956. As a result of his job, he would take me into the facility and usually take me alone when he gave tours of the facility on his days off. I remember his desk being sandwiched between two the 70,000 Hp machines of 3-C, with a spare turbine, undergoing maintenance, standing up against the back wall.

The destruction of the facility in 1956 and the possible causes of the disaster is the subject of a companion paper. Officially, no determination of the cause was ever made, but many contributing factors are known. These are discussed in that companion paper.

The ruins of the facility can still be visited today at no cost. It is located on Main Street, just a short distance down stream from the U.S. side of the Rainbow Bridge. A new elevator has been installed in the old elevator shaft, which was not damaged in the collapse. At the bottom, you will be on the floor of Schoellkopf 3-A, with the opening of the penstocks clearly visible in the gorge wall. The building and all the equipment has been removed. The ruins of Schoellkopf 3-B and 3-C can be seen on the opposite side of the elevator shaft, but are not accessable. Fortunately, there is a nice display of photo down there and more photos can be found in the Power Vista at the Robert Moses Power Plant.

Schoellkopf 1 & 2

The Niagara Gorge, a short distance from the Falls, has been used as a source of power since the mid-1800s. A hydraulic canal was dug from the upper river to near the gorge. Jacob Schoellkopf purchased the canal in 1877 and deepened it.

Initially, simple low-efficiency water wheels were used to generate mechanical power. Later, turbines were installed only about half way down the gorge, because it was not yet possible to build turbines that could withstand the pressure (90 psi) further down. Mechanical energy was brought to the surface via belts and shafts. Schoellkopf's 1874 power plant was of this type and it first drove a top-side generator in 1882.

Schoellkopf then built a second plant, in 1898, at the bottom of the gorge and supplied water via the vertical pipe seen in the photo. Its maximum capacity was 34,000 Hp and was shut down in 1921;



Schoellkopf 1 (top-side), Schoellkopf 2 (bottom)



Schoellkopf Power Plant, 1924 – 1956
3-A (left), elevator shaft, 3-B (center), 3-C (right)

Schoellkopf 3-A

Built in 1905-1914, Schoellkopf 3-A contained horizontal-shaft generators, fed by 9 foot penstocks. There was a wall down the center of the building, with the turbines located on the gorge side of the wall and the generators on the river-side of the wall. The shafts between the turbines and generators passed through openings in the wall.

The number and size of the generators varies in the references between 13 and 17 machines of 9,000 and 10,000 Hp each. Personally, I remember about 14 machines of 9,000 Hp before the damage caused by the collapse of June 7, 1956 and 12 repaired machines when the facility was shut down in 1961. There may have been a one or two smaller machines for “station power” or “house power.” I remember my father mentioning them, but I never saw them on all my visits down into the facility. The repaired Schoellkopf 3-A was the only power plant in the area to shut down in 1961, when Robert Moses came on line.

Schoellkopf 3-A had a varied history and underwent several changes. Initially, there was a machine generating direct current (DC = 0 Hz) and a machine generating something like 115 Hz for dedicated top-side customers. Eventually, most or all machines generated 60 Hz power. After the collapse, some repaired machines were reported to generate 25 Hz to balance the supply and demand resulting from the loss of Schoellkopf 3-B and 3-C.



Schoellkopf 3-A Generators
(The turbines were on the other side of the center wall.))

Today, all that remains is the floor of the building, and the tail-races below the floor. The penstocks exits in the rock wall are visible and sealed. The ruins are accessed by a free elevator that uses the original elevator shaft. There is a nice display of photos on a wall that separates 3-A from the collapsed ruins of 3-B and 3-C.

Schoellkopf 3-B

Built in 1918-1920, Schoellkopf 3-B contained three vertical-shaft generators rated at 34,500 Hp each, for a total of 103.5 Hp. They each had 17 foot penstocks and generated 25 Hz power. Schoellkopf 3-B was completely destroyed by the collapse of June 7, 1956.



Foreground: Schoellkopf 3-C generators

Background: Schoellkopf 3-B generators

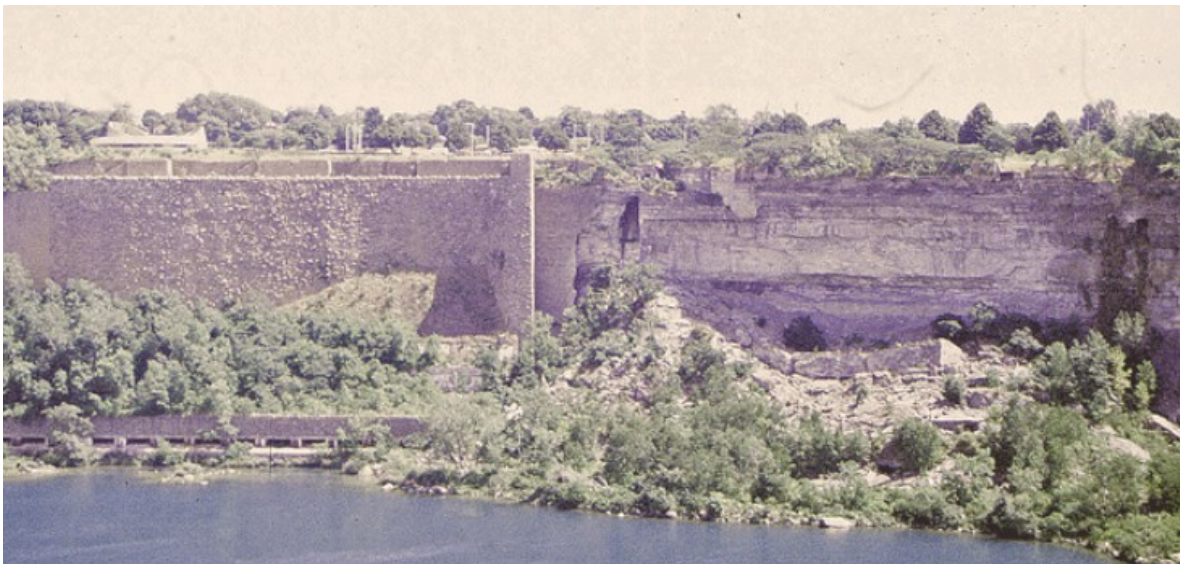
Schoellkopf 3-A generators are out of view in the far background

Schoellkopf 3-C

Built in 1921-1924, Schoellkopf 3-C contained three vertical-shaft generators rated at 70,000 Hp each, for a total of 210,000 Hp. They each had 21 foot penstocks and generated 25 Hz power. These were the more efficient replacement for the generators at John Dean Adams, as they could generate about 40% more power for a given amount of water. Schoellkopf 3-C was completely destroyed by the collapse of June 7, 1956.

To supply water to Schoellkopf 3-C a tunnel was dug under the existing hydro canal, the entrance of

which was just inside the entrance to the canal at the river's edge. After the collapse of June 7, 1956, it was impossible to close the gates at the forebay of the power plant and a steel frame and rock dam was constructed to seal off the entrance of the canal, but not the tunnel.





Schoellkopf Power Plant: 1956 Collapse & Ruins Today