

A COMPARISON OF HINCKLEY RESERVOIR OPERATION FOR SELECTED YEARS

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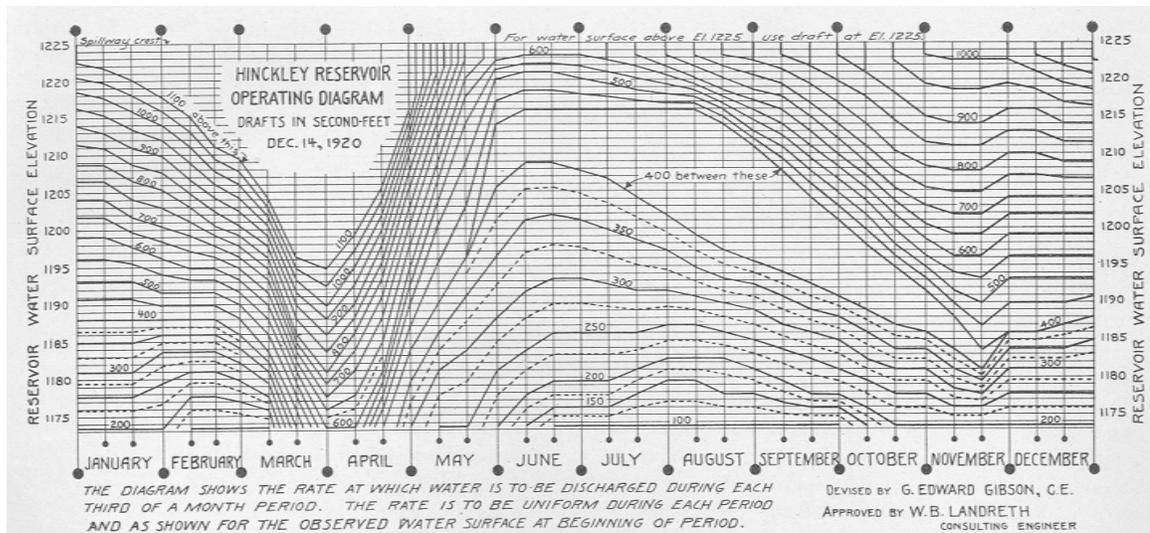
Hinckley Reservoir was created on the West Canada Creek by the State of New York in 1915 as a source for the Barge Canal. The dam that created the Hinckley Reservoir is operated by the New York Power Authority under the jurisdiction of the New York State Canal Corporation. The Hinckley Reservoir watershed is 374 square miles.

Prior to the construction of the reservoir, the West Canada Creek served as the drinking water supply to the City of Utica. The drinking water intake was located above the location of the dam. When the dam was constructed, the drinking water intake was relocated to the dam structure.

"When Hinckley Reservoir was constructed in 1915, its operation for canal purposes was alleged to injure downstream hydropower interests and claims were brought against the State by Utica Gas & Electric Company, of

Utica, N.Y. In December 1920, the State developed an operating diagram that established the release of water from Hinckley Reservoir based upon varying reservoir levels throughout the year. The 1920 Operating Diagram established the rates (in cubic feet per second) at which water is to be discharged from Hinckley Reservoir during each third of the month period based upon the observed reservoir elevation at the beginning of each period." ("Report to the Governor by the Hinckley Reservoir Working Group," April 30, 2008. p. 13)

More specifically, the releases from the reservoir were to be set by using the Operating Diagram at third of a month intervals (on the 1st, 11th, and 21st days of the month). A release rate is determined by plotting the date (x axis), and the surface elevation (y axis) and interpolating the release rate from the diagram.



Hinckley Reservoir Operating Diagram. Retrieved February 25, 2011 from:
<http://www.canals.ny.gov/waterlevels/hinckley/1920-hr-op-diagram-big.jpg>

In order to manage reservoir elevations and to protect the drinking water supply, deviations from the Operating Diagram have regularly occurred. Reservoir management has implications that affect canal levels, the drinking water supply, FERC licenses, power generation,

DEC required flows in the lower West Canada Creek, and recreational users. The long-standing practice of deviating from the Operating Diagram by reducing releases has proven an effective reservoir management practice in dry/drought years.

Reservoir elevation data from four recent years (1995, 1999, 2007, & 2010) are presented as examples of reservoir management practice. In 1995 and 1999, release deviations occurred proactively to manage the elevation of the reservoir. Beginning in mid-2007, it appears reservoir management practices were changed to adhere strictly to the Operating Diagram. On several occasions since this change, reservoir elevations have dropped to new historic low levels (for the 63 years of recorded elevations*). Reservoir elevations from 2007 & 2010 are presented to show the effects of this change of management practice.

1995

Historic past practice of reducing releases when reservoir levels were approaching 1200' elevation proved effective in 1995

Releases were reduced from 400 cfs to +/- 290 cfs on September 6th

Deviation allowed reservoir levels to stabilize around 1200' until early October when heavy rainfall over the watershed filled the reservoir

1999

Precipitation from January to June was 5 inches (24%) below average and the reservoir level was at its lowest level since 1987 for late June

Releases were reduced from 400 cfs to 300 cfs on June 25th

Deviation continued throughout the summer until September 24th when reservoir levels rebounded due to rainfall

2007

Beginning in early June, water levels were lower than both 1995 and 1999, yet over-releases (release rates higher than prescribed in the Operating Diagram) were called for on two occasions to meet the operational needs of the Canal

In late June, releases were increased from 400 cfs to +/- 580 cfs until July 10th (draining an additional 1.5 billion gallons from the reservoir)

A second over-release occurred between August 3rd (when reservoir levels were within 2' of recorded low levels) and August 8th (draining an additional 980 million gallons)

By August 7th, the reservoir was at the lowest recorded elevation for that date

Despite reducing releases to 120 cfs on September 25th, new daily recorded low elevations* continued until October 10th when rainfall filled the reservoir

2010

On May 5th, the reservoir reached a new daily recorded low elevation of 1215.4', which is 9' lower than the average recorded elevation for that day

Record low elevations continued through May until mid-June

As of June 8th, the reservoir was at 1215.1' which is 2.6' below recorded low levels for that day, and 8.8' below average

* Recorded Elevations – Daily reservoir elevation levels are available for approximately 63 years (12/31/41 – 2/28/79, and 1/1/87 – today)

