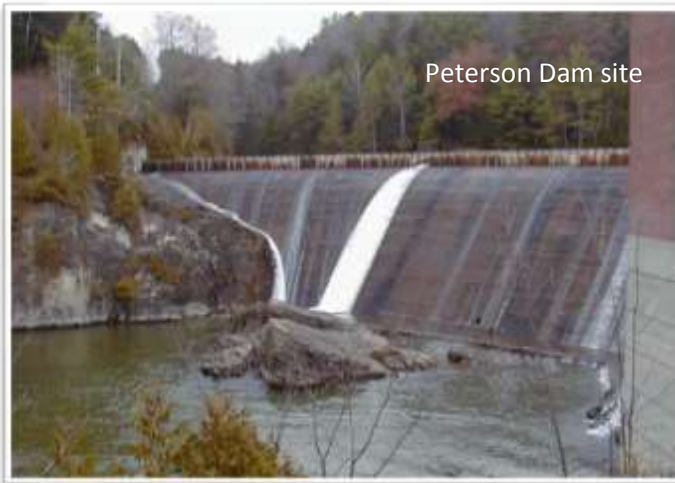


CASE STUDY REF: 017

PETERSON DAM – CREST GATE



Location

Peterson Dam is located near Town of Milton, Chittenden County, Vermont, United States. This dam is constructed on Lamoille river for the purpose of impounding water for power generation.

Role of dam

There are other three hydroelectric dams along the Lamoille River in Milton: Peterson Station, Milton Station, and Clark Falls. These three dams are part of the 21-megawatt Lamoille Hydroelectric Project consisting of four dams along the Lamoille River (the fourth dam being Fairfax Falls located in the Town of Fairfax).


Hydro Power Plant at Peterson dam is having production capacity of 6.3 MWe. It has 1 unit(s) and was commissioned in 1948. It is operated by Central Vermont Public Service Corp (CVPS).

Purpose of gates replacement

Earlier installed crest gate of 100' X 6' (30480mm X 1828.8mm) in size was used to restore water and maintain water level in river. In due course of time, the gate got damaged and was not able to maintain level in river to run power station at desired capacity due to loss water head.

Hence CVPS has decided to replace existing structure and Rodney Hunt was awarded with responsibility of designing, installation and commissioning of new crest gate.

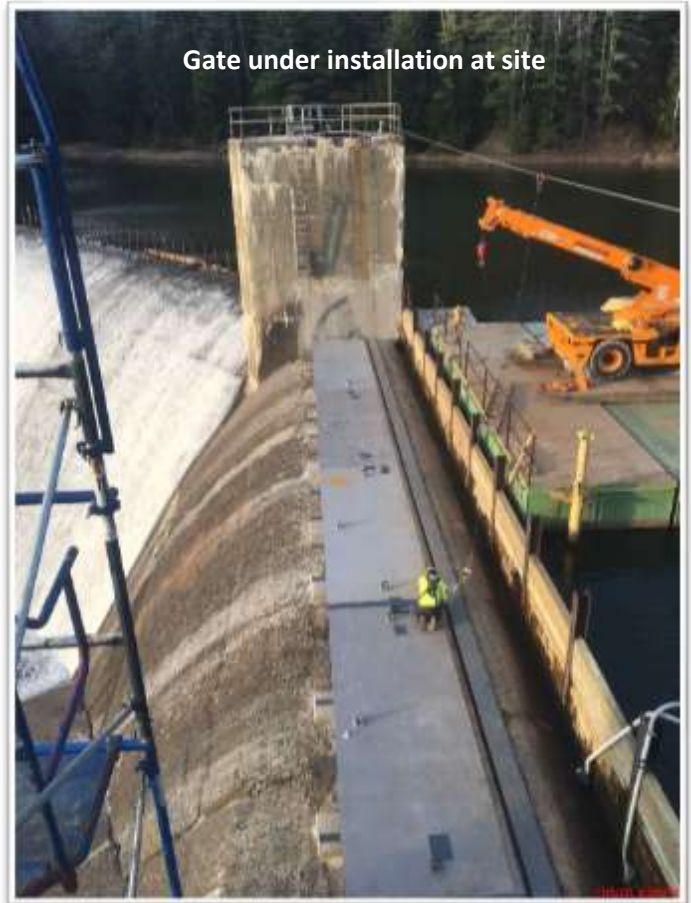


| Project Information | |
|----------------------------|--|
| Project | Replacement of Crest gate at Peterson dam |
| Owner | Central Vermont Public Service Corp. |
| Contractor | Green Mountain Power  |
| Product details | |
| Tye of gate | Hydraulically operated Crest gate |
| Size & Quantity | 100 ft. X 6 ft. (30480 mm X 1828 mm) |
| MOC | Carbon Iron |

Design features of Rodney Hunt supplied Crest gate

Crest gate is designed for 6 ft. static water along with 2 ft. overtopping water head. In winter season, the area where dam is situated is coming across heavy snow fall and river got freeze some time due to low ambient temperature. For continual power generation, it is required to operate the gates in such unfavorable condition too and hence Rodney Hunt has considered ice load of 3000 lb per ft (405 Kg per meter) across the length of gate to withstand load of ice.

Also gates sealing system is equipped with deicing facility to melt ice near sealing to minimize damage to sealing arrangement during operation of gate. This will take care of unfavorable weather condition for uninterrupted operation of gate.



Gate under installation at site



Gate under operation

Installation challenges

Major challenge is to replace gate with minimum rehabilitation at site and hence Rodney Hunt has designed gate in such way that minimum work has to done with concrete demolition to optimize overall cost of installation and saves significant time too.

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