

LOWER ORANGE RESERVOIR SPILLWAY RECONSTRUCTION: CONSTRUCTION PHASE

CITY OF BARRE, VERMONT



Immediately after a May 26, 2011 storm heavily damaged the Lower Orange Reservoir Spillway, Dufresne Group completed a Basis of Design Report defining a project to replace the damaged spillway and protect the dam by significantly increasing the size of the spillway and using sheeting to insure erosion does not damage the dam in future flood events above the 100 year flood. The impoundment serves as the sole source of water supply for the City of Barre and time was of the essence.

Dufresne Group prepared cost estimates for construction and total project costs for use by the Client in obtaining FEMA funding. After emergency repairs were made to protect the Lower Orange Spillway from future damage, DG completed the application for the Dam Alteration Permit under 10 VSA Chapter 43 including all related State and Federal regulatory groups. Concurrent with permit application review, DG completed final design of the improvements with the assistance of Dr. Richard Downer, PE, PhD and from John Higgins, PE, from Artisan Engineering.

Dufresne Group handled all bid services on behalf of the City of Barre. Upon approval of the Order allowing construction, DG prepared contracts for execution with the low bidder J.P. Sicard, Inc. for a total project cost of \$2,500,000.

KEY FEATURES

- Use of 244 tons of steel sheeting driven to depths of 35 feet to insure seepage or erosion from storms above the 100 year flood of 2,600 cfs does not threaten the dam
- Use of 1,620 tons of concrete waste blocks to stabilize the emergency channel. Use of the blocks provided a substantial cost savings as compared to riprap or cast in place concrete.
- Continued use of the ogee spillway to reduce costs and to insure the dam was able to remain in use as a water supply impoundment during construction.
- Mechanical cleaning and cement lining the raw water intake pipe for use as an impoundment drain.