

Relicensing Study 3.1.3

NORTHFIELD MOUNTAIN PROJECT SEDIMENT MANAGEMENT PLAN

Initial Study Report Summary

**Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)**

Prepared for:



Prepared by:



SEPTEMBER 2014

1.1 Study Summary

The purpose of Study 3.1.3 is to better understand sediment transport and dynamics between the Connecticut River and the Upper Reservoir of the Northfield Mountain Pumped Storage Project. By letter dated January 20, 2011 the Federal Energy Regulatory Commission (FERC) requested a plan to avoid or minimize the entrainment of sediment into the Project works during reservoir maintenance drawdowns. In response to this request FirstLight developed its Sediment Management Plan in consultation with the United States Environmental Protection Agency (USEPA) and Massachusetts Department of Environmental Protection (MADEP). FirstLight filed the Sediment Management Plan with FERC and the agencies on July 15, 2011. As part of the Integrated Licensing Process study scoping process USEPA requested that FirstLight incorporate the Sediment Management Plan into its relicensing studies.

Suspended sediment concentration (SSC) and particle size distribution (PSD) are monitored continuously at the Route 10 Bridge in Northfield, MA and in the Northfield Mountain tailrace. One LISST-StreamSide continuous sediment monitor was installed on April 2, 2014 at the Route 10 Bridge to monitor SSC and PSD in the Turners Falls Impoundment (Impoundment).¹ Two LISST-HYDROs (North and South) were installed in the Northfield Mountain tailrace on March 27, 2014 (North) and April 4, 2014 (South) to monitor SSC and PSD during Northfield Mountain pumping and generating cycles.² The LISST-StreamSide and HYDROs will remain in place until early November 2014 or the onset of freezing temperatures, whichever is earlier. Water samples have also been collected from the drain hose of the instruments over a range of flow conditions. Samples are submitted to a laboratory for analysis of SSC and TSS.

In addition, cross-section SSC and PSD data were collected in 2013 across the span of the Route 10 Bridge and across the span of the Northfield Mountain tailrace boat barrier as a means of comparing the representativeness of the LISST-StreamSide and HYDRO data with cross-section measurements. LISST-100X measurements were collected over a range of flows and operating conditions in the spring and fall 2013.

1.2 Study Progress Summary

Task 1. Continuous Monitoring of Suspended Sediments

Continuous sediment monitoring instruments were installed at the Route 10 Bridge and Northfield Mountain tailrace prior to the spring freshet. The instruments continue to collect data and will remain in operation until late November 2014 or at the onset of freezing temperatures. The data is downloaded, the instruments are serviced, and the clean water tanks are refilled weekly.

Task 2. Laboratory Samples

Water samples continue to be collected at the instruments over a range of flow conditions. All samples are submitted to a laboratory for analysis of SSC and TSS. Grab samples will continue to be periodically collected until the LISST equipment has been removed for the season.

Task 3. Reporting

In accordance with FERC's Order Approving Sediment Management Plan (March 28, 2012), FirstLight is required to file an annual report with the USEPA, MADEP, and the FERC no later than December 1 of

¹ The LISST-StreamSide was also installed during the 2012 and 2013 field seasons.

² The LISST-HYDROs were also installed during the 2012 and 2013 field seasons.

each sampling year. The next report is due December 1, 2014. In FirstLight's December 2, 2013 (after the August 14, 2013 RSP filing) annual report to USEPA, MADEP and FERC, it states "*In light of the equipment issues encountered in 2012 and 2013, FirstLight will expand field data collection activities through the 2015 field season*".

1.3 Variances from Study Plan and Schedule

To date, there are no variances from the RSP, other than expanding the sediment data collection to include 2015.

Continuous suspended sediment sampling will continue through 2015. FirstLight anticipates filing the final study report with FERC by December 1, 2015.

1.4 Remaining Activities

- Data review, QA/QC, and analyses
- 2014 Annual Report
- 2015 monitoring (April – November)
- 2015 Annual Report