March 20th, 2017

Dr. Jagadish Torlapati
Rowan University, Department of Engineering
201 Mullica Hill Road
Glassboro, NJ 08028

Dear Dr. Torlapati,

Attached is a report for the "Hydraulic Jump in Flume" experiment that was performed on Monday, March 6th, 2017. The objective of this lab was to study the hydraulic jump downstream of hydraulic structures such as a sluice gate and a rectangular weir in an open channel flume. Hydraulic jump is a phenomenon where the fast moving supercritical flow merges with the slow moving subcritical flow. In water resources engineering, hydraulic jump is used to control erosion immediately downstream of a weir or a sluice gate where the velocities of the water are high.

When generating a hydraulic jump downstream of the sluice gate, the Froude numbers for the upstream depth ranged from 1.63 - 5.74. The Froude numbers for the downstream depth ranged from 0.28 - 0.51. The critical depths ranged from 0.866ft - 1.202ft. When generating a hydraulic jump downstream of a rectangular weir, the Froude numbers for the upstream depth ranged from 2.424 - 8.481. The Froude numbers for the downstream depth ranged from 0.41 - 0.68. The critical depths ranged from 0.552ft - 0.968ft. In both scenarios, there was a clear transition from supercritical depth to subcritical depth.

We hope this report meets your requirements. If you have any questions or concerns, please email nguyen54@students.rowan.edu, feeneya8@students.rowan.edu, luppinos3@students.rowan.edu, or radays2@students.rowan.edu.

Sincerely,

Tri Tam Nguyen

Anthony Feeney

Stephen Luppino

Sean Raday