NEWSLETTER

Vol. 4 No. 1 *Innovative solutions to your flow measurement challenges* **June 2004**

Home of the Acoustic Scintillation Flow Meter

AQFlow Installs *ASFM Advantage* at Wells Dam

In January 2004, AQFlow carried out a preliminary set of diagnostic measurements to determine the best configuration of the ASFM for flow measurements to optimize turbine efficiency at Wells Dam. Douglas County, PUD' s single frame, 30-path ASFM Advantage was used. The full turbine measurement program is planned to start this summer. Wells Dam has 10 large Kaplan turbines with very short intakes.

Client Reviews

Reviews given by AQFlow clients may be found on our website at:

Client Reviews

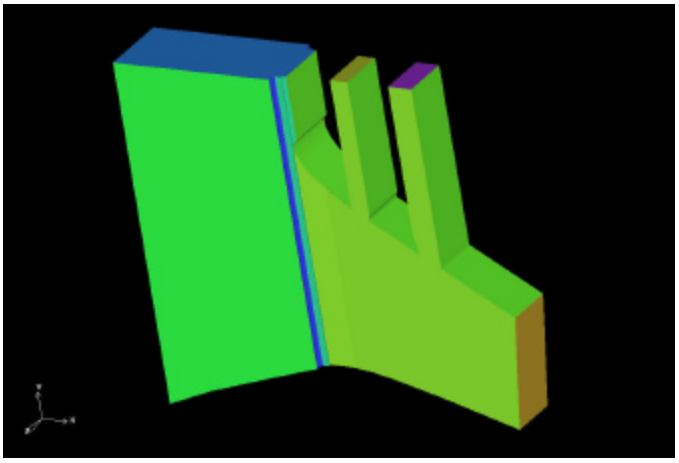
AQFlow Out and About

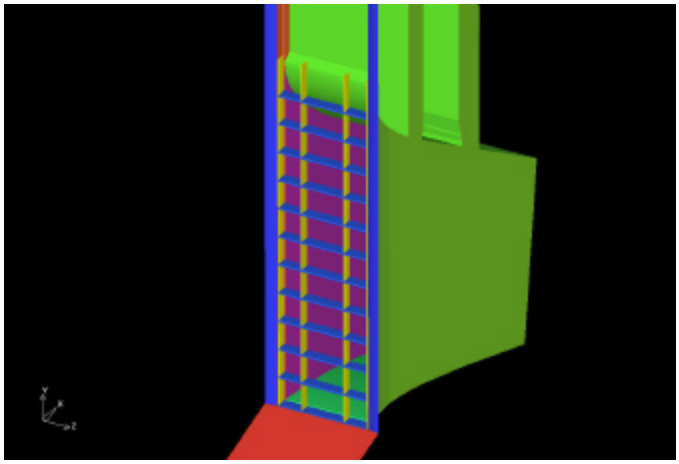
ASL AQFlow will be attending the following trade shows & conferences. We would welcome the opportunity to talk to you.

			ASL AQFlow Presenting:
IGHEM 2004	July 14-16, 2004	Switzerland	1) Applying CFD analysis to predicting ASFM bias in low head intakes with difficult hydraulic conditions. 2) Comparison of discharge measurement by current meter and Acoustic Scintillation methods at La Grande-1.
Hydro Vision 2004	August 16-20, 2004	Montreal	1) The ASFM Monitor: a cost-effective tool for real-time measurement of turbine discharge. 2) Understanding causes for systematic error in ASFM measurements of turbine discharge.
Hydro 2004	October 18-20, 2004	Portugal	Abstract submitted: Cost–effective turbine flow measurement in short intakes.
Waterpower 2005	July 18-22, 2005	Texas	

CFD Analysis at Hydro Québec's La Grande 1 Power Plant

A three dimensional numerical analysis has been carried for the La Grande 1 power plant intake. The study was aimed at testing the accuracy of the numerical simulation against the current meter measurements made by Hydro-Québec' s engineers. Figures 1 and 2 show the topology of the intake. Various geometric configurations and inlet flow conditions have been studied. The first test was for the original design of the intake. In the second test, because the upstream floor may have been modified over the years by sediment/debris deposits, two other configurations have been tested as well. The third test was conducted by varying the approach flow at the inlet. The distribution of flow variables such as the horizontal velocity is shown is Figure 3. A quantitative comparison with current meter measurements is shown in Figure 4.





Figures 1and 2: La Grande 1 intake and trash rack.

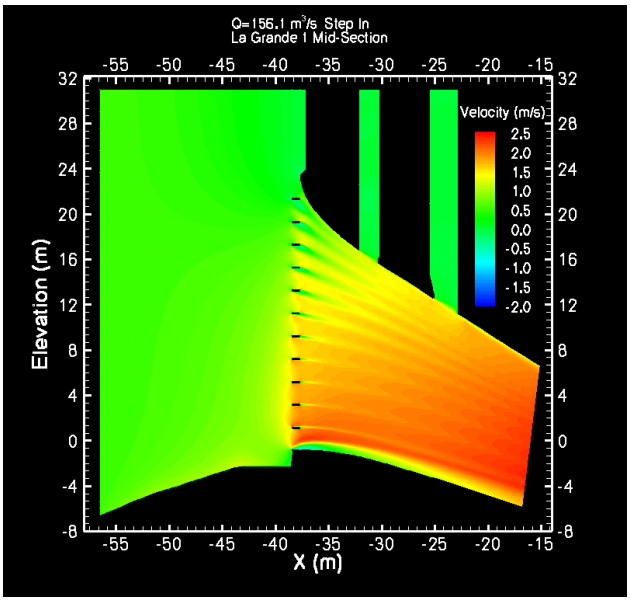


Figure 3: Mean horizontal velocity distribution at a middle section of the intake.

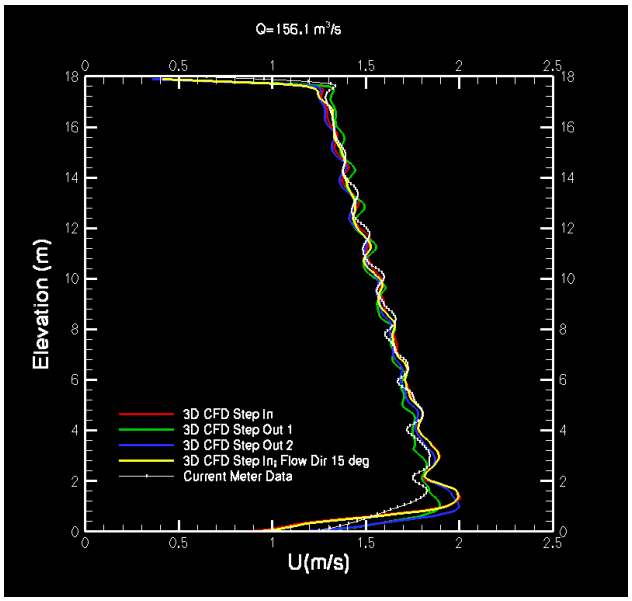


Figure 4: Comparison of the horizontal velocity with the current meter data for different geometrical configurations.

Other Hydro Solutions

Our parent company, ASL Environmental Sciences, offers a range of related services and products for other hydro applications, such as flow surveys and numerical simulations in forebays and tailraces.