

Home of the **A**coustic **S**cintillation **F**low **M**eter

AQFlow offers a breakthrough solution for absolute flow measurement in short converging intakes: the **Acoustic Scintillation Flow Meter (ASFM)**. Thanks to its design characteristics, the ASFM produces accurate and repeatable relative or absolute flows in even the shortest intakes, and can be installed on a permanent basis – something no other technology could achieve in short intakes. Since the early 1990's, many low-head plant owners in North America, Europe and Asia have benefited from the ASFM technology.

The ASFM at Wells Dam

As a continuation of the ongoing measurement program, ASL AQFlow Inc. has just assisted Public Utility District No. 1, Douglas County with the installation and operation of a 3-bay, 10-paths/bay ASFM Advantage system in Units 7 and 8 at Wells Hydroelectric Project in Pateros, Washington in August 2007. The program is being carried out to establish individual unit performance and identify potential for further plant optimization. The remaining three units will be measured in 2008 to complete this seven-year program of off-cam turbine flow performance tests at Wells Dam.



Photo courtesy Douglas County PUD

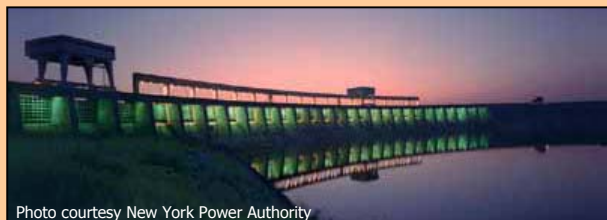


Photo courtesy New York Power Authority

Flow Measurement Comparison Testing

This fall, ASL AQFlow will be part of a planned flow measurement comparison test for low-head intakes at New York Power Authority's St. Lawrence plant. ASFM and current meter measurements will be

made simultaneously in the same intake. This measurement (funded through EPRI and NYPA), and the comparisons between the ASFM and a time-of-flight system at the USACE's low-head Lower Granite plant in 2004 (see AQFlow Newsletter Vol.5 No.1 June 2005), are part of a series promoted by the ASME PTC-18 committee to evaluate low-head flow measurement methods for potential code acceptance.

NEWS FLASH

AQFlow has just signed a contract with Union Fenosa of Spain to do flow measurements at 3 hydro plants in northwest Spain. See details in next newsletter.

Electricité de France purchases a new ASFM

Electricité de France (EdF) recently purchased a portable ASFM Advantage system to measure flow conditions associated with the rehabilitation of Unit No. 1 at the 150-MW Kembs hydroelectric station. EdF has used this ASFM for baseline measurements, and to ensure that the plant operates as efficiently as possible.

A major refurbishment program is under way at the Kembs plant, which is located on the Rhine River, to increase efficiency and power output. The plant has a 13.5-meter head. Each of its six 25-MW turbine-generator units (two Kaplan units and four Helice, fixed-blade propeller units) has two 17-meter-long intake bays. A simple way to measure flow in these conditions is with the ASFM mounted on a frame and lowered down the stop log slot just downstream of the trash-rack. The turbine can stay in service and does not need to be dewatered for flow meter installation.

Before purchasing the ASFM Advantage, EdF leased a 2-bay, 2-paths-per-bay ASFM Advantage system installed at Kembs in June 2006 for a one-week test. The purpose was to establish performance of Unit 1 and to determine the suitability of the AQFlow ASFM for EdF. The test was successful and led to this recent purchase.

In addition, the system purchased for Kembs includes two innovations. The first is a revised algorithm with improved performance in regions of strong turbulence and unsteady or skewed flows. While Kembs has no strong turbulence or unsteady flows, Unit No. 1 does have skewed flow because it is located nearest the western riverbank.

The second modification allows ASFM operation over a greater range of intake widths thus allowing its use in a greater variety of plant configurations.

WaterPower XV Conference and Exhibit

AQFlow exhibited at WaterPower XV in Chattanooga, Tennessee July 23 – 26.

A technical paper in Session 1A was presented and described the installation methods for the ASFM.

The ASFM was also part of the discussion in Session 5F (Wednesday afternoon, July 25). At this panel discussion, *Flow measurement for turbine testing: current issues*, members of the American Society of Mechanical Engineers test code committee on the performance of hydraulic turbines and pump-turbines discussed topics under consideration for inclusion in future editions of PTC-18 test code. These discussions included flow measurement in low-head intakes, including the application of acoustic scintillation technology.



Other Hydro Solutions

Our parent company, [ASL Environmental Sciences](http://www.aslenv.com), offers a range of related services and products for other hydro applications, such as flow surveys and numerical simulations in forebays and tailraces. See www.aslenv.com for more information.



© Copyright ASL AQFlow Inc., 1986 Mills Road, Sidney, BC, Canada, V8L 5Y3 Tel: (250) 656-5529

E-mail: aqflow@aqflow.com

Web: <http://www.aqflow.com>

Toll Free: 1-877-656-0177