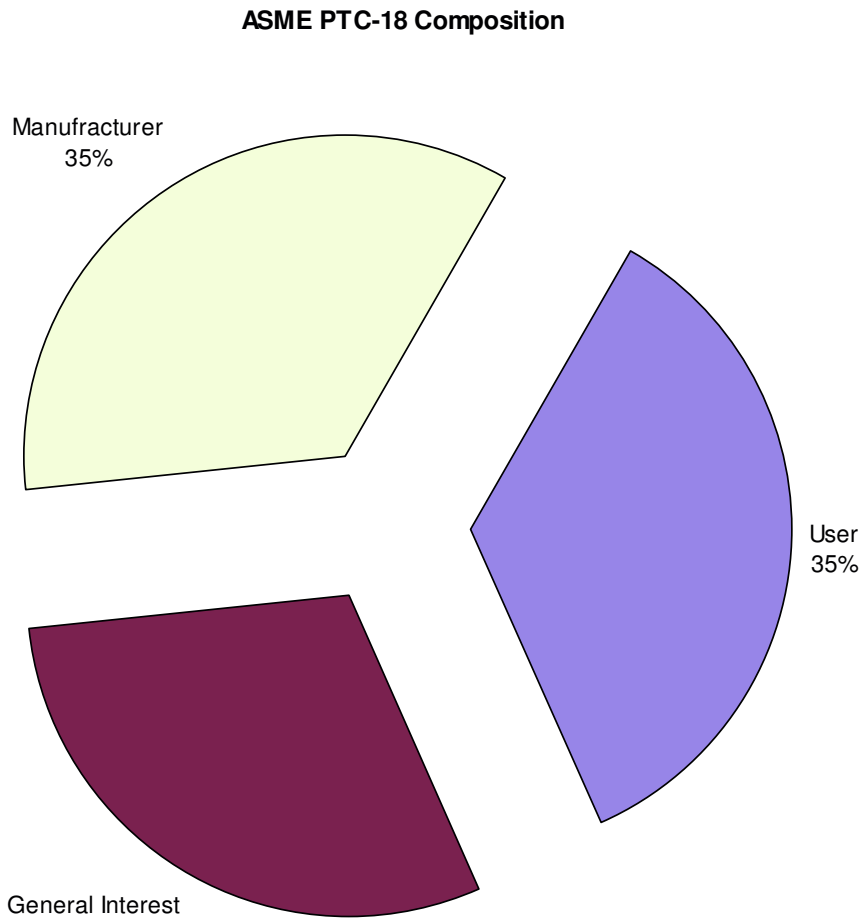
ASME PTC 18-200X

New Directions

ASME PTC –18 Charter

- **To provide procedures for determining field performance testing of hydraulic turbines and of pump/turbines operating with water in either the turbine or pump mode, by measuring flow rate (discharge), head, and power, from which efficiency may be determined.**

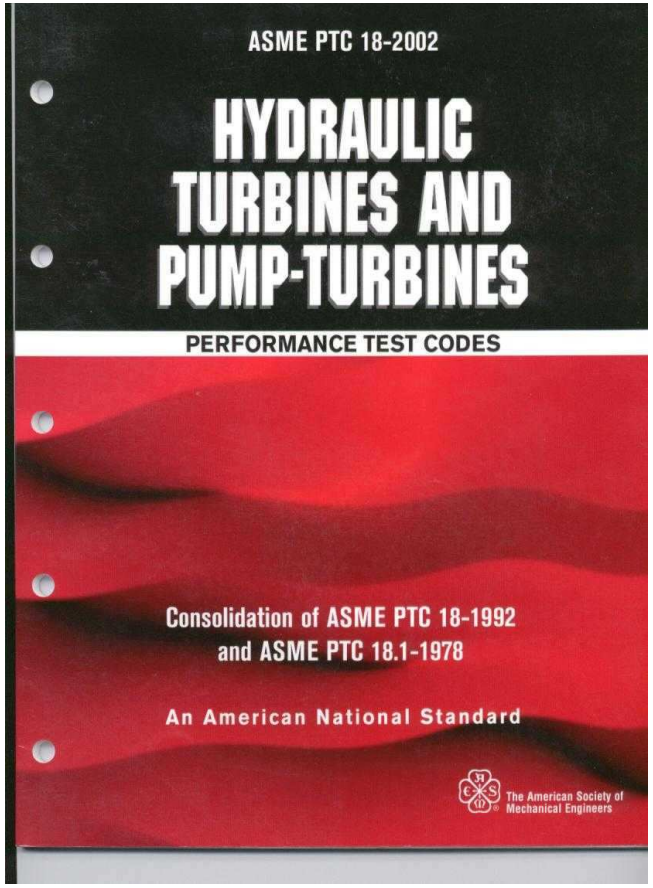
ASME – PTC –18
Target Balanced Composition



Current Composition

- *General Interest*
  - **C. Almquist – Principia Res Group**
  - **J. Hron – MwH Americas**
  - **N. Latimer**
  - **L. Pruitt – Stanley Consultants**
  - **P. Rodrigue – Acres International**
  - **J. Walsh – Rennasonic Inc.**
  - **W. Watson**
  - **D. Lemmon – ASL Environmental Sciences**
  - **P. March – Hydro Performance Processes**
  - **A. Lewey**
- *Manufacturers*
  - **M. Byrne – Voith Siemens Hydro**
  - **C. Marchand – GE Hydro**
  - **G. Russell – American Hydro**
  - **J. Kirejczyk - Toshiba**
- ***Users***
  - **D. Hulse – US Bureau of Reclamation**
  - **P. Lamy – Hydro-Quebec**
  - **P. Ludewig – New York Power Authority**
  - **R. Munro – Ontario Power Generation**
  - **R. Deitz – Safe Harbor**

What is new in ASME PTC –18 2002



Available through ASME

Covers *both* Turbines & Pumps

Dye Dilution

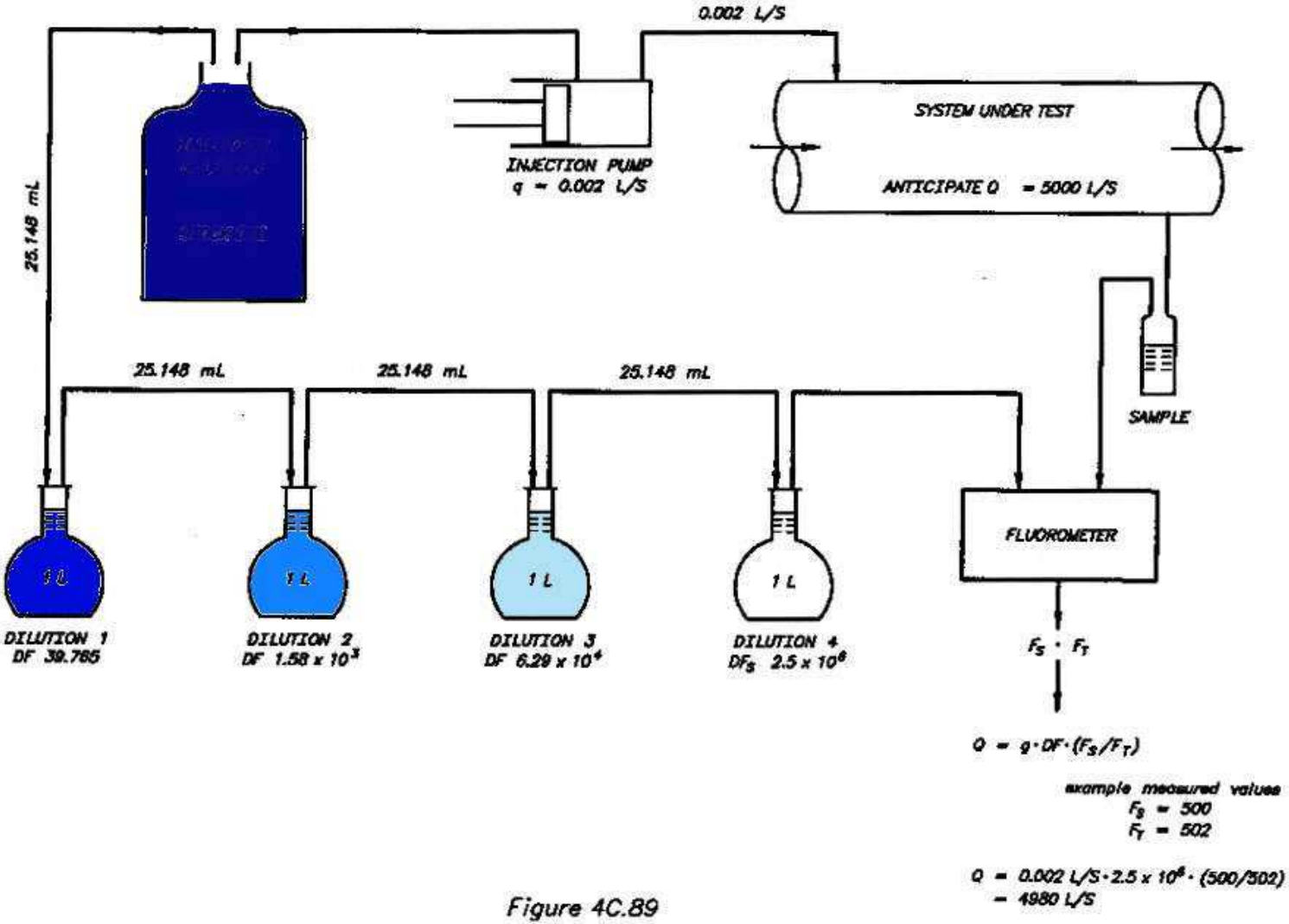
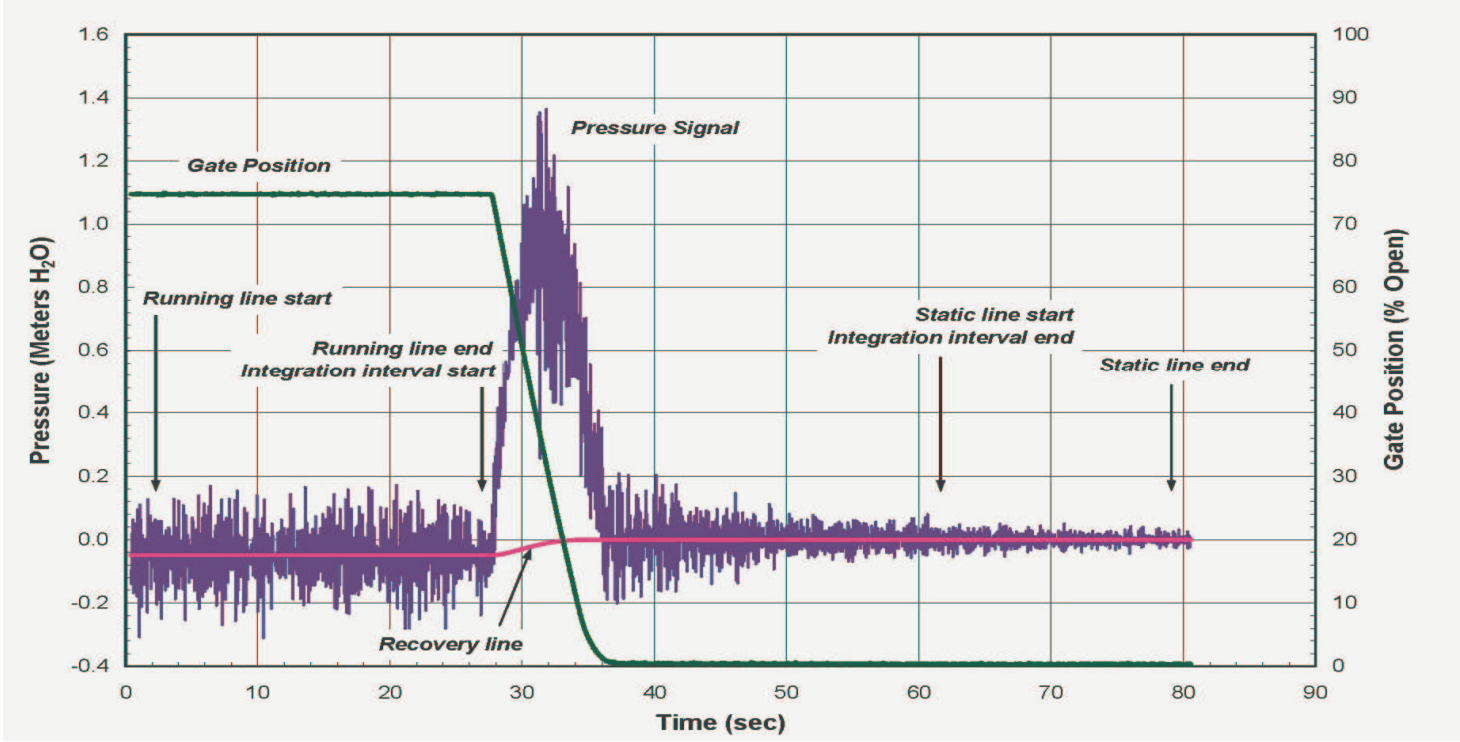


Figure 4C.89

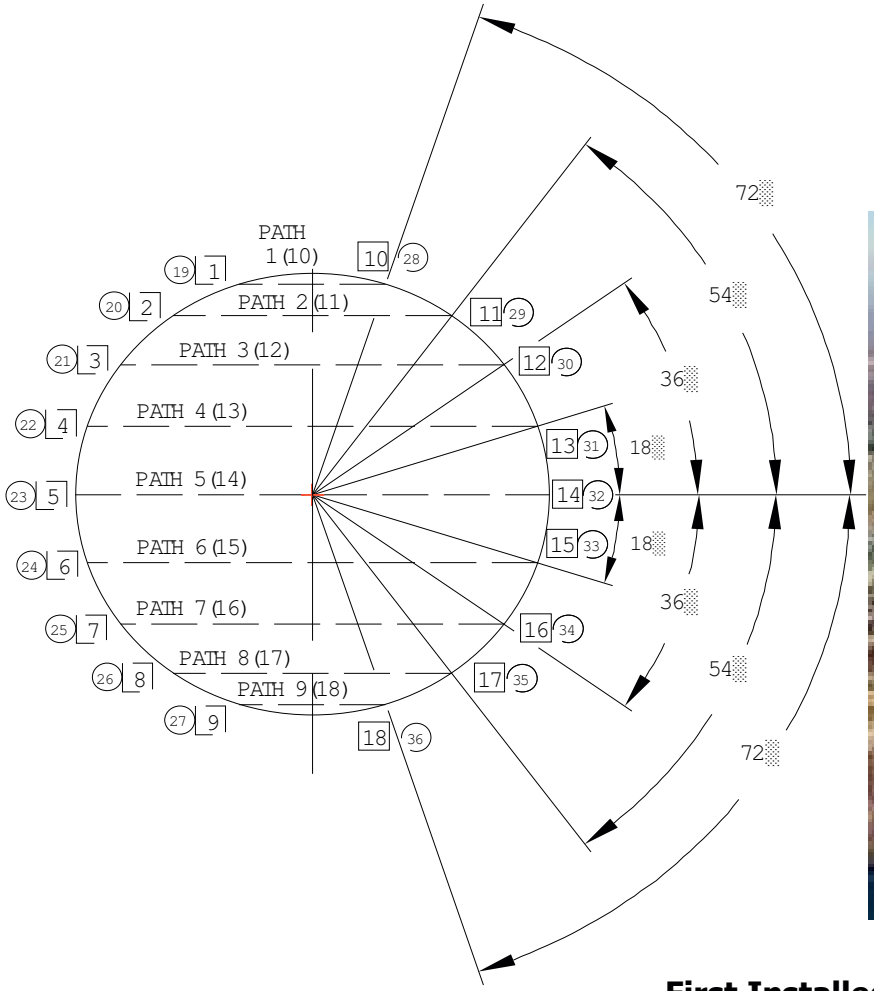
SCHEMATIC REPRESENTATION OF DYE DILUTION TECHNIQUE

Electronic Pressure Time



- Use Differential Pressure Transducer with Computer
- Code makes recommendations on Sample times and Integration

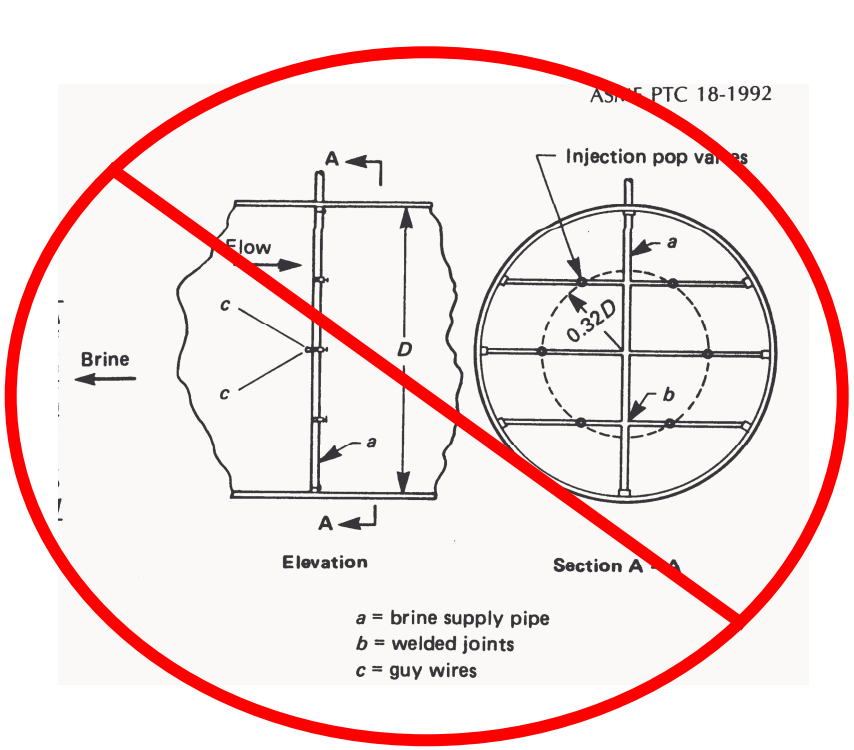
18 Path Acoustic Method

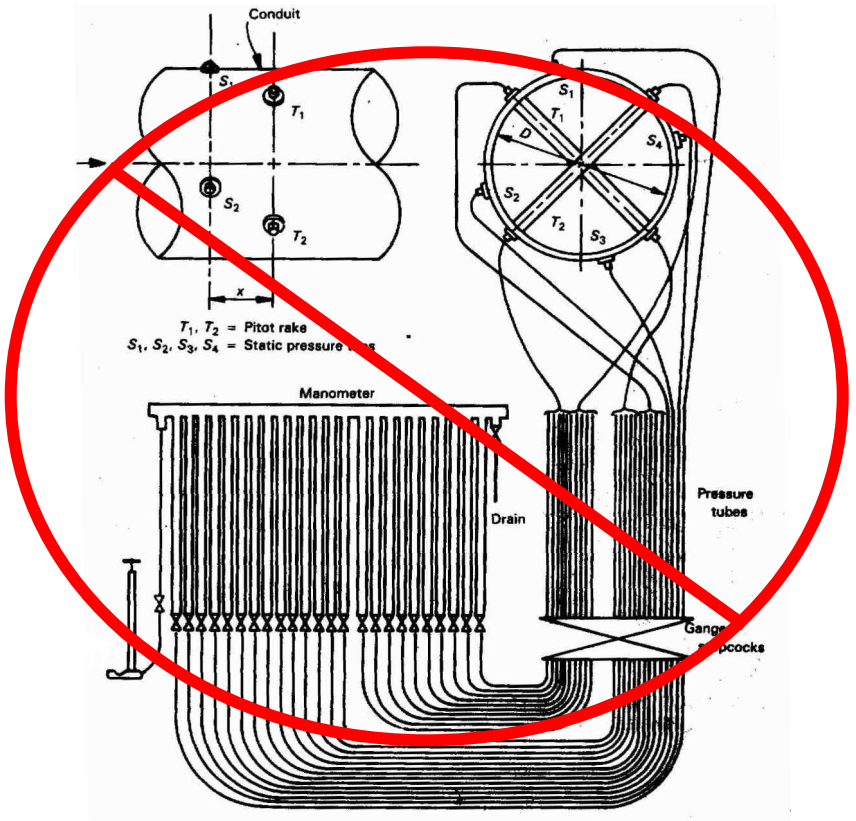


- Used in Unfavorable Hydraulic conditions

First Installed at Robert Moses Niagara Power Project Unit 13 April 1994

Archived from Code





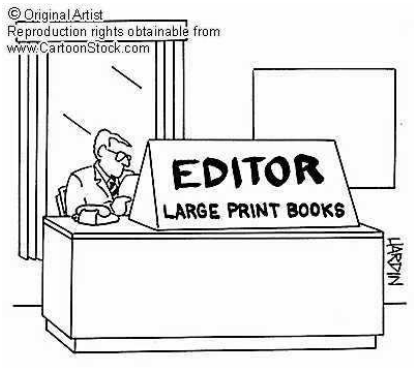
- Salt Velocity
- Pitot Tubes
  - Archived due to infrequent use, but still technically valid, ref: PTC – 18 – 1982

Next Issue
ASME PTC 18-200X

- Code Organization & Language
- Code Revisions
- New Technology Development

Code Organization & Language

- Tighten up the language
  - Consistency of style
  - Reduce verbiage



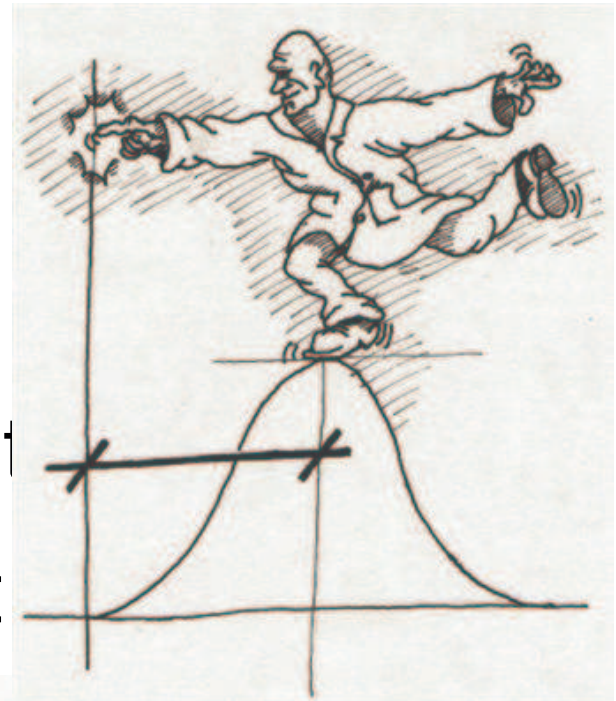
- Include resource CD
  - Code in searchable text form
  - Documentary information
  - Supplementary information

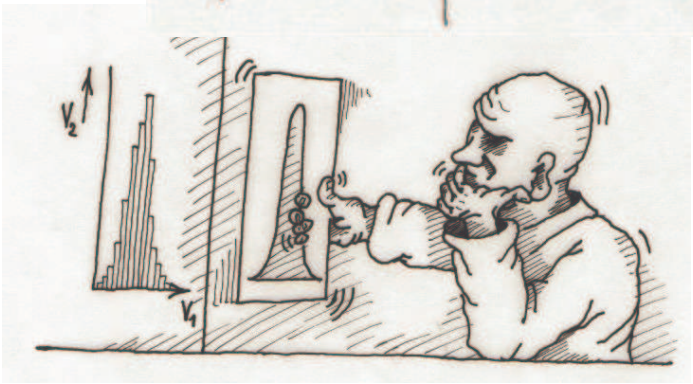
Keep the Good Stuff

"All measurement systems may produce spurious data points, also known as *outliers*, *strays*, *mavericks*, *rogues*, or *wild points*."

Code Revisions & Additions

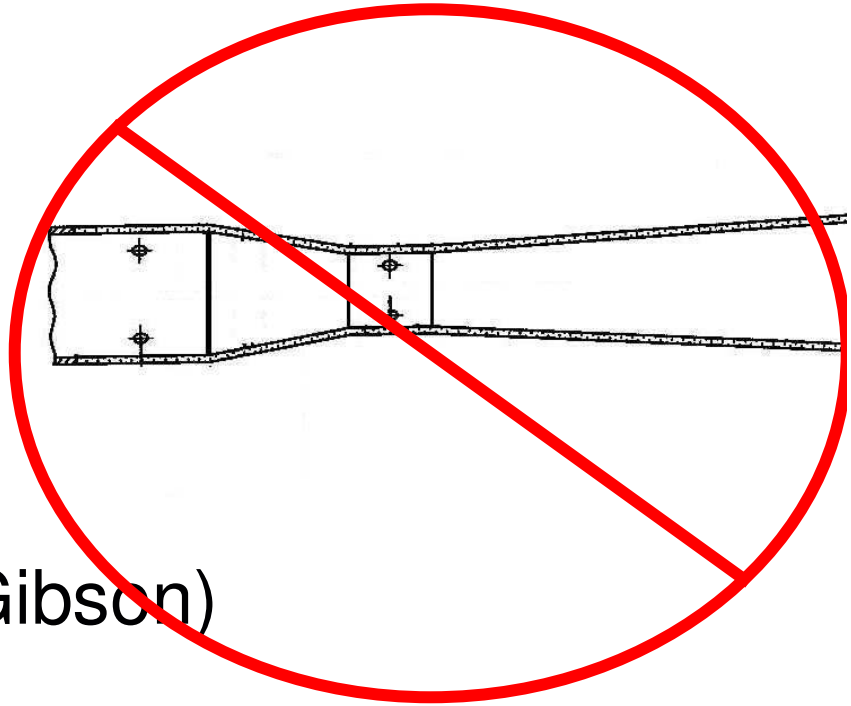
- Thermodynamic method
- Electronic data acquisition
- Uncertainty analysis
- Ultrasonic level measurement
- Ultrasonic flow measurement
  - Time of flight 18 paths





Archived

- Log-Linear point velocity
- Volumetric method
- Venturi method
- Traditional pressure-time (Gibson) method

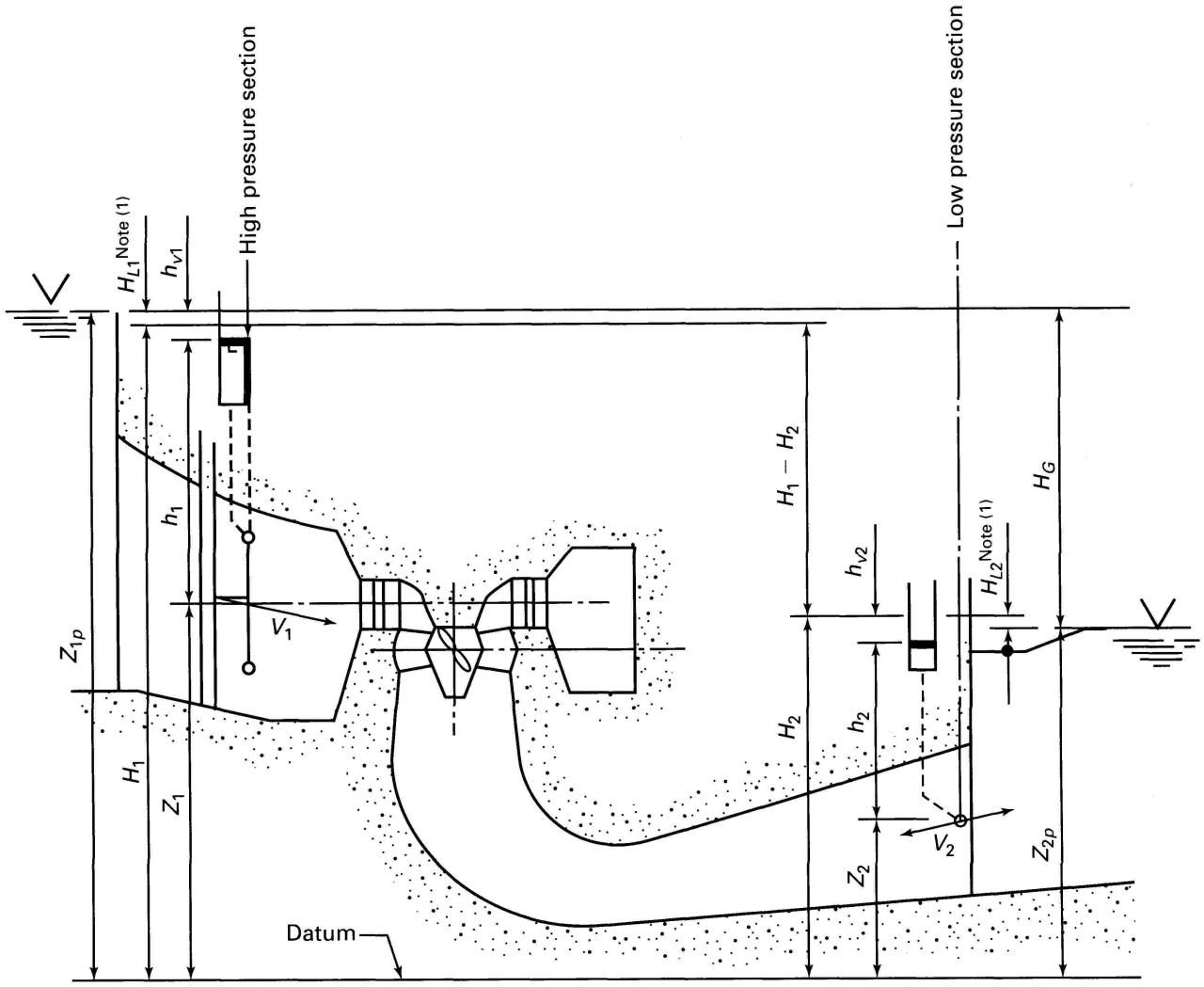


ASME PTC 18 20XX
New Mission

Bonneville Dam, Oregon

- Discharge Measurement in Low Head Hydro
  - ASL, ATF, ICM
  - Field Testing
- Cavitation
- DO Uptake

Short Converging Intakes



Short Converging Intakes Discharge Measurement

- Current Meter
- Ultrasonic: Time-of-Flight
- Ultrasonic: Acoustic Scintillation

Environmental Aspects

- Fish-friendly turbines
- Aerating turbines