ALERT Users Group
25th Flood Warning Systems Training Symposium & Preparedness Workshops

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Why Rating Curves?

We are beginning to see more interest by industry and the public sector to quantify groundwater/surface water interactions.

**Add value to a stream gauge by:**

- Correlating stage at the gauge to discharge
- Allowing translation of information to other locations along the watercourse or in the watershed
- Connecting to emergency action plan flood thresholds
- Determining relative flood frequency
- Volume accounting (Environmental/Water Supply)
How Rating Curves

Don’t overlook the simple (and cheap)

- Hydraulic Structures
  - Spillways, Bridges, Weirs
  - Other easily-rated structured
- Floodplain Delineations
- USGS Gauges (collocated or nearby)
- Topo

A note on sensor location:
Place the sensor where the hydraulic characteristics of the structure or river reach are best known.
How Rating Curves

When simple can’t be found...

- Survey
- Hydraulic Analyses
How Rating Curves

What is important?

Low Flow Accuracy
• Streamflow Statistics
• Water Rights/Water Supply
• Environmental Impact

High Flow Accuracy
• Flood Warning
Rating Curves

DC SW1
Stage/Discharge Rating Curve

- Top of wing wall elevation = 4011.34 (22.25) feet
- Pressure Transducer Elevation = 3989.09 (0.09) feet
- 500-year Discharge = 4007.21 (18.11) feet
- Minimum bridge low cord = 4007.0 (17.91) feet
- 100-year Discharge = 4003.25 (14.16) feet
- 50-year Discharge = 4001.56 (12.47) feet
- 25-year Discharge = 4000.13 (11.04) feet
- 10-year Discharge = 3996.19 (9.10) feet
- 5-year Discharge = 3996.76 (7.67) feet
- 2-year Discharge = 3994.80 (5.71) feet
More Rating Curve Considerations

- What are the goals?
- What is known about the watershed?
- What previous studies have been done?
- How can a rating be applied?
Making Connections

With a rating curve in hand, the added value will become increasingly clear as correlations between discharge at the stream gauge are made to local roadway crossings, homes, neighborhoods and communities which are susceptible to flooding. The final step in rating curve development is to make those connections so that individuals and agencies responsible for getting the right information to the right people for the right response can perform their duties effectively and efficiently.
Questions and Comments

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