

Hydrologic Strategies

Working Issues for Collaboration and Developing Consistency

Northwest Regional Dam Safety Forum

Discussion Forum Process

- Utilized Open Forum
- Local, Field, Owners, Consultants, Federal Perspectives – Extremely Valuable
- Brainstorming and Outlining Issues

Working Topics Overview

1. Probable Maximum Precipitation
2. Snowmelt
3. Rainfall-Runoff Modeling
4. Frequency Analysis – streamflow, precipitation
5. Operations
6. Hydrologic Risk Analysis – AEP estimates

Probable Maximum Precipitation

- Continue to endorse and utilize current HMR 57 in Pacific Northwest
- Initiate working group to improve storm database
- Questions to National Weather Service – ITR to review site-specific PMP studies, NWS policy on updating HMRs, partners to develop site-specific PMPs as needed
- Eventual look to combine freq analysis and PMP

Snowmelt

- Identified as important issue in PNW
- Develop work group to address current inconsistencies between snowmelt computation procedures
- Need clear policies and procedures for degree day, energy budget, simplified methods, etc. and tie into antecedent flood conditions

Rainfall-Runoff Modeling

- Identified issues in PNW that are important; variability in runoff estimates
- Antecedent Conditions – large issue
- Unit Hydrograph Parameters
- Infiltration
- Data-sparse cases
- Need to increase toolbox for all to use – distributed inputs/models, GIS, etc.

Frequency Analysis

- Ongoing Hydrologic Freq Anal. Work Group to update Bulletin 17B – ACWI
- Investigate certification/acceptance of regional precip frequency using L-Moments
- Need for updating precip frequency maps
- Need for improved methods at ungaged sites – 100-year flow
- CEA DSIG multifractal approach ongoing

Operations

- Forecasting Floods and initial pool levels
- Gate operations
- More frequent floods can dominate risk, and need to understand these as well as (or more important focus) than extremes
- Debris issues during operational and larger floods to PMF

Hydrologic Risk Analysis

- Discussion of Reclamation, Corps and FERC perspectives
- Presentation of Reclamation techniques – share reports, tools/models
- No consensus on using risk analysis
- Recognize role of risk analysis and way to encompass full range of all floods including PMF
- Need to develop consistency in probabilistic approaches, and balance risk across seismic, hydrologic, static cases