

2018 USSD Annual Conference in Miami, FL
Workshop on Evaluation of Numerical Models and Input Parameters
in the Analysis of Concrete Dams
May 3, 2018

Announcement

The USSD Committee on Concrete Dams and the Earthquakes Committee, is proposing a workshop on Evaluation of Numerical Models and Input Parameters in the Analysis of Concrete Dams. The workshop will examine the analysis of the tallest monolith of Pine Flat Dam, considering various material properties and loads. The primary goal of the study is an evaluation of analysis methods, accuracy of the numerical solutions, confidence in dynamic linear analysis of concrete dams, establishing a list of parameters that warrant additional investigation, and expanding on a potential benchmark study for future workshops.

Participants will be provided with the base geometry of the dam, initial material properties, and static and dynamic loads. Simple geometry of the model is selected in the study in order to avoid overtaxing participants. In a controlled approach with collaborative effort, participants will be provided base case study parameters to compliment analysis results of Pine Flat Dam obtained at the University of California at Berkeley. Additional case studies will be defined to analyze the model through a dynamic pulse load, and time history dynamic analyses including Taft Lincoln School Tunnel, Kern County, CA Earthquake July 21, 1952. Additional cases will provide variation in the parameters based on packages and analysis methods of the participant's choice. Output results will be collected, summarized, and presented in the workshop to facilitate discussion on where the current state-of-practice is in numerical modeling. The results will be summarized in a white paper.

Uncertainties in numerical analysis of concrete dams and dam appurtenant structures highlight the need to assess the state-of-practice more closely. Recently, confidence in numerical models has become an area of concern and a point of discussion for dam owners and the engineers performing numerical analyses.

In an effort to identify the fundamental causes of variability in analysis results, the "Seismic Evaluation of Concrete Dams" workshop held during the 2017 USSD conference examined some of the fundamental and important components that should be considered in a seismic analysis of concrete dams. Participants expressed the need of starting the evaluation with a linear numerical model and then progressing to more advanced nonlinear analysis. These efforts will show potential areas of uncertainties due to current numerical modeling methods, material inputs, and loadings.

If you are interested in participating in the workshop with the intent to submit results for discussion, please contact Hillery Venturini, hventurini@usbr.gov. Distribution of project information and data will be distributed based on confirmation of participation.

Workshop on
**Evaluation of Numerical Models and Input
Parameters in the Analysis of Concrete Dams**
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Uncertainties in numerical analysis of concrete dams and dam appurtenant structures highlight the need to assess the state-of-practice more closely. Developing confidence in numerical models is very important for dam owners and the engineers performing numerical analyses, Chairs for the USSD Concrete Dams Committee and Earthquake Committee have combined efforts to explore variability in analysis methods used throughout the engineering industry in an attempt to identify and improve areas of uncertainty in current numerical modeling practices.

Workshop Organizing Committee includes:

Mrs. Hillery Venturini	(Reclamation) - Leader
Dr. Yusof Ghanaat	(Quest Structures)
Dr. Mohammad Amin Hariri	(University of Colorado at Boulder)
Mr. Vik Iso-Ahola	(Stantec)
Dr. Lelio Mejia	(Geosyntec)
Mr. Larry Nuss	(Nuss Engineering, LLC)
Mr. David Queen	(BC Hydro)
Dr. Jerzy Salamon	(Reclamation)

PROPOSED AGENDA

- 8:00 AM Welcome**
Jerzy Salamon - Concrete Dam Committee Chairman and Lelio Mejia - Earthquake Committee Chairman
- 8:05 AM Introduction**
(Moderator: Hillery Venturini – Workshop Organizing Committee Leader)
- Introduction to the workshop
 - General discussion from 2017 USSD Workshop
 - Purpose for 2018 USSD Workshop
 - Overview of problem formulation
 - Case studies
 - Description of additional topics investigated by participants
 - Introduction of participants and submission information
- 8:30 AM Presentation of Workshop Results**
(Moderators: Hillery Venturini and Larry Nuss)
- Summary of Results
 - Findings

- Trends
- Areas of uncertainty
- Open Discussion

9:00 AM Berkeley Pine Flat Analysis Results

(Presenter: Larry Nuss)

- Overview of prior Berkeley studies of Pine Flat Dam
- Re-analysis using EAGD84 and EAGDSLIDE

10:00 AM Break

10:15 AM Presentations by Participants

(Moderators: Hillery Venturini and Yusof Ghanaat)

- Investigation Results on Focus Subject (selected participants)
 - 10 min presentation
 - 5 min discussion

11:30 AM Lunch (provided by USSD)

12:30 PM Presentations by Participants (continued)

(Moderators: David Queen and Vik Iso-Ahola)

- Investigation Results on Focus Subject (selected participants)
 - 10 min presentation
 - 5 min discussion

1:30 PM Break

1:45 PM Presentations by Participants (continued)

(Moderators: David Queen and Mohammad Amin Hariri)

- Investigation Results on Focus Subject (selected participants)
 - 10 min presentation
 - 5 min discussion

2:45 PM Break

3:00 PM Discussion and Questions

Moderators: David Queen and Larry Nuss

3:30 PM Summary and Conclusions

Moderators: David Queen and Yusof Ghanaat

4:00 PM Workshop Closeout

Moderators: Jerzy Salamon and Lelio Mejia