Safety Evaluation of Existing Dams International Technical Seminar and Study Tour

June 6 - 16, 2022

U.S. Department of the Interior
Introduction/Seminar Objectives

In most countries throughout the world, interest in the safety of dams has risen significantly in recent years. Aging dams, new hydrologic information, and population growth in floodplain areas downstream from dams has resulted in an increased emphasis on dam safety evaluation as well as operation and maintenance related to the safety of dams. Those responsible for the safety of existing dams must implement policies and procedures that warrant public confidence. This demands professional practices that incorporate the lessons of the past and conform to the most advanced technical state-of-the-art. The need for trained personnel is essential. This seminar will provide professional personnel with a comprehensive guide to establishing or enhancing a visual inspection/evaluation program and increase the technical capabilities of those responsible for safety evaluations.

Bureau of Reclamation officials will provide training for the seminar. Reclamation is responsible for the proper operation, maintenance, and structural safety of more than 400 dams and distribution systems. Reclamation has conducted similar seminars for its own staff, as well as for more than 6,000 technical and administrative officials from other domestic and international agencies.

Who Should Attend?
The seminar is designed for managers, administrators, engineers, and geologists responsible for the design, construction, operation, maintenance, and safety of dams. Policymakers and planners, as well as those with technical responsibilities, may also benefit from the seminar. All presentations, discussions, and printed materials will be in the English language. Participants should have a good command of general and technical English usage.

Due to the technical nature of the program and limited space on the motorcoach, spouses are not encouraged to accompany participants during the study tour. Space will be given to participants first.

Seminar Topics

The first portion of the seminar, June 6-10, will consist primarily of classroom presentations and discussions. Lectures, case histories, and structured discussions covering all aspects of a dam safety examination program are led by Reclamation engineers or geologists with extensive experience and knowledge in the areas of design, construction, operation, maintenance, and dam safety.

The course outlines the hydrologic, seismic, geotechnical, electrical, mechanical and structural considerations of dam safety as well as operation, maintenance, surveillance, and emergency preparedness. Presentations, case histories, and a walk-through abbreviated examination are used to present the multidiscipline approach to an effective safety of dams program. A tour of the Bureau of Reclamation Research Laboratories will also be featured.

Participant Presentations

On Wednesday, June 8, participants will have the opportunity to give a 10-15-minute presentation on dam safety activities within their organization or country. Please note on the registration form if you are interested in giving a presentation.

Study Tour and Simulated Exam – 6 Days Motorcoach Travel

The post session study tour, June 11-16, will take participants through the States of Colorado, New Mexico, Arizona and Nevada. The study tour begins with a tour of Colorado’s Rocky Mountain National Park, one of the most popular national parks in the United States. Travel will continue to Pueblo Dam, where Reclamation staff will lead participants in an abbreviated simulated dam examination. June 13-16 includes site visits to El Vado Dam, Navajo Dam, Glen Canyon Dam and Hoover Dam. Overnights will be in Colorado Springs, Colorado, Alamosa, Colorado, Page, Arizona, and Las Vegas, Nevada.

Study Tour Agenda

June 11 – Rocky Mountain National Park
June 12 – Travel to Colorado Springs, CO, Overnight
June 13 – Abbreviated Simulated Dam Examination at Pueblo Dam
Travel to Alamosa, Colorado, Overnight
June 14 – Site Visits to El Vado Dam and Navajo Dam
Travel to Page, Arizona, Overnight
June 15 – Site Visit Glen Canyon Dam
Travel to Las Vegas, Nevada, Overnight
June 16 – VIP Tour of Hoover Dam
Close-out Luncheon
**Location and Venue**

The technical session will take place in Denver, Colorado, at the Denver Marriott West Hotel. Denver is the capital of Colorado and one of the fastest growing cities in the United States. Denver is nicknamed the Mile-High City because its official elevation is exactly one mile (5280 feet or 1609 meters) above sea level, making it the highest major city in the United States.

**Arrival and Departure Information**

International travel should be arranged into Denver, Colorado, no later than Sunday, June 5, 2021.

Return travel should be arranged out of Las Vegas, Nevada, no earlier than Friday, June 17, 2021.

**Hotel Accommodations**

Hotel accommodations in Denver, Colorado, June 5-11 (check out June 12), must be paid for by the participant. A block of rooms have been reserved at the Denver Marriott West at a special rate of US $189.00 per night plus tax. Reclamation will make reservations on behalf of participants and provide a confirmation number two weeks prior to event. Please indicate your method of payment on the registration form.

Denver Marriott West
1717 Denver West Boulevard
Golden, Colorado 80401

**Letters of Invitation / U.S. Visa**

If you require a visa to enter the United States, it is strongly recommended to apply as soon as possible to allow adequate time for visa processing. Reclamation will only send invitation letters to those registered for the seminar.

**Dietary Needs**

Please provide dietary restrictions / needs on the registration form.

**Medical Insurance**

Accidental injury/medical emergency insurance is strongly recommended and should be purchased prior to traveling to the United States. Reclamation is not financially responsible for any illnesses or injuries that may be incurred by participants.

**Climate and Clothing**

Participants should expect warm weather. Business casual attire is recommended during the technical session. Long pants and sturdy closed-toed shoes are required during the study tour.

**Registration Fee**

The registration fee is $3,800 per person and includes:

- Technical Sessions
- Various printed and electronic materials
- Hotel accommodations during Study Tour, June 12-16 (5 nights)
- Breakfasts
- Lunches (expect for June 12, travel day)
- Dinners June 7, 9, 13, 14
- Motorcoach transportation (organized dinners/Study Tour)

**Participants are responsible for:**

- Transportation from Denver International Airport to the Denver Marriott West Hotel
- Hotel accommodations at the Denver Marriott West Hotel, June 5-11 (check out June 12)
- Lunch June 12 (travel day)
- Dinners (except for June 7, 9, 13, 14)

The registration deadline is **May 9, 2021**. Due to contractual arrangements with hotels and vendors, registrations received after the deadline will only be accepted based on space availability and incur a registration fee of US $4,000.

A legible copy of your passport must be submitted with the registration form.

**Payment**

The preferred method of payment is a credit card. Wire transfer and checks are accepted. Checks should be in U.S. dollars and made payable to the Bureau of Reclamation. **Funding is not available from the seminar organizers.**

**Further Information**

Contact the Bureau of Reclamation’s International Affairs Office:

E-mail inquiries to should be sent to: bor-sha-internationalaffairs@usbr.gov


Information contained in this announcement can also be located at: [https://www.usbr.gov/international/seminars.html](https://www.usbr.gov/international/seminars.html)
Bear Lake offers views of the peaks.

**Glen Canyon Dam**

Located on the Colorado River about 20 kilometers (12 miles) upstream from Lees Ferry, is the key feature of the CRSP. This 216-meter-high (710 feet) structure provides more storage capacity than all other storage features of the project combined. The concrete arch dam has a crest length of 475 meters (1,560 feet) and contains 3,747,000 cubic meters (4,901,000 cubic yards) of concrete. Thickness of the dam at the crest is 7.6 meters (25 feet), and the maximum base thickness is 91 meters (300 feet).

A separate spillway is constructed in each abutment. Each spillway consists of an intake structure with two 12- by 16-meter (40- by 52.5-foot) radial gates and a lined spillway tunnel. The downstream portions of the spillway tunnel were used during construction as diversion tunnels. Each spillway tunnel reduces in size from 14.6 meters (48 feet) to 12.5 meters (41 feet) in diameter. The combined spillway discharge capacity is 5,900 cubic meters per second (208,000 cubic feet per second) at an elevation of 1128 meters (3,700.0 feet).

The outlet works near the left abutment of the dam consist of four 2.4-meter--diameter (8 feet) pipes. Each outlet is controlled by one 2.4-meter--ring follower gate and one 2.4-meter hollow-jet valve. The combined river outlet works capacity is 425 cubic meters per second (15,000 cubic feet per second). Total capacity for Lake Powell is 33,304 million cubic meters (27 million acre-feet), and the active capacity is 25,750 million cubic meters (20,876,000 acre-feet). At normal water surface elevation, the reservoir has a length of 300 kilometers (186 miles) and a surface area of 653 square kilometers (161,390 acres).

The powerplant at the toe of the dam consists of four 118,750-kilowatt and four 136,562-kilowatt generators driven by eight turbines. Total nameplate generating capacity for the powerplant is 1,021,248 kilowatts. Eight penstocks through the dam convey water to the turbines.

**Hoover Dam**

Located on the Colorado River about 56 kilometers (35 miles) southeast of Las Vegas, Nevada. It is a concrete thick-arch structure, 221 meters high (726.4 feet) and 379 meters long (1,244 feet). The dam contains 2,48 million cubic meters (3.25 million cubic yards) of concrete; total concrete in the dam and appurtenant works is 3,36 million cubic meters (4.4 million cubic yards). Built during the Depression; thousands of men and their families came to Black Canyon to tame the Colorado River. It took less than five years, in a harsh and barren land, to build the largest dam of its time. Now, years later, Hoover Dam still stands as a world-renowned structure. The Dam is a National Historic Landmark and has been rated by the American Society of Civil Engineers as one of America’s Seven Modern Civil Engineering Wonders.