ASSOCIATION OF ENVIRONMENTAL AND ENGINEERING GEOLOGISTS
San Francisco Section

Announcing the December 2009 San Francisco Section Meeting

Assessment of the Potential Fault Rupture Hazard at Briones Dam

Hans AbramsonWard, CEG
AMEC Geomatrix

MEETING DETAILS

Restaurant:
Sinbad's
Pier 2 Embarcadero Street
San Francisco, CA

Date and Time:
Tuesday, December 8th, 2009
6:00 pm—Social Hour and Sign-in
7:00 pm—Dinner
8:00 pm—Presentation

Cost: $40 AEG members, $42 non-members, $15 Students

Meal Choice: Chicken, Beef, Fish, and Vegetarian – you do not need to send in your meal choice.

Reservations*: To RSVP, fax or e-mail Sachiko Tanikawa by **12 PM, Friday December 4th.** (fax # 866-400-4068, email: treasurer@aegsf.org) with the following information:

(1) Name (2) Phone number/e-mail

Driving Directions: From the Bay Bridge, take the Fremont Street Exit and the Folsom Street Ramp. Go left (east) on Folsom Street, then left (north) onto the Embarcadero (Herb Caen Way). The driveway for Sinbad's is on the right, south of the historic Ferry Building. Please watch out for the pedestrians and cyclists when turning into the driveway. Thank you.

BART Directions: Exit the Embarcadero Station; walk up Market Street toward the Ferry Building (less than ½ a mile toward the Bay and to the east). Cross Embarcadero and Sinbad's is located next to the Alameda ferry pier on the south side the historic Ferry Building.

Parking: $4 valet parking is available or you can park at a meter somewhere on a side street off the Embarcadero.

*To assist us with reservations and to help the restaurant with the set-up, please RSVP in advance. Walk-ins are welcome, but not guaranteed. No shows and late cancellations will be charged.

See next page for abstracts and speaker biographies.

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ABSTRACT

Briones Dam is a zoned, rolled earthfill embankment dam that impounds Briones Reservoir, a terminal water storage reservoir in the hills northeast of Orinda that is owned and operated by the East Bay Municipal Utility District (EBMUD). During its construction in 1964, traces of the Pinole fault were observed in the outlet tunnel and in the left abutment; however, at that time, the fault was not considered an active fault. Recent maps prepared by the U.S. Geological Survey (USGS) show traces of the Pinole fault crossing a significant portion of the upstream slope and a second splay extending beneath the right abutment and groin area of the dam. Studies by the USGS and several other investigators suggest that portions of the fault may be Quaternary active. In response to these recent studies, the California Department of Water Resources, Division of Safety of Dams (DSOD) considered the Pinole fault to be conditionally active and a potential fault-rupture hazard to the dam.

In cooperation with EBMUD and DSOD, AMEC Geomatrix performed an investigation to assess the fault rupture hazard at Briones Dam that included an extensive desktop study, geomorphic mapping, borings, and shallow test pits and trenches. This work did not provide unequivocal evidence that the Pinole fault has been inactive during the past 35,000 years (per the DSOD definition of an inactive fault); however, several lines of evidence for absence of activity along the southern part of the fault were identified, including:

- A lack of seismicity,
- No geomorphic features indicative of recent faulting, including undeformed terrace surfaces and stream courses that cross the fault without being deflected,
- Mapping and profiling of stream terraces within Briones Valley (now submerged beneath Briones Reservoir) that provide evidence for no significant strike-slip or vertical fault displacement, and
- A trench exposure showing the primary trace near the dam markedly deflected downslope by creep to become nearly flat lying (a deflection of about 70 degrees).

Based on these considerations, AMEC Geomatrix recommended that the southern part of the Pinole fault (south of Castro Ranch Road) not be considered an active or conditionally active seismic source. The DSOD concurred with this assessment.

SPEAKER BIOGRAPHY

Hans AbramsonWard, CEG, is a Senior Geologist with AMEC Geomatrix who has more than ten years of professional consulting experience related to hazards and engineering projects worldwide. He received an M.S. in Geology from Humboldt State University in 1998 and a B.A. in Anthropology from U.C. Berkeley in 1994.

His areas of expertise include Quaternary geology, engineering geology, tsunami hazards, and seismic source characterization for both probabilistic and deterministic seismic hazard analysis. Hans has participated in numerous assessments of geologic hazards with approaches that vary widely in both scale and complexity. These range from brief desktop studies that rely on compilation of existing mapping and subsurface data, interpretation of aerial photographs and geomorphology, to complex field-based programs that include geologic and geomorphic mapping, fault trenching, subsurface borings, and interpretation of geophysical data. Hans has used these approaches to assess hazards from surface fault rupture, earthquake-related ground deformation, landslides, liquefaction, tsunamis, and other hazards. Project examples range from regional hazard assessments for nuclear power generating facilities, United States Department of State facilities, pipelines, power transmission networks, and offshore developments to site-specific geotechnical and/or hazard studies for dams, tunnels, bridges, hospitals, and water treatment facilities.