

MAJOR PROJECT EXPERIENCE

EMBANKMENT DAMS AND LEVEES

Corin Dam, Canberra, Australia - 1964 to 1968. As Staff Engineer for Australian Department of Works, supervised field investigations for construction materials and control of embankment construction for 250 feet high central core rock fill dam over a four year period.

Warm Springs Dam, Sonoma County, California, for San Francisco District, Corps of Engineers – 1975. As Project Engineer for Dames & Moore, supervised field investigations, laboratory testing and participated in dynamic analyses for seismic evaluation of proposed 320 feet high zoned earthfill dam. Recommended design modifications to assure safety during extreme earthquake shaking.

Coyote Dam, Mendocino County, California, for San Francisco District Corps of Engineers, 1979 to 1981. Consultant to Corps staff on seismic evaluation of existing 170 feet high zoned earthfill dam.

Chico No.4 Dam, Luzon, Philippines - 1979 to 1982. In association with H. Bolton Seed and C. R. Allen, consultant to Lahmeyer International on seismic analysis and design of proposed 500 feet high central core rockfill dam.

Prado, Whittier Narrows, Carbon Canyon, and Mohave Dams, Southern California, for Los Angeles District, Corps of Engineers - 1979 to 1985. Consultant to Corps staff on seismic evaluations of existing dams on alluvial foundations.

Camanche Dam and Dike No. 2, Stanislaus County, California, for East Bay Municipal Utility District - 1979 to 1980. With Civil Systems, Inc. and Wahler Associates, seismic evaluations of existing dams on alluvial foundations.

Seven Oaks Dam, San Bernardino County, California, for Los Angeles District, Corps of Engineers - 1980 to 1999. Consultant on feasibility studies, design and construction of major dam adjacent to the San Andreas fault.

Pinopolis West Dam, South Carolina – 1981. Consultant to Law Engineering on evaluation of seismic stability of an existing dam on an alluvial foundation.

Arcadia Dam, Oklahoma, for Tulsa District, Corps of Engineers – 1981. In association with H. Bolton Seed, reviewed evaluation of liquefaction potential of alluvial foundation of proposed dam.

Mercur Tailings Dam, Utah, for Getty Mineral Resources Company – 1981. Consultant to Davy McKee Corporation on design of gold tailings dam.

Nevada Moly Tailings Dam, Tonopah, Nevada, for Anaconda Minerals Co. – 1982. Consultant to Klohn Leonoff, Inc. on aseismic design and analysis of hydraulically placed tailings dam.

Davis Creek Dam, Yolo County, California – 1983. Consultant to Davy McKee Corporation on design of water supply dam for McLaughlin Gold Project.

New Spicer Meadow Dam, Calaveras County, California – 1984. Consultant to Electrowatt Engineering Services on seismic analyses of proposed concrete-faced rockfill dam.

Maloney Reservoir, Contra Costa County, California – 1984. Consultant to East Bay Municipal Utility District on seismic analyses of existing embankment composed of diatomaceous soils.

McDonald Island, Sacramento-San Joaquin Delta, California. Consultant and expert witness relative to 1982 levee failure.

Yuba River, Sutter County, California. Consultant and expert witness relative to 1986 levee failure – the Paterno Case.

Oldman River Dam, Alberta, Canada. Consultant to Friends of Oldman River on safety of embankment dam on clay-shale foundation and reservoir rim slope stability.

Bouldin Island, Sacramento-San Joaquin Delta, California. Consultant to Harding-Lawson Associates on proposed water storage facility.

Cold Springs Dam, Umatilla, Oregon. Independent review for Bureau of Reclamation of proposed modifications to remediate seepage and seismic stability deficiencies of zoned earthfill dam built early this century over alluvial foundation materials.

Mill Creek Dam, Santa Cruz Mountains, California. With RUST Environment & Infrastructure, conduct of static and dynamic analyses of incremental construction, seismic response and post-liquefaction settlements of proposed improvements to 100 year-old dam.

Sobrante Clearwell, Contra Costa County, California. With RUST Environment & Infrastructure, participated in dam safety investigation for reservoir structure contained by cuts and fills in the Orinda Formation.

Scofield Dam, Utah. Independent review (with J.K.Mitchell) for Bureau of Reclamation of proposed modifications to remediate seepage and seismic stability deficiencies of earthfill dam constructed over alluvial foundation materials.

Terminus Dam, California. Member of consulting board (with F.Makdisi and

W.F.Marcuson) for Sacramento District, Corps of Engineers, on evaluation of potential for liquefaction of alluvial foundation and consequences in terms of expected deformations.

Mormon Island Auxiliary Dam, California. Member of consulting board (with W.D.L.Finn, J.K.Mitchell and R.B.Peck) for Bureau of Reclamation on seismic upgrade which involves use of dynamic compaction, stone columns and possible use of compaction grouting.

Whittier Narrows and Hansen Dams, California. Independent review of studies for permanent storage behind flood control dam on alluvial foundation, for Los Angeles District, Corps of Engineers.

Chilcapampa Tailings Dam, Parcoy River, Peru. Review of static and seismic stability for Tecprosa S.A. and Consorcio Minero Horizonte S.A.

McKays Point Reservoir Rim Landslide Study Area. Member of Board of Consultants for study required by DsoD and FERC.

Guadalupe Creek and Alameda Creek Levees. Consultant to Geo-Resource Consultants on repairs to existing flood control levees in accordance with USACE criteria. For Santa Clara Valley Water District.

Sunset Reservoir, San Francisco, California. Consultant on seismic upgrade of earthen embankment built on potentially liquefiable materials and subject to DSoD jurisdiction.

Stanford Heights Reservoir, San Francisco, California. Consultant on seismic evaluation of earthen embankment subject to DSoD jurisdiction.

Mare Island Dredge Pond Levees, Vallejo, California. Consultant on studies of levees subject to DsoD jurisdiction.

Demirozu Dam, Anatolia, Turkey. Independent review of foundation issues for State Hydraulic Works of Turkey.

Antapite Dam, Peru. Consultant to Ing. Jose Luis Velarde on raising multi-purpose dam.

Beydag Dam, Turkey. Preliminary opinion on alternatives for foundation treatment.

Orinda Country Club Dam. Consultant to Hultgren-Tillis Engineers on safety evaluation of older dam.

Victoria Island Intake and Franks Tract Flood Control Gates, Sacramento San Joaquin Delta. Consultant to Hultgren Tillis Engineers on design of new facilities embedded in existing levees. For Contra Costa Water and California DWR.

San Pablo Dam Seismic Upgrade, East Bay Municipal Utility District, Orinda, CA
Member of technical review board (with J.K.Mitchell and D.Babbitt) for seismic upgrade of existing dam in populated area. Board and final design team reduced cost by over \$40m. Successfully completed including Deep Soil Mixed walls to mitigate liquefaction potential.

Central Reservoir Main Embankment Static and Seismic Stability Evaluation, East Bay Municipal Utility District, Oakland, CA. Consultant on in-house evaluation of static and seismic stability of older embankment subject to DSOD jurisdiction.

San Joaquin Non Urban Levees Evaluation, California Department of Water Resources. Project director for work performed by ARCADIS.

Mississippi River Levees, USACE, New Orleans District, Plaquemines Parish, Louisiana. Independent technical review of upgrades of 11 miles of Mississippi River levees to national standards.

Lake Pontchartrain Levees, USACE, New Orleans District, Jefferson Parish, Louisiana. Independent technical review of upgrades of 12.3 miles of Lake Pontchartrain levees to national standards.

Hondsbossche and Pettermer Dikes, for ARCADIS NL, The Netherlands. Peer review of proposed raise of critical North Sea dike.

Horseshoe Bend Hydroelectric Project, Oregon, for Innergex. FERC Part 12 review of project, including 3-mile long power canal and spillway.

Delta Wetlands Project. Design review and supervision of independent cost estimates.

Carters Dam, USACE, Mobile District, Georgia. Technical oversight of seismic safety study.

Stevens Creek and Lenihan Dams, for Santa Clara Valley Water District. Senior consultant on seismic safety studies required by California DSoD.

Delta Protection Commission, California. Lead author of Chapter 5 of the Delta Economic Sustainability Plan on risks to delta levees resulting from floods, earthquakes and possible sea-level rise.

Reclamation District 17, Chairman of Board of Senior Consultants, for EIP levee improvements.

Wynoochee Dam, City of Tacoma / Tacoma Power. Update of earthquake ground motions and evaluation of seismic safety of embankments.