

Attachment 2

**TRLIA
Board of Senior Consultants
Credentials
and
Conflict of Interest Forms**

Donald H. Babbitt
Consulting Civil/Geotechnical Engineer

3860 West Land Park Drive
Sacramento, California 95822
(916) 442-0990
DonBabbitt@sbcglobal.net

RESUME

EDUCATION

B.S., Civil Engineering, University of California, Berkeley, 1957

PROFESSIONAL REGISTRATION

Registered Civil Engineer, California (No. 13028)
Registered Geotechnical Engineer, California (No. 104)

EXPERIENCE SUMMARY

Don Babbitt is a consultant specializing in dam design and construction, geotechnical, earthquake and water resources engineering. He currently serves on seven consulting boards. He was with the California Department of Water Resources for 40 years. He was one of the lead designers of the State Water Project dams. He subsequently served as the chief of the two major branches of the Division of Safety of Dams.

PROFESSIONAL HISTORY

Individual Consultant (2002-present)

Mr. Babbitt serves on the California Department of Water Resource's consulting boards for construction of Dyer Reservoir, modification of Patterson Reservoir and enlargement of Crafton Hills Reservoir; East Bay Municipal Utility District's San Pablo Dam Technical Review Board; GEI's Board of Senior Consultants for the Feather River Levee Repair; Levee District No. 1 of Sutter County's Star Bend Setback Levee Board of Consultants and San Diego County Water Authority/ City of San Diego Dispute Resolution Panel for the San Vicente Dam raise.

Principal Engineer, GENTERRA Consultants, Inc. (1999-2004 part time)

Mr. Babbitt developed reconnaissance level designs for dams, reviewed plans and specifications to enlarge and rehabilitate dams, evaluated the safety of existing dams and acted as an expert witness.

California Department of Water Resources, Division of Safety of Dams

As **Chief, Design Engineering Branch, (1992-98)**, Mr. Babbitt was responsible for review of plans, specifications and reports for construction and modification of dams, reevaluation of existing dams and review of structural performance instrumentation data and reports.

As **Chief, Field Engineering Branch, (1985-92)**, Mr. Babbitt was responsible for maintenance inspections and safety evaluations of more than 1200 existing dams, as large as 770-foot high Oroville Dam, and for inspections to confirm safe construction and modification of dams.

As a section chief in Design Engineering Branch (1976-85), Mr. Babbitt supervised the review of plans, specifications and reports for construction and modification of dams; reevaluation of existing dams for seismic stability, spillway adequacy, etc..

California Department of Water Resources, Division of Design and Construction (1960-76)

Mr. Babbitt was responsible for completing the design of the embankments of Pyramid and Perris Dams; design of the embankments of Thermalito Forebay and Afterbay, Parish Camp and Bidwell Bar Saddle Dams (Oroville Reservoir) and Bethany Dams 1, 2, 3 and 4 and design of the proposed Peripheral Canal for the Sacramento-San Joaquin Delta. His last position in the division was Chief of the Dams and Canals Design Unit.

Military Service, U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi - Civil Engineering Assistant (1958-60)

Mr. Babbitt performed research and testing of pavement subgrades and strength of culverts.

California Department of Water Resources, Division of Design and Construction, Sacramento, CA - Junior Civil Engineer (1957-58)

Mr. Babbitt provided canal, pipeline, drainage and small structure design and reservoir operation studies for the State Water Project.

PROFESSIONAL ACTIVITIES

- International Commission on Large Dams
 - Invited speaker 21st Congress on Large Dams, Montreal, June 2003
- U.S. Society on Dams
 - Board of Directors, 1997 – 2003
 - Earthquakes Committee, 1987- present
- American Society of Civil Engineers
 - Chairman, Session on Slopes and Embankments, Earthquake Engineering and Soil Dynamics Specialty Conference, 1978
 - President, Sacramento Section, 1980
 - Invited Lecturer, Geotechnical Practice in Dam Engineering, 1993
 - Peer Reviewer, Guidelines for Instrumentation and Measurements for Monitoring Dam Performance, 2000
- National Research Council - Committee on Safety Criteria for Dams, 1984

REFERENCES

Ted Craddock
Program Manager, East Branch Extension
California Department of Water Resources
1416 Ninth Street, Sacramento, CA 95814
Telephone: (916) 653-9469

David Gutierrez
Chief, Division of Safety of Dams
California Department of Water Resources
2200 X Street, Sacramento, CA 95818
Telephone: (916) 227-9800

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National Academy of Sciences
National Academy of Engineering
Institute of Medicine
National Research Council

**BACKGROUND INFORMATION
AND
CONFIDENTIAL CONFLICT OF INTEREST DISCLOSURE**
*For General Scientific and Technical Studies and Assistance
Three Rivers Levee Improvement Authority (TRLIA)
Board of Senior Consultants
for the
Upper Yuba Levee Improvement Project*

NAME: Donald H. Babbitt TELEPHONE: 916 442 0990

ADDRESS: 3860 West Land Park Drive
Sacramento, California 95822

EMAIL ADDRESS: donbabbitt@sbcglobal.net

CURRENT EMPLOYER: See attached resume'

NAS/NAE/IOM/NRC COMMITTEE: See above.

There are two parts to this form, Part I Background Information, and Part II Confidential Conflict of Interest Disclosure. Complete both parts, **sign** and **date** this form on the last page, and return the form to the responsible staff officer for *The National Academies* project and committee activity to which this form applies. **Retain a copy for your records.**

PART I BACKGROUND INFORMATION

INSTRUCTIONS

Please provide the information requested below regarding **relevant** organizational affiliations, government service, public statements and positions, research support, and additional information (if any). Information is "relevant" if it is related to -- and might reasonably be of interest to others concerning -- your knowledge, experience, and personal perspectives regarding the subject matter and issues to be addressed by the committee activity for which this form is being prepared. **If some or all of the requested information is contained in your curriculum vitae, you may if you prefer simply attach your CV to this form, supplemented by additional responses or comments below as necessary. SEE ATTACHED RESUME.**

I. ORGANIZATIONAL AFFILIATIONS. Report your relevant business relationships (as an employee, owner, officer, director, consultant, etc.) and your relevant remunerated or volunteer non-business relationships (e.g., professional organizations, trade associations, public interest or civic groups, etc.).

II. GOVERNMENT SERVICE. Report your relevant service (full-time or part-time) with federal, state, or local government in the United States (including elected or appointed positions, employment, advisory board memberships, military service, etc.).

III. RESEARCH SUPPORT. Report relevant information regarding both public and private sources of research support (other than your present employer), including sources of funding, equipment, facilities, etc.

IV. PUBLIC STATEMENTS AND POSITIONS. List your relevant articles, testimony, speeches, etc., by date, title, and publication (if any) in which they appeared, or provide relevant representative examples if numerous. Provide a brief description of relevant positions of any organizations or groups with which you are closely identified or associated.

V. ADDITIONAL INFORMATION. If there are relevant aspects of your background or present circumstances not addressed above that might reasonably be construed by others as affecting your judgment in matters within the assigned task of the committee or panel on which you have been invited to serve, and therefore might constitute an actual or potential source of bias, please describe them briefly.

PART II CONFIDENTIAL CONFLICT OF INTEREST DISCLOSURE

INSTRUCTIONS

It is essential that the work of committees of the institution used in the development of reports not be compromised by any significant conflict of interest. For this purpose, **the term "conflict of interest" means any financial or other interest which conflicts with the service of the individual because it (1) could significantly impair the individual's objectivity or (2) could create an unfair competitive advantage for any person or organization.** Except for those situations in which the institution determines that a conflict of interest is unavoidable and promptly and publicly discloses the conflict of interest, no individual can be appointed to serve (or continue to serve) on a committee of the institution used in the development of reports if the individual has a conflict of interest that is relevant to the functions to be performed.

The term "conflict of interest" means something more than individual bias. There must be an *interest*, ordinarily financial, that could be directly affected by the work of the committee.

Conflict of interest requirements are *objective* and *prophylactic*. They are not an assessment of one's actual behavior or character, one's ability to act objectively despite the conflicting interest, or one's relative insensitivity to particular dollar amounts of specific assets because of one's personal wealth. Conflict of interest requirements are objective standards designed to eliminate certain specific, potentially compromising situations from arising, and thereby to protect the individual, the other members of the committee, the institution, and the public interest. The individual, the committee, and the institution should not be placed in a situation where others could reasonably question, and perhaps discount or dismiss, the work of the committee simply because of the existence of conflicting interests.

The term "conflict of interest" applies only to *current interests*. It does not apply to past interests that have expired, no longer exist, and cannot reasonably affect current behavior. Nor does it apply to possible interests that may arise in the future but do not currently exist, because such future interests are inherently speculative and uncertain. For example, a pending formal or informal application for a particular job is a current interest, but the mere possibility that one might apply for such a job in the future is not a current interest.

The term "conflict of interest" applies not only to the personal interests of the individual but also to the *interests of others* with whom the individual has substantial common financial interests if these interests are relevant to the functions to be performed. Thus, in assessing an individual's potential conflicts of interest, consideration must be given not only to the interests of the individual but also to the interests of the individual's spouse and minor children, the individual's employer, the individual's business partners, and others with whom the individual has substantial common financial interests. Consideration must also be given to the interests of those for whom one is acting in a fiduciary or similar capacity (e.g., being an officer or director of a corporation, whether profit or nonprofit, or serving as a trustee).

Much of the work of this institution involves scientific and technical studies and assistance for sponsors across a broad range of activities. Such activities may include, for example: defining research needs, priorities, opportunities and agendas; assessing technology development issues and opportunities; addressing questions of human health promotion and assessment; providing scientific and technical assistance and supporting services for government agency program development; assessing the state of scientific or technical knowledge on particular subjects and in particular fields; providing international and foreign country science and technology assessments, studies and assistance. Such activities frequently address scientific, technical, and policy issues that are sufficiently broad in scope that they do not implicate specific financial interests or conflict of interest concerns.

However, where such activities address more specific issues having significant financial implications -- e.g., funding telescope A versus telescope B, government development or evaluation of a specific proprietary technology, promotion or endorsement of a specific form of medical treatment or medical device, connecting foreign research facilities to specific commercial interests, making recommendations to sponsors regarding specific contract or grant awards, etc. -- careful consideration must be given to possible conflict of interest issues with respect to the appointment of members of committees that will be used by the institution in the development of reports to be provided by the institution to sponsoring agencies.

The overriding objective of the conflict of interest inquiry in each case is to identify whether there are interests -- primarily financial in nature -- that conflict with the committee service of the individual because they could impair the individual's objectivity or could create an unfair competitive advantage for any person or organization. The fundamental question in each case is does the individual, or others with whom the individual has substantial common financial interests, have identifiable interests that could be directly affected by the outcome of the project activities of the committee on which the individual has been invited to serve? For projects involving advice regarding awards of contracts, grants, fellowships, etc., this institution is also guided by the principle that an individual should not participate in any decision regarding the award of a contract or grant or any other substantial economic benefit to the individual or to others with whom the individual has substantial common financial interests or a substantial personal or professional relationship.

The application of these concepts to specific scientific and technical studies and assistance projects must necessarily be addressed in each case on the basis of the particular facts and circumstances involved. The questions set forth below are designed to elicit information from you concerning possible conflicts of interest that are relevant to the functions to be performed by the particular committee on which you have been invited to serve.

1. FINANCIAL INTERESTS. (a) Taking into account stocks, bonds, and other financial instruments and investments including partnerships (but excluding broadly diversified mutual funds and any investment or financial interests valued at less than

\$10,000), do you or, to the best of your knowledge others with whom you have substantial common financial interests, have financial investments that could be affected, either directly or by a direct effect on the business enterprise or activities underlying the investments, by the outcome of the project activities of the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** on which you have been invited to serve?

(b) Taking into account real estate and other tangible property interests, as well as intellectual property (patents, copyrights, etc.) interests, do you or, to the best of your knowledge others with whom you have substantial common financial interests, have property interests that could be directly affected by the outcome of the project activities of the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** on which you have been invited to serve?

(c) Could your employment or self-employment (or the employment or self-employment of your spouse), or the financial interests of your employer or clients (or the financial interests of your spouse's employer or clients) be directly affected by the outcome of the project activities of the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** on which you have been invited to serve?

(d) Taking into account research funding and other research support (e.g., equipment, facilities, industry partnerships, research assistants and other research personnel, etc.), could your current research funding and support (or that of your close research colleagues and collaborators) be directly affected by the outcome of the project activities of the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** on which you have been invited to serve?

(e) Could your service on the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** on which you have been invited to serve create a specific financial or commercial competitive advantage for you or others with whom you have substantial common financial interests?

If the answer to all of the above questions under FINANCIAL INTERESTS is either "no" or "not applicable," check here X (NO).

If the answer to any of the above questions under FINANCIAL INTERESTS is "yes," check here _____ (YES), and briefly describe the circumstances on the last page of this form.

2. OTHER INTERESTS. (a) Is the central purpose of the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** for which this disclosure form is being prepared a critical review and evaluation of your own work or that of your employer?

(b) Do you have any existing professional obligations (e.g., as an officer of a scientific or engineering society) that effectively require you to publicly defend a previously established position on an issue that is relevant to the functions to be performed in the

TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project activity?

(c) To the best of your knowledge, will your participation in the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** activity enable you to obtain access to a competitor's or potential competitor's confidential proprietary information?

(d) If you are or have ever been a U.S. Government employee (either civilian or military), to the best of your knowledge are there any federal conflict of interest restrictions that may be applicable to your service in connection with the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** activity?

(e) If you are a U.S. Government employee, are you currently employed by a federal agency that is sponsoring the **Upper Yuba Levee Improvement Project**? If you are not a U.S. Government employee, are you an employee of any other sponsor (e.g., a private foundation) of the **Upper Yuba Levee Improvement Project**?

(f) If the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** activity for which this form is being prepared involves reviews of specific applications and proposals for contract, grant, fellowship, etc. awards to be made by sponsors, do you or others with whom you have substantial common financial interests, or a familial or substantial professional relationship, have an interest in receiving or being considered for awards that are currently the subject of the review being conducted by the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project**?

(g) If the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** activity for which this form is being prepared involves developing requests for proposals, work statements, and/or specifications, etc., are you interested in seeking an award under the **Upper Yuba Levee Improvement Project** for which the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** on which you have been invited to serve is developing the request for proposals, work statement, and/or specifications -- or, are you employed in any capacity by, or do you have a financial interest in or other economic relationship with, any person or organization that to the best of your knowledge is interested in seeking an award under this program?

If the answer to all of the above questions under OTHER INTERESTS is either "no" or "not applicable," check here X (NO).

If the answer to any of the above questions under OTHER INTERESTS is "yes," check here (YES), and briefly describe the circumstances on the last page of this form.

EXPLANATION OF "YES" RESPONSES:

*During your period of service in connection with the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** for which this form is being completed, any changes in the information reported, or any new information, which needs to be reported, should be reported promptly by written or electronic communication to the responsible staff officer.*

Donald H. Bahlert

8/31/09

YOUR SIGNATURE

DATE

Reviewed by:

Paul G. Brunner

9-17-09

Paul Brunner
Executive Director TRLIA

Date

Faiz I. Makdisi, PHD, PE

VICE PRESIDENT AND PRINCIPAL ENGINEER

EDUCATION

Ph.D., Geotechnical Engineering, University of California, Berkeley, CA, 1976

M.S., Geotechnical Engineering, University of California, Berkeley, CA, 1971

B.Eng., Civil Engineering, American University of Beirut, Lebanon, 1970

REGISTRATION

Professional Engineer, CA No. C29432, 1978

Professional Engineer, Institute of Civil Engineers, Lebanon, 1970

AFFILIATIONS

American Society of Civil Engineers

Association of California Water Agencies

Association of State Dam Safety Officials

Earthquake Engineering Research Institute

Institute of Civil Engineers (UK)

International Society for Soil Mechanics and Foundation Engineering

Seismological Society of America

U.S. Society of Dams (Member, Committee on Earthquakes)

HONORS

Norman Medal Award, American Society of Civil Engineers, 1977

Design and Environmental Honor Award for 2002, Chief of Engineers, U.S. Army Corps of Engineers

Dr. Makdisi's 30-year career has combined applied research and professional practice in geotechnical and foundation/earthquake engineering for critical infrastructure structures. For most of his professional career, he has focused on geotechnical studies and safety evaluations of earth and rockfill dams, embankments, levees and landfills. His work includes feasibility evaluations and preliminary design studies; field investigation design and planning; borrow area material studies; in situ and laboratory testing; and evaluation and interpretation of static and dynamic material properties of dams, levees, and their foundations. His studies also included stability evaluations of embankment slopes, seepage analyses, and static and dynamic stress analyses to evaluate stability during earthquakes.

He has performed studies to determine earthquake-induced permanent deformations in slopes and embankments, and developed and published widely-used simplified procedures for estimating dynamic response and permanent deformations in earth and rockfill dams and embankments. He is a lead participant in earthquake ground motion studies and development of seismic design criteria for key facilities such as dams and nuclear power plants. He was principal investigator of the "Stability of Slopes, Embankments and Rockfalls" chapter of the Seismic Retrofit Manual for the Federal Highway Project prepared for the National Center for Earthquake Engineering Research. He was co-principal investigator of a research study for the United States Geological Survey, National Earthquake Hazard Reduction Program to evaluate the effects of the style of faulting on earthquake ground motions.

Dr. Makdisi has served on technical review boards and as an independent peer reviewer for a number of public utilities and agencies, and several Corps of Engineers Districts. He is currently serving as a member of the Safety Review Consulting Board for Perris Dam for the Department of Water Resource, Division of Safety of dams. He was a member of the team of Technical Advisors to the Los Angeles District, U.S. Army Corps of Engineers that provided review on the design and construction of the 600-foot-high Seven Oaks Dam in Southern California. He served as peer reviewer of the seismic analyses of Cougar and Blue River Dams, for the U.S. Army Corps of Engineers, Portland District; and peer reviewer of the safety studies of Terminus, Success, and Lake Isabella Dams, for the U.S. Army Corps of Engineers, Sacramento District. He provided independent expert technical review of the White River

seismic remediation project in Seattle, Washington, for the Federal Energy Regulatory Commission (FERC). Dr. Makdisi is also an independent peer reviewer involved in the Safety of Dams Program for Pacific Gas and Electric Company, and for the East Bay Municipal Utility District (EBMUD).

Dr. Makdisi is a member of a senior technical review board providing peer review of the design and construction of the Bear River setback levee, and the Star Bend setback levee on the Feather River. He has also provided expert technical support to the State of California Attorney General's Office during litigation related to the levee failure on the Feather River near Marysville, California during the flood of 1997; and expert litigation support for a case related to seepage problems of the Madera Canal downstream of Friant Dam.

Representative levee project experience includes:

Delta Risk Management Study (DRMS), URS Corporation America, San Joaquin River Delta, CA. Member of Project Team on Levee Fragilities. The overall objectives of the DRMS project are to evaluate the risk of failure of the Delta levees under present as well as foreseeable future conditions and to develop a risk management strategy to reduce and manage the risk. Studies were performed to estimate levee fragility under seismic hazard, hydrodynamic loading, and seepage conditions.

DWR Urban Levee Investigation, URS Corporation, Sacramento County, CA. Principal-in-charge of AMEC Geomatrix's work as part of a consultant team assisting in the geotechnical evaluation of the State of California's project urban levees (approximately 300 miles).

South Bay Salt Ponds Project, Phillip Williams Associates, San Francisco Bay, CA. Principal-in-charge for geotechnical support services related to the restoration of more than 15,000 acres of former salt ponds in South San Francisco Bay. AMEC Geomatrix's scope of work includes developing geotechnical aspects of the project EIS, reviewing proposed levee sections, developing a baseline condition model of existing project levees, and performing reliability assessments of outboard levee seepage and stability.

Hollister Seasonal Storage Ponds, City of Hollister, San Benito County, CA. Principal-in-charge of all field investigations, laboratory testing, seismic evaluations, engineering analyses, design and preparation of plans and specifications for construction of the earthen embankments needed to form recycled water storage ponds at a site next to the San Benito River.

1997 Feather River Levee Failure, Butte County, CA. Principal-in charge of geomorphic studies, seepage analyses, finite element stress and settlement analyses, and other technical studies in support of litigation, for the State of California Attorney General's Office.

McArthur Levee Failure Studies, Pacific Gas and Electric Company, Shasta County, CA. Principal investigator of the interpretation and review of foundation soils, strength parameters, assessment of the stability of slopes, and design of remedial measures for failed levee sections on the Tule River.

Cactus Basins and Rialto Channel, City of San Bernardino, Rialto, CA. Participated in the geotechnical design, seepage analysis, and assessment of static and seismic stability of basin embankments, for San Bernardino County Department of Public Works.

Hamilton Air Force Base Flood Control Levee Design, City of Novato, CA. Participated in the geotechnical design, assessment of strength of soft foundation soils, settlement analyses, and static and seismic stability analyses of levee slopes.

New Orleans Levees Failures during Hurricane Katrina – Advanced numerical modeling of breached levee sections during Hurricane Katrina, including FLAC analysis

of soil-structure interaction for levees, floodwalls and foundation seepage, for U.S. Army Engineer Research and Development Center.

New Orleans Levees, Design of T-Wall Structures - Advanced numerical analyses in support of development of improved design procedures of pile-supported flood walls. Analyses included soil-pile-structure interaction using nonlinear finite difference analyses, performed for the New Orleans District of the US Army Corps of Engineers.

Analyses of I-Walls – Advanced numerical modeling in support of design of levee floodwalls. Study included finite difference analysis of soil-pile-structure interaction, and seepage analyses of sheet pile walls, simulating extreme flood loading conditions. Analyses performed for the US Army Corps of Engineers, Headquarters, Washington, DC.

Bear River Set Back Levee, Yuba County, CA. Member of a senior board of consultants for review of the design and construction of levees on the Bear and Feather rivers, for the Three Rivers Levee Improvement Authority.

Dr. Makdisi has published more than 40 papers and major research reports. His paper (co-authored with Seed, Lee, and Idriss) on the analyses of the slides in the San Fernando Dams during the 1971 San Fernando earthquake was awarded the 1977 Norman Medal award of the American Society of Civil Engineers.

He has presented lectures at ASCE seminars and workshops in San Francisco, Los Angeles, and Oakland, California; and in Seattle, Washington; as well as lectures at the University of California campuses at Berkeley and Davis and at Stanford University. He was invited to present a keynote lecture on the seismic stability of embankments and slopes at the session on slope stability at the Geo-Denver 2000 conference of ASCE's Geo-Institute. He also presented a lecture on seismic design criteria for dams at the Federal Energy Regulatory Commission's Dam Safety Workshop, held in Portland, Oregon, in March 2001.

As a member of a team of Technical Advisors to the Los Angeles District, Corps of Engineers, on the design and construction of Seven Oaks Dam in California, Dr. Makdisi was a co-recipient of the U.S. Army Corps of Engineers, Chief of Engineers "Design and Environmental Honor Award for 2002."

He has presented lectures at ASCE seminars and workshops in San Francisco, Los Angeles, and Oakland, California; and in Seattle, Washington; as well as lectures at the University of California campuses at Berkeley and Davis and at Stanford University, the University of Illinois at Urbana-Champaign, and the University of Puerto Rico at Mayaguez. He was invited to present a keynote lecture on the seismic stability of embankments and slopes at the session on slope stability at the Geo-Denver 2000 conference of ASCE's Geo-Institute. He also presented an invited lecture on seismic design criteria for dams at the Federal Energy Regulatory Commission's Dam Safety Workshop, held in Portland, Oregon, in March 2001.

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National Academy of Sciences
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Institute of Medicine
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**BACKGROUND INFORMATION
AND
CONFIDENTIAL CONFLICT OF INTEREST DISCLOSURE**
*For General Scientific and Technical Studies and Assistance
Three Rivers Levee Improvement Authority (TRLIA)
Board of Senior Consultants
for the
Upper Yuba Levee Improvement Project*

NAME: Faiz I. Makdisi_____ TELEPHONE: 510-663-4100

ADDRESS: 2101 Webster Street, Oakland, CA 94612

EMAIL ADDRESS: faiz.makdisi@amec.com

CURRENT EMPLOYER: AMEC Geomatrix, Inc._

NAS/NAE/IOM/NRC COMMITTEE: _____

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Much of the work of this institution involves scientific and technical studies and assistance for sponsors across a broad range of activities. Such activities may include, for example: defining research needs, priorities, opportunities and agendas; assessing technology development issues and opportunities; addressing questions of human health promotion and assessment; providing scientific and technical assistance and supporting services for government agency program development; assessing the state of scientific or technical knowledge on particular subjects and in particular fields; providing international and foreign country science and technology assessments, studies and assistance. Such activities frequently address scientific, technical, and policy issues that are sufficiently broad in scope that they do not implicate specific financial interests or conflict of interest concerns.

However, where such activities address more specific issues having significant financial implications -- e.g., funding telescope A versus telescope B, government development or evaluation of a specific proprietary technology, promotion or endorsement of a specific form of medical treatment or medical device, connecting foreign research facilities to specific commercial interests, making recommendations to sponsors regarding specific contract or grant awards, etc. -- careful consideration must be given to possible conflict of interest issues with respect to the appointment of members of committees that will be used by the institution in the development of reports to be provided by the institution to sponsoring agencies.

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1. FINANCIAL INTERESTS. (a) Taking into account stocks, bonds, and other financial instruments and investments including partnerships (but excluding broadly diversified mutual funds and any investment or financial interests valued at less than

\$10,000), do you or, to the best of your knowledge others with whom you have substantial common financial interests, have financial investments that could be affected, either directly or by a direct effect on the business enterprise or activities underlying the investments, by the outcome of the project activities of the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** on which you have been invited to serve?

(b) Taking into account real estate and other tangible property interests, as well as intellectual property (patents, copyrights, etc.) interests, do you or, to the best of your knowledge others with whom you have substantial common financial interests, have property interests that could be directly affected by the outcome of the project activities of the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** on which you have been invited to serve?

(c) Could your employment or self-employment (or the employment or self-employment of your spouse), or the financial interests of your employer or clients (or the financial interests of your spouse's employer or clients) be directly affected by the outcome of the project activities of the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** on which you have been invited to serve?

(d) Taking into account research funding and other research support (e.g., equipment, facilities, industry partnerships, research assistants and other research personnel, etc.), could your current research funding and support (or that of your close research colleagues and collaborators) be directly affected by the outcome of the project activities of the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** on which you have been invited to serve?

(e) Could your service on the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** on which you have been invited to serve create a specific financial or commercial competitive advantage for you or others with whom you have substantial common financial interests?

If the answer to all of the above questions under FINANCIAL INTERESTS is either "no" or "not applicable," check here (NO).

If the answer to any of the above questions under FINANCIAL INTERESTS is "yes," check here (YES), and briefly describe the circumstances on the last page of this form.

2. OTHER INTERESTS. (a) Is the central purpose of the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** for which this disclosure form is being prepared a critical review and evaluation of your own work or that of your employer?

(b) Do you have any existing professional obligations (e.g., as an officer of a scientific or engineering society) that effectively require you to publicly defend a previously established position on an issue that is relevant to the functions to be performed in the

TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project activity?

(c) To the best of your knowledge, will your participation in the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** activity enable you to obtain access to a competitor's or potential competitor's confidential proprietary information?

(d) If you are or have ever been a U.S. Government employee (either civilian or military), to the best of your knowledge are there any federal conflict of interest restrictions that may be applicable to your service in connection with the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** activity?

(e) If you are a U.S. Government employee, are you currently employed by a federal agency that is sponsoring the **Upper Yuba Levee Improvement Project**? If you are not a U.S. Government employee, are you an employee of any other sponsor (e.g., a private foundation) of the **Upper Yuba Levee Improvement Project**?

(f) If the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** activity for which this form is being prepared involves reviews of specific applications and proposals for contract, grant, fellowship, etc. awards to be made by sponsors, do you or others with whom you have substantial common financial interests, or a familial or substantial professional relationship, have an interest in receiving or being considered for awards that are currently the subject of the review being conducted by the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project**?

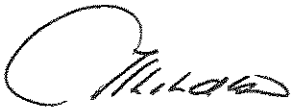
(g) If the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** activity for which this form is being prepared involves developing requests for proposals, work statements, and/or specifications, etc., are you interested in seeking an award under the **Upper Yuba Levee Improvement Project** for which the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** on which you have been invited to serve is developing the request for proposals, work statement, and/or specifications -- or, are you employed in any capacity by, or do you have a financial interest in or other economic relationship with, any person or organization that to the best of your knowledge is interested in seeking an award under this program?

If the answer to all of the above questions under OTHER INTERESTS is either "no" or "not applicable," check here (NO).

If the answer to any of the above questions under OTHER INTERESTS is "yes," check here (YES), and briefly describe the circumstances on the last page of this form.

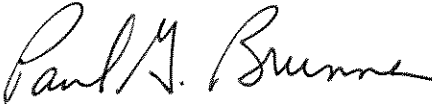
EXPLANATION OF "YES" RESPONSES:

*During your period of service in connection with the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** for which this form is being completed, any changes in the information reported, or any new information, which needs to be reported, should be reported promptly by written or electronic communication to the responsible staff officer.*



YOUR SIGNATURE

August 28, 2009
DATE

Reviewed by: 

Paul Brunner
Executive Director TRLIA

9-17-09

Date

David T. Williams, Ph.D., P.E., P.H., CPESC, CFM, F.ASCE
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Email: David@dtwassoc.com, Cell: 619-823-4778

Education

Ph.D., Civil Engineering, Colorado State University, 1995
M.S., Civil Engineering, University of California, Davis, 1977
B.S., Civil Engineering, University of California, Davis, 1972

Registrations

Professional Engineer (Civil) license number and date

California 57020, 1997
Arizona 24349, 1990
Hawaii 7796, 1993
Mississippi 8242, 1981
New Mexico 12187, 1993
Texas 80003, 1994
Washington 23201, 1990
Oregon 16963, 1993
Colorado – 43253, 2008

Professional Hydrologist (PH)

Certified Professional, Erosion and Sediment Control (CPESC)

Diplomate, American Academy of Water Resources Engineers (D.WRE)

Certified Floodplain Manager (CFM)

Work History

2009 – Present; President, David T. Williams and Associates, Engineers, LLC, Fort Collins, CO

2005 - 2009; National Technical Director for Water Resources, PBS&J, Fort Collins, CO

2002 - 2005; National Director for Hydrology and Hydraulics, HDR Engineering, San Diego, CA

1988 - 2002; President and co-founder of WEST Consultants, a premier water resources engineering firm

1979 - 1988; Research Hydraulic Engineer, Hydraulics Lab, Engineering and Research Development Center (formerly Waterways Experiment Station), Vicksburg, MS

1983 - 1984; acting Chief, Hydrology and Hydraulics Section, Baltimore District Corps of Engineers

1977 - 1979; Civil Engineer, Hydrology Branch, Nashville District Corps of Engineers

1975 - 1977; Research Hydraulic Engineer, Planning Branch and Research Branch, Hydrologic Engineering Center, Davis, CA

1972 - 1975; Infantry Platoon Officer and Combat Engineering Unit Officer, 7th Special Forces Group, Fort Bragg, NC

Professional Affiliations

American Society of Civil Engineers (Fellow)

International Erosion Control Association (IECA – past president)

American Society of Testing and Materials (ASTM)

American Institute of Hydrology (Chair, Board of Registration)

Summary

Dr. David Williams is a registered Professional Civil Engineer in eight states, a Fellow of the American Society of Civil Engineers, a Professional Hydrologist and a Certified Professional in Erosion and Sediment Control (CPESC). He served as Principal-in-Charge for several flood insurance studies in San Diego and Orange counties. He has written the new HEC-6 User Manual for the U.S. Corps of Engineers Hydrologic Engineering Center, performed HEC-6 and local scour analysis of pipeline crossings in Arizona and New Mexico, headed the Keene Ranch groundwater modeling study and the Nile River sedimentation evaluations. He is well versed in the computer programs HEC-1, HEC-2, HEC-RAS, HEC-6, STORM, and WQRRS. Dr. Williams is a nationally recognized expert in sedimentation engineering and in developing innovative solutions to difficult hydraulic and hydrologic design problems in rivers and estuaries.

Dr. Williams previously served as a two time President of the International Erosion Control Association. He has served as chair of the ASCE Task Committee on Analysis of Laboratory and Field Sediment Data Accuracy and Availability. He is also a past chair of the ASCE Sedimentation Committee as well as the Computational Hydraulics Committee and currently serves on the ASCE Stream Restoration Committee. While chair of the Federal Interagency Technical Committee on Sedimentation, he worked with hydraulic and sedimentation experts from the Federal Highway Administration, Bureau of Reclamation, U.S. Geological Survey, Bureau of Land Management, Forest Service, TVA, Bureau of Land Management and the Agricultural Research Service. His work with

the Committee involved developing sediment sampling equipment and sediment data collection methods. He is the author of more than 100 technical papers and reports on hydraulics and sedimentation. Dr. Williams was formerly an Associate Editor of the ASCE Journal of Hydraulic Engineering, as well as a reviewer. He was selected the 1993 Small Business Person of the Year by the Carlsbad, California Chamber of Commerce, and served as chair of the Carlsbad Beach Erosion Committee.

His professional experience includes more than eighteen years as a hydraulic engineer with the U.S. Army Corps of Engineers at the Waterways Experiment Station (WES) in Vicksburg, Mississippi, both the Nashville and Baltimore Districts, and the Hydrologic Engineering Center in Davis, California. While at WES, Dr. Williams worked on research applications of sediment transport in rivers and reservoirs and the solution of unusual hydraulic and sediment related problems using computer models and other state-of-the-art techniques. He also worked on the development of the cohesive and network versions of the HEC-6 sediment transport computer model, and wrote the Reservoir Sedimentation Chapter in the U.S. Corps of Engineering Manual on Sedimentation Investigations. At the Nashville District, Dr. Williams performed erosion control and sedimentation studies for the Tennessee-Tombigbee Waterway Project and also conducted sedimentation and floodplain information studies of proposed flood control projects. He was acting Chief of the Hydrology and Hydraulics Section at the Baltimore District Corps of Engineers. During the mid 1970's, Dr. Williams worked at HEC, helping in the development of spatial data management techniques, evaluation of the economic benefits of flood control projects, and sedimentation in rivers and reservoirs.

Dr. Williams has been a frequent short course instructor for ASCE, Federal and State Agencies for computer training workshops on using HEC-2, HEC-RAS, HEC-HMS and HEC-6. In addition, he has taught short courses on channel bed scour for toe protection design, sediment transport, bridge scour and streambank protection.

Selected Projects

Member of the Board of Senior Consultants, Natomas Levee System, Sacramento, CA – The Sacramento Area Flood Control Agency (SAFCA) is upgrading the levee system around the Natomas area in Sacramento, CA to the 200 year protection level. Appointed by SAFCA, Dr. Williams is on a 3 member board of consultants to review and provide expert advice on the risk and uncertainty analysis, plan formulations, hydrology and hydraulic aspects of the project.

Uncertainty Analyses Using Simplified Methods for the Flood Control District of Maricopa Co., AZ – The study developed simplified methods to evaluate the uncertainty for flood control projects using cutting edge techniques that are not usually seen in flood control projects. This involved automated execution of hydrologic and hydraulic models with varying inputs to develop probability density functions for use in Monte Carlo simulations. The probability distributions of hydrologic and hydraulic inputs were developed based upon experience and technical literature. The results were the

determination of the uncertainty in the outputs so that decisions could be made such as the height of freeboard, operation schemes for reservoir operation, etc. Dr. Williams was the chief technical advisor for this effort.

QA/QC, 50 Bridge Scour Analyses, Caltrans, California - Principal in Charge and Senior Project Manager. Responsible for quality control and assurance for over 50 bridge scour analyses that were required under CalTrans seismic retrofit program. The projects ranged state-wide but were concentrated mostly in desert environments in southern California. Dr. Williams also acted as project manager for complicated situations that involved innovative channel designs or scour protection requirements to minimize the impacts of the bridge retrofit on channel scour. Several of these projects involved fluvial geomorphic analyses.

Humboldt Bay Highway Seismic Retrofit Scour Evaluation Study - Caltrans planned to seismically retrofit the highway bridge crossing Humboldt Bay near Eureka in Northern California. The bridge is approximately 8,000 feet long, and crosses the bay in three sections with two islands. The proposed retrofit would substantially increase the number of piles at each pier and the size of the pile caps. Dr. Williams studied the seismically retrofit using a 2-dimensional hydrodynamic model (using RMA-2) and a 2-dimensional sediment transport model (using SED2D) study was conducted to: (1) determine if the larger bridge foundation might alter circulation patterns in the northern part of the bay, (2) to evaluate the scour at the modified individual bridge piers, and (3) determine if sediment transport processes in the bay might change sufficiently to cause increased sedimentation in sensitive areas, such as a nearby marina. The study included a detailed survey within 2,000 feet of the bridge, development of a detailed finite-element grid in the vicinity of the bridge, model calibration, and model application. A 14-day tide, including neap and spring cycles, was used to analyze the bay's circulation and sediment transport response to normal conditions. A 100-year storm surge was used to evaluate pier scour at the modified bridge.

EPA Selection Panel, Washington D.C. – Dr. Williams has served on 2 EPA selection panels in the areas of ecological indicators and thresholds. The panel evaluated research proposals from universities and non-profit organizations and made recommendations to EPA on which proposals to approve. The panels were comprised of experts in the engineering and natural sciences. Dr. Williams was the only private consultant on each panel, which was composed of academic and government personnel.

Lead Instructor and Course Notes Author – Dr. Williams developed short course notes for and taught HEC-RAS, HEC-HMS, HEC-6, Bridge Scour, Fluvial Geomorphology, Sediment Transport and Streambank Protection short courses for such entities as the Floodplain Management Association of California and Nevada, Association of State Floodplain Managers, American Society of Civil Engineers, Federal Highway Administration, Flood Control District of Maricopa County, Riverside County Flood Control and Water Conservation District, Ventura County Watershed Protection District, the International Erosion Control Agency and numerous other state and federal agencies. The courses were very technically oriented and geared to immediate implementation of

the subjects taught. Certain subjects were enhanced according to the location of the course - local problems and situations. The courses ran from 2 to 3 days.

Development of State Standards for Floodplain Modeling, Arizona Department of Water Resources - Dr. Williams worked with the Arizona Department of Water Resources State Standards Work Group (SSWG) to develop a State Standard for floodplain modeling. The Standard provides guidance on mathematical modeling of hydraulic processes in watercourses and floodplains. Topics of interest included split flows, floodway encroachments, ineffective flow areas, breakout/overflow zones, alluvial fans, levee analysis, confluences, channel roughness characteristics and other topics. The study included evaluation of several 1-Dimensional hydraulic models. Four of the models were applied to four case studies and evaluated. The final product was the development of State Standard for Floodplain Modeling. This document provided guidelines and criteria for floodplain modeling and procedures for the preparation of submittals for floodplain hydraulic modeling as well as for the review and approval of models by local agencies.

Sevenmile Creek Restoration, SW Oregon – This project involved the restoration of Sevenmile Creek which included features to enhance the migration of various species of fish. Maximum use of historic creek features were implemented using natural channel design concepts. As the QA/QC of the project, Dr. Williams helped oversee the development of the concepts into plans and specification, which he was the engineer of record.

Reservoir Sedimentation Analysis for FERC relicensing, Alcoa Power Generating Inc. – Dr. Williams was in charge of this reservoir sedimentation study for the High Rock Dam in North Carolina. The client needed this information for the application for relicensing of the dam. The sediment transport model was used to evaluate the effects of the dam on sedimentation that had a potential to adversely affect adjacent infrastructure.

Examination of Hydraulic Rollers at Run of the River Dams, Illinois Dept. of Natural Resources, Springfield, IL – As technical advisor to this project, Dr. Williams provided technical guidance in developing solutions to the hydraulic roller problem at the downstream portion of the weir at Geneva Dam. The temporary solution was the placement of rock riprap at this location and its design based upon high turbulence conditions.

Cuddy Creek Restoration Study, Kern County, CA – This study for Kern Co. involved the sediment transport conditions for Cuddy Creek, which has been ravaged by materials mining. The study included evaluation of pre-existing conditions, existing conditions, and proposed conditions. These conditions were then used to determine any mitigation measure that would minimize the continuing adverse impacts of the historic mining as well as the proposed condition.

Sellar Gulch Restoration Study, Castle Rock, CO. – As technical advisor, Dr. Williams provided guidance in the fluvial geomorphology analysis for the restoration of Sellar

Gulch. This included an extensive field reconnaissance of the project area and the use of geomorphic principles to determine the best slope and channel dimensions that would be self sustaining.

Dam Breach Analyses for San Diego County Water Authority (SDCWA) – As principal in charge, Dr. Williams also acted as the technical advisor for this series of contracts to analyse numerous dam breach projects for SDCWA. This contract involved using the NWS DAMBreak model for FERC re-authorization of existing hydroelectric dams as well as for scenarios of raising dams to obtain additional storage and power. The results, which included numerous breach scenarios, output hydrographs and resulting inundation areas, were used to create new or revise Emergency Action Plans.

Evaluation and Re-Design of Palm Canyon Grade Control Structure, Riverside County Flood Control and Water Conservation District, CA – Dr. Williams was called upon to evaluate what caused the failure of the Palm Canyon grade control structure. This structure had a low flow notch in a riprap structure with a riprapped stilling basin. The work involved forensic engineering, examination of design and specification documents, and evaluation of construction techniques. He was then asked to redesign the grade control while salvaging as much material as possible and minimal rearrangement of the remaining existing structure.

Santa Clara River Emergency Streambank Protection for Ventura County Watershed Protection District, California - As the lead technical advisor, Dr. Williams and his team identified potential alternatives to the streambank erosion problem along the Santa Clara Creek which included a No-Action plan, as well as non-structural and structural solutions. The consensus alternative was the use of river training structures such as spur dikes along with minor bank protection. This alternative involved design considerations using geomorphic and natural channel design procedures, determining the dimensions of the low flow channel, scour analyses for preventing undermining of the spur dikes, and the orientation, spacing and dimensions of the spur dikes.

Evaluation of Fluvial-12 Sedimentation Model on Pole Creek for Ventura County Watershed Protection District, California - The sediment transport model Fluvial-12 was used by Chang and Associates to model a sedimentation basin and exit conditions on Pole Creek in Ventura County. The model results were used to justify the location and dimensions of the sedimentation basin as well as the channel dimensions of its outlet to the Santa Clara River. The Ventura County Watershed Protection District required an outside expert, Dr. Williams, to evaluate the Fluvial-12 model results and make recommendations on improvements to the model, if needed.

Santa Paula Creek Emergency Streambank Protection for Ventura County Watershed Protection District, California - As the lead technical advisor, Dr. Williams and his team identified potential alternatives to the streambank erosion problem along the Santa Paula Creek which included a No-Action plan, as well as non-structural and structural solutions. The consensus preferred alternative was the use of river training structures

such as Bendway Weirs and Spur Dikes. This alternative involved design considerations using geomorphic and natural channel design procedures, determining the dimensions of the low flow channel, scour analyses for preventing undermining of the spur dikes, and the orientation, spacing and dimensions of the spur dikes.

Evaluation of Sediment Transport and Scour Analyses of the Agua Fria River, Arizona, for the Flood Control District of Maricopa County - Dr. Williams headed this project in which the PSB&J team was asked to assess the validity of sediment transport and scour analyses that had been conducted on the Agua Fria River as well as conduct an independent study. The analyses included development of an HEC-6T sediment transport model, analyses of levee heights and determination of toe scour depths to protect the levees. The resulting report was used by the Flood Control District of Maricopa County to require the project owners to reconsider their design and use the techniques that were presented in the report.

Approximate Floodplain Study for Orange County, California - Dr. Williams and his team prepared an approximate floodplain study for the Orange County Flood Control District to delineate 100-year floodplains for the East Garden Grove - Wintersburg Channel (C05), the Ocean View Channel (C06), and seven tributaries to the C05 channel. This project was undertaken by the District to facilitate lifting of the Santa Ana River floodplain (zone A99) after the completion of the Santa Ana River flood protection project by the U.S. Army Corps of Engineers (Corps). The Corps project has controlled breakout flows from the Santa Ana River (SAR), but the flooding from other sources underlying the SAR floodplain, needed to be delineated before the A99 zone was lifted by FEMA. The study area is located in the Cities of Huntington Beach, Fountain Valley, Westminster, Santa Ana, Garden Grove, Anaheim, and Orange, in Orange County, California. The C05 and C06 channel system consists of a complex network of leveed channels, storm drains, and detention basins that convey stormwater runoff from highly urbanized low-lying interior areas to the Pacific Ocean. About 16 miles of flood control channels were analyzed using an approximate hydraulic analysis with the Corps HEC-RAS program. The C05 channel laterals were analyzed using various computer programs including the Corps HEC-RAS program and the HEC-2 program with the split-flow option, and the Los Angeles County Flood Control Districts WSPG program. To obtain a model for an approximate level of analysis, all levees, bridges, and culverts, were removed from the cross-sections. Engineering judgment was used to interpret the model results based on output that appeared reasonable in accordance with field observations. Field observations were used to verify flow directions, track flow paths, and evaluate the effect of floodplain features such as elevated highway embankments. Approximate studies in urban environments can be especially challenging because of the need to make appropriate assumptions in order to simplify complex hydrologic and hydraulic phenomena. A Zone A approximate 100-year floodplain was delineated. The results of the study satisfied FEMA requirements and were subsequently published for the benefit of the community. Dr. Williams was the Project Manager and Principal in Charge.

Cherokee Wash Hydraulic/Sediment Analysis, Paradise Valley, Arizona - Hydrologic, hydraulic, and sedimentation studies were performed for the Maricopa County Flood

Control District to evaluate options to alleviate flooding and sediment problems. Existing HEC-1 models were evaluated and modified to reflect current and with-project (flow diversions) hydrologic conditions. The existing HEC-2 model was reviewed and found unsuitable; therefore a new model was created to evaluate current hydraulic conditions including controls and flow break-out points. An HEC-6 model was prepared for sedimentation studies of the wash; a sediment sampling program was designed by WEST, and the gradation results were used in the model. Channel sediment continuity and geomorphic analyses were also performed, and the study results were used to render opinions on the need for grade control, sedimentation basins, and maintenance of the project.

Cumulative Effects Study of Sedimentation Impact, Upper Mississippi River - Dr. Williams helped quantify the cumulative man-made and natural effects on sedimentation, stream morphology and ecology along the Upper Mississippi River (UMR) and IWW and predicted future conditions for the year 2050. The study area involves 5 states, 3 Army Corps of Engineer's Districts, and about 1,200 river miles. The geology and glacial history of the study area was analyzed to define the influences and controls on channel morphology. Hydrologic records were examined to identify changes in discharge and stage along the UMR. Available research was reviewed to define potential impacts of global climate change on basin hydrology. The history and extent of human influences on the fluvial system were characterized. Historic plan form and channel geometry data were analyzed to quantify changes in channel morphology. The sources and sinks of sediment along the UMR were quantified and a sediment budget developed to estimate backwater sedimentation rates in navigation pools. Historic changes in nine geomorphic categories were characterized throughout the study area. Predictions of geomorphic conditions along the UMR and IWW in the year 2050 were developed based on trends identified from historic geomorphic data and results of the sediment budget. Ecological conditions in the year 2050 were predicted based on ecological guilds and the trends established for aquatic habitat.

Eastern Arkansas Water Supply Study - Study included extensive model application and model calibration to analyze the effect of in-basin water transfers on surface water flow magnitude, frequency, and duration in the La Grue Bayou stream network using Corps of Engineers' programs HEC-1, HEC-2, HEC-DSS, and HEC-FFA. A unique feature to this study was the application of the Memphis District's program HUXRAIN to develop long term (50 years) synthetic discharge hydrographs using calibrated antecedent precipitation index coefficients, a long term rainfall data base, and computed unit hydrographs for the sub-basins. Another component of this work was an interior hydrology study for the city of Clarendon, Arkansas. Several scenarios were analyzed using HEC-IFH for continuous simulation with 50 years of data.

IDIQ for Los Angeles District Corps of Engineers - During this IDIQ contract for hydrology and hydraulics with the Los Angeles District, Dr. Williams and his team completed multiple work orders. A spillway inundation study was conducted for Carbon Canyon simulating dam break using HEC-RAS. A two-dimensional link node model was applied to Mission Creek in Santa Barbara to evaluate flooding due to overspilling of the

channels to lower elevations and connector streams. In the Santa Margarita river watershed study, HEC-1, HEC-2 and HEC-6 were used to evaluate flooding extents and sedimentation problems in the river. Two channel restoration and environmental enhancement plans were developed in Phoenix area for the Tres Rios and Rio Salado projects. Tres Rios involved HEC-6 modeling and Rio Salado had both HEC-RAS and HEC-6 models developed for the Salt River. A major flood map revision study and levee analysis report was conducted for the Los Angeles River and Compton Creek, resulting in hundreds of thousands people taken out of the 100 year regulatory floodplain. During this study, numerous HEC-2 models were modified to reflect levee system changes made by the Los Angeles District. Overbank models were also modified to analyze split flow conditions.

Lindo Lake Park Water Quality Study, Lakeside, California - Dr. Williams conducted detailed study of water quality conditions, to evaluate lake rehabilitation alternatives, and to develop a restoration plan to improve water quality conditions and to support a wide array of beneficial uses, including active recreation for Lindo Lake Park. Lindo Lake Park Water Quality Study. The Lindo Lake Park Water Quality Study was comprised of five major tasks: 1) public meetings; 2) report on inventory, bibliography and proposed methodology; 3) Quality Assurance Project Plan according to EPA guidelines; 4) Water quality study and associated technical report; and 5) Implementation plan.

Minnesota and Red River CWMS Watershed Modeling, U.S. Army Corps of Engineers, St. Paul District - To establish a flood forecasting system and reduce future flood damage in the Red River of the North basin (4,010 square miles) and Minnesota River basin (1,770 square miles), Dr. Williams, along with his staff and the U.S. Army Corps of Engineers, St. Paul District (the Corps), developed a Corps Water Management System (CWMS) model to assist in real time operation of the reservoirs to regulate reservoir outflows. Dr. Williams' team developed snow process, hydrologic, water control, and hydraulic models that will be incorporated by the Corps into CWMS as model components. The modeling work included development, calibration, and verification of the Distributed Snow Process Model (DSPM), HEC-HMS, HEC-ResSim, and HEC-RAS models.

Pipeline Crossings over Desert Rivers and Washes, Arizona and New Mexico - Dr. Williams was Project Manager and Project Engineer for numerous Pipeline Crossings over Desert Rivers and Washes in Arizona and New Mexico for the El Paso Natural Gas Company. These efforts required the understanding of fluvial geomorphology, alluvial fan flooding, sediment transport and short duration/high peak discharge as related to desert hydrology.

Potrero Creek In-Channel Sedimentation Basin Alternative Study, Ventura, California - Ventura County Flood Control District (VCFCD) proposed building one or more in-channel sedimentation basins to reduce the incoming sediment load from Potrero Creek from reaching the homes located in Lake Dr. Williamslake in Ventura, California. Dr. Williams evaluated the effectiveness of their various sedimentation basin plans. Dr. Williams formulated a plan to first estimate the average annual sediment yield from

Potrero Creek and then model the system using HEC-6T, the sediment transport software package developed by the U.S. Army Corps of Engineers. Dr. Williams estimated average annual sediment yield using two different methods. The first method involved numerical integration of sediment yield-frequency curves for four contributing sub-watersheds provided by the VCFCD. The second method applied U.S. Geological Survey methodology based on a curve of long-term sediment yield in nearby mountain watersheds in Los Angeles and Ventura Counties to the VCFCD data. The sediment yield-frequency curve and U.S.G.S. methods provided two cases for input into sediment transport model.

Restoration/Environmental Enhancement Plans, Tres Rios and Rio Salado Projects, Los Angeles Corps of Engineers, Phoenix, Arizona - Principal in charge and Senior Project Manager: Two channel restoration and environmental enhancement plans were developed in Phoenix for the Tres Rios and Rio Salado projects for the Los Angeles Corps of Engineers. Tres Rios involved HEC-6 modeling, and Rio Salado had both HEC-RAS and HEC-6 models developed for the Salt River through Phoenix, AZ. The work involved the use of fluvial geomorphology principles and took into consideration the effects of sand/gravel mining activities. The project also required coordination with biologists and botanists to establish a well-balanced environmentally sound project and still meet the flood control requirements.

Wellhead Protection Plan for the Los Angeles Corps of Engineers, Planning Division, San Luis, Arizona - The components included the delineation of wellhead protection areas, the compilation of a contaminant source inventory, the development of management tools to protect the groundwater and the formulation of a contingency plan for both short and long term losses of one or more wells.

Two-Dimensional Study of the Missouri River, Chamois Reach, USACE, Kansas City District IDC - Dr. Williams was Principal in Charge for a 2-D study of the Missouri River called the Chamois reach between RM 116.5 and RM 113.5. The model used was RMA2, which is a part of the WMS system. It was used to identify low and medium flow habitat areas and the depths and velocities associated with those areas. The results were used to determine opportunities for habitat enhancements.

Various Projects for the Flood Control of Maricopa County - Dr Williams was the Principal-in-charge of several sediment transport studies (Agua Fria, Salt, and Gila Rivers) for the Flood Control District of Maricopa County in Arizona. The purposes of these studies were to develop sediment models that could be used as predictive and management tools. The developed sediment transport models served to evaluate potential effects on channel stability of bank protection measures, floodplain encroachments and sand and gravel mining operations along the rivers.

St. Tammany Flood Control Analysis, U.S. Army Corps of Engineers, New Orleans District, New Orleans, Louisiana - Dr. Williams and his engineers developed a conceptual flood management plan for St. Tammany Parish in southeast Louisiana. Flood management in St. Tammany Parish was a unique challenge, with 100 square miles

drained by a complex network of natural bayous and man-made canals. Hydrologic and hydraulic models were needed to evaluate existing conditions and compare flood management alternatives. The results of the hydrologic models provided the input for hydraulic modeling to the New Orleans District Corps of Engineers with useful answers about their proposed flood management plan, allowing the District and the citizens of St. Tammany Parish to make informed decisions about their watershed.

Ventura County Flood Control District, Calleguas Creek Sediment Transport Study, Ventura, California - An HEC-6T sediment transport model was prepared for Calleguas Creek, Arroyo Las Posas, and Arroyo Simi in Ventura County to establish baseline conditions and to evaluate proposed channel improvements. The model extends 25 miles from State Highway 1 near the mouth at Mugu Lagoon to upstream of Hitch Boulevard in the vicinity of Moorpark. Inflowing sediment loads and sediment discharge to Mugu Lagoon were calibrated to records of historical sediment deposition in the lagoon, historical bed changes in the channel, and records of maintenance sediment removals. A long term hydrological simulation (50 years) was used in HEC-6T to evaluate proposed grade control structures, sediment basins, and other channel improvement options in Calleguas Creek and to determine their effectiveness in reducing sediment inflow to the lagoon.

West Tennessee Tributaries Project Limited Evaluation Study, Tennessee - A reconnaissance level analysis was conducted to evaluate the proposed restoration of old river meanders that were cut off from the Middle Fork Forked Deer River by historical channelization projects. This study included an extensive combination of hydrological, hydraulic, and sediment transport simulations, using historical rainfall and runoff records, current field data, and calibration to 1960 and 1979 channel geometry survey data. In addition to Corps of Engineers' programs HEC-1, HEC-2, HEC-DSS, HEC-FFA, and HUXRAIN for surface water flow modeling and standard computer program HEC-6 for sediment transport analysis, the newer HEC-6T, "Sedimentation in Stream Networks", developed by William A. (Tony) Thomas, was used to evaluate the sediment transport of flow converging and diverging at the junctions of the main channel and the old meanders. A sediment-weighted histogram generator modified by WEST Consultants was used to generate the hydrology input for the HEC-6 programs. Designs for rock riprap diversion weirs and bridge protection, and an in-line sediment trap were developed in this study.

White River Unsteady Flow Model, Arkansas - An unsteady flow model using the computer program UNET was developed for 70 miles of the White River in eastern Arkansas. Model parameters were calibrated to historical stage and flow records before executing two 47 year simulations. Simulations were run for existing conditions and conditions after installation of an inlet canal and pumping station for an irrigation scheme. Results were provided to the District to help them evaluate effects of the irrigation project on the river. A second part of this project involved evaluation of the irrigation canals for sediment transport and scour/deposition. The computer program SAM was used to help determine stable channel parameters and the amount of scour/deposition that could be expected with the District's design geometry and slope.

Wolf River Reconnaissance Study, Tennessee - Included a hydraulic and sedimentation analysis for approximately 75 miles of the Wolf River in western Tennessee. An HEC-2 model for the lower reaches was extended with new survey data into the upper watershed. A HEC-6 model was then developed to evaluate the effect of grade stabilization weirs, environmental enhancement weirs with permanent pools, and reductions in inflowing sediment loads from 9 tributaries in the upper watershed. HEC-1 was used to compute unit hydrographs for calibration to stream gage data. The sediment-weighted histogram generator program was used to construct the HEC-6 input hydrology. The results of a 25-year future simulation were evaluated in terms of vertical bed elevation changes over time and volumetric changes in sediment deposited and scoured on a reach by reach basis.

Expert Testimony and Support

Expert Consultant: Subdivision Flooding, for City of Reno, NV

Expert Consultant: Analysis of Milltown Dam Removal and Potential Deposition at Thompson Falls Reservoir, Montana, for Pennsylvania Power and Light

Expert Consultant: FERC relicensing, North Carolina, for Alcoa Power Generating Corporation

Expert Consultant: Scour Evaluation of Grading Plan Changes for Cyrus Wash, for Kern County, CA

Expert Consultant: Baker River FERC relicensing, WA, for Puget Sound Energy

Expert Consultant: Blackfoot and Clark Fork River Restoration Plan, Montana for unnamed client

Expert Consultant: Agua Fria River Streambank Scour Analyses, Phoenix, AZ, for Flood Control District of Maricopa Co., AZ

Expert Consultant: Erosion and Drainage, Newport Beach, California, for private client

Expert Consultant: Subdivision Flooding Problems and Floodplain Mapping Procedures, Dayton, Ohio, for private client

Expert Consultant: Flooding Problems, Unnamed creek, Los Angeles, California, for private client

Expert Testimony: Murrieta Creek Flooding, Riverside County, California, for Riverside Co. Flood Control District

Expert Testimony: Flooding Potential and Analysis of Coconut Grove, Kailua, Oahu, Hawaii, for private client

Expert Consultant: Subdivision Flooding Problems, Waialae Iki V, Oahu, Hawaii, for private client

Expert Testimony: Flood Problems at Carlton Oaks Country Club, Santee, California, for private client

Expert Consultant: Alpine Mobile Home Park Flooding, Alpine, California, for private client

Expert Consultant: River Effects of Sand Mining Operations, San Luis Rey River, California, for private client

Expert Testimony: Pecos Road Pipeline Scour, Phoenix, Arizona, for El Paso Natural Gas Company

Expert Consultant: San Diego Creek Revetment Failure, Irvine, California, for private client

Expert Consultant: San Luis Obispo Creek Flooding, San Luis Obispo, California, for private client

Floodplain Hydraulics and Flood Protection

Reconnaissance Study Report and Project Management Plan for the Tijuana River Watershed Study – USACE Los Angeles District

Spillway, Outlet, and Stilling Basin Design for Reelfoot Lake Sedimentation Basin – USACE Memphis District

FEMA Studies of River System near Huntington Beach, Orange County, California
River System Studies near Huntington Beach for Orange County for Submittal to FEMA, Orange County, California

FEMA Studies of 27 Streams in the Unincorporated Areas of San Diego County, California

Hydraulic Analysis and Levee Elevation Design of West Williamson, West Virginia, Flood Control Project

Flood Information Study of Pineville, Kentucky

Murrieta Creek Flood Control and Environmental Restoration Project – USACE Los Angeles District

Hydraulic Design of Supercritical and Subcritical Flood Control Channels for the Rio Puerto Nuevo Flood Control Project, San Juan, Puerto Rico

Flood Control Channel Design, Buena Vista Creek, Vista, California, City of Vista
Forest Falls Community Flood Warning System - USACE Los Angeles District

Sedimentation and Scour Evaluations

Harrow Debris Basin Overtopping Analysis, Los Angeles County, California

Bridge Scour Analyses, Various locations, California Department of Transportation

Ashtabula River Hazardous Waste Project, Ohio

Tia Juana River Valley Surface and Groundwater Water Budget Analysis, San Diego, CA

Sedimentation Investigations of Boeuf River and Tributaries, Louisiana

Sedimentation Analysis of a Cutoff for the Barbourville, Kentucky, Flood Control Project

Analysis of the Effects of Strip Mining on Project Life of Martin's Fork Reservoir, Kentucky

Sedimentation Surveys and Analyses of J. Percy Priest Reservoir, Tennessee

Sedimentation Surveys and Analyses of Laurel River Reservoir, Tennessee

Sedimentation Surveys and Analyses of Martin's Fork Reservoir, Kentucky

Sedimentation Study of the St. Lucie River and Estuary, Florida

Sedimentation Analysis and Debris Basin Design for the Rio Puerto Nuevo Flood Control Project, San Juan, Puerto Rico

Determination of Sediment Yields after the Mt. St. Helens Eruption, Washington

Modeling the Sedimentation Effects of the Removal of the Washington Water Power Dam, Lewiston, Idaho

Sedimentation and Dredging Maintenance Requirement Study for the Rochester, Minnesota, Flood Control Project

Sedimentation Study of Tuttle Creek Reservoir, Kansas

Sediment Yield and Debris Basin Evaluation of Goleta, California, Flood Control Project

Sedimentation and Sediment Yield Study of the Harding Ditch, East St. Louis, Missouri, Flood Control Project

Analysis of Sediment Exclusion and Ejection System of the Igdir Irrigation Project, Turkey, for the World Bank

Reservoir Sedimentation Study of Shoccoe Dam, Jackson, Mississippi

Evaluation and Assessment of Sedimentation in the White Nile River and Irrigation Schemes, Sudan, for the World Bank

Zink Dam Sedimentation Study, Arkansas River, Tulsa, OK

Erosion and Sedimentation Analysis of South Coast Materials Mine Reclamation Plan, Buena Vista Creek, Carlsbad, California

Incipient Motion Analysis of Spawning Gravel, Cedar River, Renton, Washington

Stable Channel Analysis

San Luis Rey Levee Design and Sediment Transport Analysis

Sediment and Stable Channel Analysis of Pipeline Crossings for El Paso Natural Gas Company, Northern New Mexico and Arizona

Channel Stability Study of the Salt/Gila River Project, Arizona

Sediment and Channel Stability Study of the Gallup, New Mexico, Flood Control Project

Keene Ranch Stable Channel Assessment, Bakersfield, California

Stability Assessment of Sewer Pipeline, Tia Juana River, San Diego, California

Channel Stability Analysis, East Memphis, Arkansas

Water Quality and Groundwater

Caltrans NPDES Permit Project, Los Angeles County, CA

Keene Ranch Groundwater Quality and Quantity Modeling, Bakersfield, California

Turbidity Plume Analysis of Open Ocean Disposal for the Tampa Bay Deepening Project, Florida

Predictions of the Effects of Structural Alternatives on Turbidity in the St. Lucie Canal at Port Mayaca, Florida

Determination of Light Extinction Coefficients for Lakes and Reservoirs for use in Water Quality Mathematical Models

Analysis of the Behavior of Fine Sediments in Reservoirs for Environmental and Water Quality Operation Systems (EWQOS) Program
PCB Transport Study for the Hudson River, New York

Other

Analysis of Proposed Hydraulic Dredging for Construction of Gallipolis Lock and Dam, West Virginia

Design of Sedimentation Basins and Erosion Control Measures, Tennessee- Tombigbee Waterway Project

Dredged Material Disposal Site Analysis in an Ocean Environment for the Tampa Bay Deepening Project, Florida

Assisted in the Development of the Cohesive and Network Versions of the Computer Program, "HEC-6, Scour and Deposition in Rivers and Reservoirs"

Evaluation of Structural Alternatives of a Sediment Retention Dam on the Toutle River For Hyper concentration Sediment Conditions from Eruption of Mt. St. Helens, Washington

Debris Analysis of a Proposed Tunnel Cutoff for the Harlan, Kentucky, Flood Control Project

Preparation of the new HEC-6 Manual (Scour and Deposition in Rivers and Reservoirs) for the Hydrologic Engineering Center, Davis, California

Kern River Ordinary Highwater Litigation, Bakersfield, California

Erosion Control Plan, Rancho Verde Development, Escondido, California

Development of Forest Sedimentation Management Plan, Tongass National Forest, Alaska, U.S. Forest Service

Development of Water Resources/Geomorphology Small Stream Classification System, State of Washington, Department of Natural Resources

Development of Computer Based Design Program for Gabion Lined Channels

Development of Computer Based Design Program for Riprap Channels

Development of Channel Design using Geosynthetics Computer Program

Professional Society Activities

American Society for Testing and Materials, Member - D18.25, Committee on Erosion and Sediment Control Technology, 2001 - present

American Society for Testing and Materials, Member - D19 Committee on Water, 1983 – present

American Society of Civil Engineers (ASCE), Past Chair, Sedimentation Committee, 1992 - 1996

American Society of Civil Engineers (ASCE), Past Chair, Computational Hydraulics Committee, 1999 - present

American Society of Civil Engineers (ASCE), Member, Committee on Management Practice for Control of Erosion and Sediment (MPCES), 2005 – present

American Society of Civil Engineers (ASCE), Chair, Committee on River Restoration, 2006 - present

American Society of Civil Engineers (ASCE), Chair-Task Committee; Analysis of Laboratory /Field Sediment Data Accuracy and Availability, 1987-1991
International Erosion Control Association, Board of Directors, 1990
International Erosion Control Association, President, 1994-1995
International Erosion Control Association, Vice President-1995
International Erosion Control Association, Member, 1998
International Erosion Control Association, President, 1998-1999

Instructional Experience

P.E. Review Course, Hydrology and Hydraulics; University of California, San Diego
Use of Fluvial Geomorphology Principles in the Design of Natural Channels, for ASFPM
HEC-RAS, Basic and Advanced, taught for various organizations and ASCE at various locations
HEC-HMS, taught for various organizations and agencies at various locations
HEC-2, Basic and Advanced, taught for ASCE at various locations
Advanced HEC-2, Hydrologic Engineering Center, Davis, California
Fluvial Geomorphology, for various organizations
Stream Restoration, for numerous agencies
Streambank Protection, for numerous agencies
Bridge Scour Analysis, taught for ASCE at various locations
Hydrology and Hydraulics for non-Engineers, various locations
Open Channel Hydraulics, San Diego State University, San Diego, California
Water Surface Profile Computation Using HEC-2, Advanced, HEC, Davis, California
Engineering Problem Analysis, San Diego State University, San Diego, California
FESWMS-2DH, WEST Consultants, San Diego, California
Sedimentation in Forested Watersheds, Alaska and Montana
Civil Engineering Planning, University of California, Davis, California
Sediment Transport Course, HEC, Davis, California
Spatial Data Management, HEC, Davis, California
Water Quality in Rivers and Reservoirs, HEC, Davis, California
Sedimentation in Rivers and Reservoirs, HEC-6, HEC, Davis, California
Sedimentation Analysis, Waterways Experiment Station (WES), Mississippi
Sediment Transport in Reservoirs and Inland Waterways, WES, Mississippi
Numerical Modeling for Engineers, WES, Vicksburg, Mississippi
Hydraulic Design of Flood Control Channels, WES, Mississippi
Water Surface Profile Computations on the Microcomputer, Fort Collins, Colorado
HEC-6, Sediment Transport Modeling, various locations
Stable Channel Design, Memphis State University, Memphis, Tennessee
Bank and Channel Protection in Rivers, (IECA), Vancouver, BC, Canada
Short Course on Sediment Problems in Rivers, Oregon State University

Calculus I-IV, Hinds Junior College (HJC), Vicksburg, Mississippi
Differential Equations, HJC, Vicksburg, Mississippi

Other

Analysis of Proposed Hydraulic Dredging for Construction of Gallipolis Lock and Dam, West Virginia

Design of Sedimentation Basins and Erosion Control Measures, Tennessee- Tombigbee Waterway Project

Dredged Material Disposal Site Analysis in an Ocean Environment for the Tampa Bay Deepening Project, Florida

Assisted in the Development of the Cohesive and Network Versions of the Computer Program, "HEC'6, Scour and Deposition in Rivers and Reservoirs"

Debris Analysis of a Proposed Tunnel Cutoff for the Harlan, Kentucky, Flood Control Project

Preparation of the new HEC-6 Manual (Scour and Deposition in Rivers and Reservoirs) for the Hydrologic Engineering Center, Davis, California

Kern River Ordinary Highwater Litigation, Bakersfield, California

Erosion Control Plan, Rancho Verde Development, Escondido, California

Development of Computer Based Design Program for Gabion Lined Channels

Development of Computer Based Design Program for Riprap Channels

Publications

Conference Papers

Williams, David T., "So You Have Been Asked to Be an Expert Witness? Now What?" Floodplain Managers Association Annual Conference, San Diego, CA, Sept., 2008

McEvoy, Donald M., and Williams, David T., "Proposed Procedures in Utilizing Risk and Uncertainty Principles in Floodplain Management and Mapping," Association of State Floodplain Managers Conference, Reno, 2008.

Philips, Bruce M., and Williams, David T., "Design Considerations for Confining and Guiding Levees on Alluvial Fans," Proceedings, World Environmental and Water Resources Congress 2008, Honolulu, Hawaii, May 12–16, 2008.

Kreymborg, Leo R., Williams, David T., "The PBS&J Scour Spreadsheet: A Tool for Stream Restoration, Utility Crossings and Streambank Protection Projects," Proceedings, World Environmental and Water Resources Congress 2008, Honolulu, Hawaii, May 12–16, 2008.

Williams, David T., "Tips on Using the Dambreak Option in HEC-RAS," Proceedings,

Arid Regions and CASFM Conference, Breckenridge, CO, 2007.

Williams, David T., and Houghland, Sarah, "Alluvial Fan Management and Analysis: Methods used in the State of Colorado," Proceedings, Arid Regions and CASFM Conference, Breckenridge, CO, 2007.

Thomas, Iwan M., and Williams, David T., "Common Modeling Mistakes Using HEC-RAS," Proceedings, World Environmental and Water Resources Congress 2007: Restoring our Natural Habitat, Tampa, Florida, May 15–19, 2007.

Kreymborg, Leo R., Williams, David T and Thomas, Iwan M., "Rapid Floodplain Delineation," Proceedings, World Environmental and Water Resources Congress 2007: Restoring our Natural Habitat, Tampa, Florida, May 15–19, 2007.

Williams, David T., "Finessing 1-D Hydraulic Models into 2-D Performance," Proceedings, World Environmental and Water Resources Congress 2007: Restoring our Natural Habitat, Tampa, Florida, May 15–19, 2007.

Williams, David T., Marcy, Jennifer K., and DePue, Michael, "FEMA Levee Analysis Requirements for Floodplain Mapping," Proceedings, Association of State Floodplain Managers Conference, Norfolk, VA, 2007.

Kreymborg, Leo R., Williams, David T., and Thomas, Iwan M., "Automated Floodplain Delineation," Proceedings, Association of State Floodplain Managers Conference, Norfolk, VA, 2007.

Desai, Harshal, Baird, Matt, and Williams, David T., "2-D Floodplain Hydraulic Modeling using 1-D Hydraulic Models," Proceedings, Association of State Floodplain Managers Conference, Norfolk, VA, 2007.

Williams, David T., and Kreymborg, Leo R., "Are You Double Counting, Over Conservative, or Misapplying Safety Factors for Stream Scour Analyses?" Floodplain Management Association Annual Conference, Coronado, CA, September 5-8, 2006

Kreymborg, Leo R., and Williams, David T., "Rapid Floodplain Delineation Using GIS," Floodplain Management Association Annual Conference, Coronado, CA, September 5-8, 2006

Williams, David T., and Doeing, Brian J., "Variation in Depth of Toe Scour Computations For Stream Restoration Bank Protection Design," Proceedings, International Erosion Control Annual Conference and Exposition, Las Vegas, NV, February 24-28, 2003.

Williams, David T., Gusman, A. Jake., and Teal, Martin J., "Proposed Methodology for Floodway Determination Using Unsteady Flow in HEC-RAS," Proceedings, ASFPM Conference, Biloxi, MS, June 23-28, 2003.

Williams, David T., "Headcut Analysis Due to Overbank Sand and Gravel Mining," Proceedings, ASFPM Conference, Phoenix, Arizona, June 24-28, 2002.

Williams, David T., Hu, Henry H., and Stefanovic, Dragoslav, "Sediment Flushing From a Flood Control Channel Outlet Into the Pacific Ocean", Proceedings, EWRI 2002 Conference on Water Resources Planning and Management, Symposium on Managing the Extremes: Floods and Droughts, First Symposium on Environmental and Water Resources Systems Analysis, Roanoke, Virginia, May 19-22, 2002.

Williams, David T., and Doeing, Brian J., "Predicting Bed Scour for Toe Protection Design in Bank Stabilization Projects" Short Course, International Erosion Control Association 33rd Annual Conference and Expo, Orlando, Florida, February 25, 2002.

Williams, David T., Hu, Henry H., Doeing, Brian J., and Phillips, Craig, "Headcut Analysis Due to Overbank Sand and Gravel Mining." Proceedings, Floodplain Management Association 21st Semi-Annual Conference, Lake Tahoe, NV, September 23-26, 2001.

Doeing, Brian J., M. ASCE, and Williams, David T., F. ASCE, "Development, Calibration, Confirmation, Project Production Runs and Sensitivity Analyses of One Dimensional Sediment Transport Models", Proceedings, World Water and Environmental Resources Congress Conference, Orlando, Florida, May 20-24, 2001.

Stefanovic, Dragoslav, Williams, David T., Proceedings, "Two-Dimensional-Vertical Numerical Modeling of Stratified Environments", Proceedings, World Water and Environmental Resources Congress Conference, Orlando, Florida, May 20-24, 2001.

Forman, S.M., Williams, D.T., and Remus II, J.I., "Development of Sampling Design Methodology to Reduce Suspended Sediment Data Collection on the Missouri River", Proceedings, Seventh Federal Interagency Sedimentation Conference, Reno NV, March 25-29, 2001

Williams, David T., Teal, Martin J., and Bradley, Jeffrey B., "Use of GIS and Regional Relationships to Determine Subbasin Sediment Yields for Input to a Sediment Transport Model", Invited paper, Proceedings, ASAE International Symposium, Honolulu, Hawaii, January 3-5, 2001

Williams, David T., and Teal, Martin J., "Between A Rock And A Soft Place: Which Riprap Method Should I Use for My Project?" Proceedings, ASCE and EWRI 2000 Joint

Conference On Water Resources Engineering and Water Resources Planning & Management, Minneapolis, MN, July 30-Aug 2, 2000.

Teal, Martin J., Schulte, Marc A., Williams, David T. and Remus, John I., "Sediment Modeling of Big Bend Reservoir, South Dakota", Proceedings, ASCE and EWRI 2000 Joint Conference On Water Resources Engineering and Water Resources Planning & Management, Minneapolis, MN, July 30-Aug 2, 2000.

Schulte, Marc A., Forman, Selena M., Williams, David T., Mashburn, Glenn, and Vermeeren, Rene, "A Stable Channel Design Approach for the Rio Salado, Salt River, Arizona", Proceedings, ASCE and EWRI 2000 Joint Conference On Water Resources Engineering and Water Resources Planning & Management, Minneapolis, MN, July 30-Aug 2, 2000.

Forman, Selena M., Williams, David T., and Remus, John I., "Development of Methodology to Reduce Suspended Sediment Sample Collection on the Missouri River at Sioux City, Iowa", Proceedings, ASCE and EWRI 2000 Joint Conference On Water Resources Engineering and Water Resources Planning & Management, Minneapolis, MN, July 30-Aug 2, 2000.

Chintala, Ramesh S., Williams, David T., Allen, Peter M., "Channel Response and Sediment Yields in Brookeen Creek, Central Texas", Proceedings of the International Erosion Control Association (IECA) Conference, Palm Springs, California, 2000

Doeing, Brian J. and Williams, David T., "Development, Calibration, Confirmation, Project Production Runs and Sensitivity Analyses of One Dimensional Sediment Transport Models", Proceedings, ASCE and EWRI 2000 Joint Conference On Water Resources Engineering and Water Resources Planning & Management, Minneapolis, MN, July 30-Aug 2, 2000.

Williams, David T., Smith, David S., and Schulte, Marc A., "What Caused the Palm Canyon Drop Structure Problem? Solving a Mystery and Finding Solutions in Palm Springs, California", Proceedings, Association of State Floodplain Managers, Arizona Floodplain Management Association (AFMA), Arid Regions Floodplain Management 8th Biennial Conference, Las Vegas, NV, January 20-22, 1999.

Teal, Martin J., Powell, Nancy; Gomez, Erika; and Williams, David T., "A Conceptual Flood Control Plan for a Complex Channel System Using UNET", Proceedings, ASCE Water Resources Engineering Conference, Memphis, Tennessee, August 2-7, 1998.

Mohammed, Ejaz; Williams, David T.; Crossett-Avila, Catherine; and McBride, Dennis, "HEC-RAS Hydraulic and Scour Analysis of Ten Mile River Bridge Under the Caltrans Seismic Retrofit Program", Proceedings, ASCE Water Resources Engineering Conference, Memphis, Tennessee, August 2-7, 1998.

Williams, David T., Teal, Martin J., and Kumar, Sree, "Overtopping Prevention of the Harrow Debris Basin in Los Angeles County", Proceedings, ASCE Water Resources Engineering Conference, Memphis, Tennessee, August 2-7, 1998.

Williams, David T., and Teal, Martin J., "Design Consideration and Recommendations for Seven Commonly Used Riprap Design Methods", Management of Landscapes Disturbed by Channel Incision, edited by Sam S. Y. Yang, Eddy J. Langendoen, and F. Douglas Shields, Jr., The University of Mississippi, May 19-23, 1997.

Williams, David T., "Commonly Used Computer Programs For Management of Stormwater," Invited Paper, Soil and Water Management for Urban Development Conference, Sydney, New South Wales, Australia, September 9 - 13, 1996.

Teal, Martin J., and Williams, David T., "Selection of Sediment Transport Relations: Part I, Review of Sediment Transport Comparisons," Proceedings, ASCE North American Water and Environmental Congress, Anaheim, California, June 22-28, 1996.

Smith, David S., and Williams, David T., "Selection of Sediment Transport Relations: Part II, Ranges of Dimensional Numbers," Proceedings, ASCE North American Water and Environmental Congress, Anaheim, California, June 22-28, 1996.

Williams, David T., and Julien, Pierre Y., "Selection of Sediment Transport Relations: Part III, Numerical Ranking of Sediment Transport Relations," Proceedings, ASCE North American Water and Environmental Congress, Anaheim, California, June 22-28, 1996.

Williams, David T., "Industry Standards for Erosion Control Products - Future Tools for Civil Engineers," Proceedings, ASCE North American Water and Environmental Congress, Anaheim, California, June 22-28, 1996.

Doering, Brian J., and Williams, David T., "Site Selection for Pipeline Waterway Crossings," Proceedings, ASCE Pipeline Crossings, 1996, Burlington, Vermont, June 16-19, 1996.

Williams, David T., Austin, Deron N., and Thiesen, Marc S., "Erosion Protection of Using Permanent Geosynthetic Reinforcement Matting," Proceedings, Sixth Federal Interagency Sedimentation Conference, Las Vegas, Nevada, March 10-14, 1996.

Williams, David T., "Selection and Predictability of Sand Transport Relations Based upon a Numerical Index," Ph.D. dissertation, Colorado State University, Fort Collins, CO, 1995.

Williams, David T., "River Restoration: Reverse Engineering of the Environment," invited paper for Third Annual Conference on the Management for Urban Development, Sydney, Australia, September 12-15, 1995.

Williams, David T., "The International Erosion Control Association's Committee on Erosion Control Standards," invited paper for Third Annual Conference on the Management for Urban Development, Sydney, Australia, September 12-15, 1995.

Williams, David T. and Austin, Deron N., "PC-Based Design of Channel Protection Using Permanent Geosynthetic Reinforcement Matting," Proceedings, ASCE First International Conference on Water Resources, San Antonio, Texas, August 14-18, 1995.

Bradley, Jeffrey B., and Williams, David T., "Limitations and Applicability of Sediment Transport Modeling in Gravel Bed Streams," Proceedings, ASCE First International Conference on Water Resources, San Antonio, Texas, August 14-18, 1995.

Williams, David T. and Passarelli, Peter, "Equivalencing Rock Riprap and Gabions for Stream Channel Protection," Proceedings, ASCE First International Conference on Water Resources, San Antonio, Texas, August 14-18, 1995.

Teal, Martin J. and Williams, David T., and Grant, Gordon E., "A New Version of XSPRO: A Stream Hydraulic Analysis Computer Program," Proceedings, ASCE First International Conference on Water Resources, San Antonio, Texas, August 14-18, 1995.

Teal, Martin J. and Williams, David T., "Computer Aided Design of Riprap Revetments," Proceedings, ASCE First International Conference on Water Resources, San Antonio, Texas, August 14-18, 1995.

Williams, David T. and Cozacos, David, "Use of HEC-2 and HEC-6 to Determine Levee Heights and Revetment Toe Scour Depths," Proceedings, ASCE Hydraulic Engineering Conference, Buffalo, New York, 1994.

Williams, David T. and Osendorf, Gary R., "Computer Aided Design and Cost Estimation of Gabion Lined Channel," Proceedings, ASCE National Conference on Hydraulic Engineering, July 1993.

Bradley, Jeffrey B. and Williams, David T., "Sediment Budgets in Gravel-Bed Streams," Proceedings, ASCE National Conference on Hydraulic Engineering, July 1993.

Williams, David T., Carreon, Jr., Samuel, Hamilton, Douglas J., and Bradley, Jeffrey B., "Erosion Potential and Scour Depth Assessment of Pipeline Crossings," Proceedings, Arid West Flood Conference, Association of State Floodplain Managers, Las Vegas, Nevada, December 2-4, 1992.

Williams, David T., Carreon, Jr., Samuel and Bradley, Jeffrey B., "Evaluation of Erosion Potential at Pipeline Crossings," Proceedings, ASCE Water Forum, 1992.

Williams, David T., "Sedimentation Problems and Solutions; Roseires Dam and Reservoir, Sudan," Proceedings, ASCE National Conference on Hydraulic Engineering, Nashville, Tennessee, July 1991.

Bradley, Jeffrey B., Williams, David T. and Barclay, Michael, "Incipient Motion Criteria Defining 'Safe' Zones for Salmon Spawning Habitat," Proceedings, ASCE National Conference on Hydraulic Engineering, Nashville, Tennessee, July 1991.

Stoker, Bruce and Williams, David T., "Dam Removal Methods for Lake Mills and Lake Aldwell Dams, Elwha River, Washington," Proceedings, ASCE National Conference on Hydraulic Engineering, Nashville, Tennessee, July 1991.

Williams, David T., and Bradley, Jeffrey B., "Use of 2-D Hydrodynamic and 1-D Sediment Models to Estimate Dredging Requirements," presented at the Western Dredging Association (WEDA) Annual Conference, Las Vegas, Nevada, May 1991.

Williams, David T., "Ocean Disposal of Dredged Material: Plume Analysis," Proceedings, Fifth Federal Interagency Sedimentation Conference, Las Vegas, Nevada, March 1991.

Thompson, James C., Williams, David T. and Bradley, Jeffrey B., "Integration of 2-D Hydrodynamic and 1-D Sediment Transport Models," Proceedings, Fifth Federal Interagency Sedimentation Conference, Las Vegas, Nevada, March 1991.

MacArthur, Robert C., Williams, David T., and Thomas, W.A., "Status and New Capabilities of Computer Program HEC-6: Scour and Deposition in Rivers and Reservoirs," Proceedings, ASCE National Hydraulics Conference, San Diego, Calif., August 1990.

Williams, David T. and Bradley, Jeffrey B., "The Sediment Histogram Generator and Estimation of Sediment Transport Trends," Proceedings, ASCE National Hydraulics Conference, San Diego, California, August 1990.

Williams, David T., "The Relationship of Milligrams per Liter to Parts per Million," Proceedings, ASCE Hydraulics Conference, New Orleans, Louisiana, August 1989.

Williams, David T., "Purpose and Activities of the Task Committee on Analysis of Laboratory and Field Sediment Data Accuracy and Availability," Proceedings, ASCE Hydraulics Conference, New Orleans, Louisiana, August 1989.

Williams, David T. "U.S. Army Corps of Engineers Sedimentation Engineering, D. Reservoir Sedimentation," Proceedings, ASCE Hydraulics Conference, Colorado Springs, Colorado, August 1988.

Mulvihill, Michael E., Hashtak, John M., Williams, David T. and Holand, Eric, "Computer Aided Hydraulic Design of Open Channels," Proceedings, ASCE Hydraulics Conference, Colorado Springs, Colorado, August 1988.

Williams, David T. and Julien, Pierre Y., "On the Selection of Sediment Transport Equations," Proceedings, ASCE National Conference on Hydraulic Engineering, Williamsburg, Virginia, August 3-7, 1987.

Williams, David T. "Sedimentation Study for Rochester, Minnesota, Flood Control Project," Proceedings, ASCE Hydraulics Specialty Conference, Coeur d'Alene, Idaho, August 14-17, 1984.

Williams, David T., et. al., "Determination of Light Extinction Coefficients in Lakes and Reservoirs," Proceedings, ASCE Symposium on Surface Water Impoundments, Minnesota, June 2-5, 1980.

Dyhouse, Gary R. and Williams, David T., "Case Study of Stream Deposition and Changing Land Use," Proceedings, ASCE Symposium on Watershed Management, Idaho, 1980

Selected Reports, Manuals, Journal Papers and Articles

Forman, S.M., Teal, M.J., Williams, D.T., Kreymborg, L.R., and Burnett, C.M., "Use of GIS Geo-Based Programs and Computer Models for Watershed and Site Analyses", Erosion Control Magazine, September/October, 2000.

Forman, Selena M., Williams, David T., and Thomas, Iwan M., "Use of GIS, Geo-Based Programs and Computer Models for Watershed and Site Analyses", Erosion Control Magazine, July/August 2000.

Doeing, Brian J., Jeffrey B. Bradley, and David T. Williams, "Gas Pipeline Erosion Failures: January 1993 Floods, Gila River Basin, Arizona," in Reviews in Engineering Geology, Vol. XI, "Storm-Induced Geologic Hazards: Case Histories from the 1992-1993 Winter in Southern California and Arizona", ed. R. A. Larson and J. E. Slosson, 1997.

Williams, David T., "EC-Design, Erosion Control Design Package," prepared for Synthetic Industries, Chattanooga, Tennessee, 1995.

Williams, David T. and Teal, Martin J., "Riprap Design System, User's Manual," WEST Consultants, Inc., Carlsbad, California, 1994.

Williams, David T., "Computer Program for Gabion Designers is a Keeper," Civil Engineering News, Volume 4, No. 10, November 1992.

"Hydraulic and Erosion Potential Analysis of Berry Homes Property Near the Santa Ana River," prepared for Berry Homes, Santa Ana, California, January 1992.

"Erosion Potential and Evaluation of the Salt River Stream Crossing Near 93rd Avenue, Phoenix, Arizona," prepared for El Paso Natural Gas Company, El Paso, Texas, July 29, 1992.

"Erosion Potential and Evaluation of the Salt River Stream Crossing Near Cotton Lane, Phoenix, Arizona, prepared for El Paso Natural Gas Company, El Paso, Texas, July 24, 1992.

"Tia Juana River Valley Surface and Groundwater Budget Analysis," prepared for the California Coastal Conservancy, Oakland, California, 1992.

Williams, David T., and Julien, Pierre Y., "Examination of Stage-Discharge Relationships of Compound/Composite Channels," Channel Flow Resistance: Centennial of Manning's Formula, Water Resources Publications, Colorado, 1991.

"Erosion Potential Evaluation of Gila River Stream Crossing Below Gillespie Dam", El Paso Natural Gas Co., El Paso, Texas, November 1991.

"Phase I and II - Detailed Analysis Evaluation of Erosion Potential of Stream Crossings, San Juan Mainline and San Juan Triangle Pipeline Expansion", El Paso Natural Gas Co., El Paso, Texas, July 1991.

Williams, David T., and MacArthur, Robert C., "HEC-6 Users Manual," Hydrologic Engineering Center, Davis, California, July 1991.

"Hydrologic and Hydraulic Report, Buena Vista Creek Enhancement Design," prepared for the City of Vista, California, August 1990.

"Report on Zink Dam Sedimentation Problems," Tulsa River Parks Authority, January 1990.

Beverage, Joseph, and Williams, David T., "Comparison: US P-61 and Delft Bottle Sediment," Journal of Hydraulic Engineering, ASCE, Vol. 115, No. 12, 1989.

Williams, David T. and Julien, Pierre Y., "Applicability Index for Sand Transport Equations," Journal of Hydraulic Engineering, ASCE, Vol. 115, No. 11, Nov., 1989.

Williams, David T., "Levee Design Profiles for the Williamson, West Virginia, Flood Protection Project," Miscellaneous Paper HL-88-4, USAE Waterways Experiment Station, Vicksburg, Mississippi, June 1988.

"Report on Sedimentation Problems in Sudan", Ministry of Irrigation, Government of Sudan, December 1988.

U.S. Army Corps of Engineers. "Chapter 5, Reservoir Sedimentation," Sedimentation Manual, EM 1110-2-4000, Office of the Chief of Engineers, Washington, D.C., 1988.

Williams, David T. "Examination of Sediment Exclusion and Ejection Aspects of the Ikdir, Turkey Irrigation Project," Prepared for the World Bank, USAE Waterways Experiment Station, Vicksburg, Mississippi, 1987.

Williams, David T., Ingram, John J., and Thomas, William A., "St. Lucie Canal and Estuary Sedimentation Study; Mathematical Model Investigation," Miscellaneous Paper HL-86-4, USAE Waterways Experiment Station, Vicksburg, Mississippi, 1986.

Williams, David T. "Considerations in the Selection of Transport Equations in Sediment Modeling," Essays on River Mechanics, Report CER 85-86, PYJ28, Civil Engineering Department, Colorado State University, Fort Collins, 1986.

"Assessment of the Sedimentation Characteristics of a Sediment Retention Structure at the Green River Site, North Fork Toutle River, Washington", Letter Report, USAE Waterways Experiment Station, Vicksburg, Mississippi, 1985.

Williams, David T. "Tampa Bay Dredged Material Disposal Site Analysis," Miscellaneous Paper HL-83-8, USAE Waterways Experiment Station, Vicksburg, Mississippi, October 1983.

Williams, David T. "Sedimentation Study for Rochester, Minnesota, Flood Control Project," Miscellaneous Paper HL-83-7, USAE Waterways Experiment Station, Vicksburg, Mississippi, October 1983.

Williams, David T. "Effects of Dam Removal: An Approach to Sedimentation," Technical Paper 50, Hydrologic Engineering Center, October 1977

Honors and Awards

Small Business Person of the Year, Chamber of Commerce, Carlsbad, California, 1993

Fellow, American Society of Civil Engineers

Diplomate, American Academy of Water Resources Engineers

U.S. Army Commendation Medal

U.S. Army Commendation Medal with Oak Leaf Cluster

THE NATIONAL ACADEMIES
Advisers to the Nation on Science, Engineering, and Medicine

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**BACKGROUND INFORMATION
AND
CONFIDENTIAL CONFLICT OF INTEREST DISCLOSURE**
*For General Scientific and Technical Studies and Assistance
Three Rivers Levee Improvement Authority (TRLIA)
Board of Senior Consultants
for the
Upper Yuba Levee Improvement Project*

NAME: David T. Williams TELEPHONE: 619-823-4778

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Fort Collins, CO 80525

EMAIL ADDRESS: david@dtwassoc.com

CURRENT EMPLOYER: David T. Williams and Associates, Engineers,
LLC

NAS/NAE/IOM/NRC COMMITTEE: _____

There are two parts to this form, Part I Background Information, and Part II Confidential Conflict of Interest Disclosure. Complete both parts, **sign** and **date** this form on the last page, and return the form to the responsible staff officer for *The National Academies* project and committee activity to which this form applies. **Retain a copy for your records.**

PART I

BACKGROUND INFORMATION

INSTRUCTIONS

Please provide the information requested below regarding **relevant** organizational affiliations, government service, public statements and positions, research support, and additional information (if any). Information is "relevant" if it is related to -- and might reasonably be of interest to others concerning -- your knowledge, experience, and personal perspectives regarding the subject matter and issues to be addressed by the committee activity for which this form is being prepared. **If some or all of the requested information is contained in your curriculum vitae, you may if you prefer simply attach your CV to this form, supplemented by additional responses or comments below as necessary.**

I. ORGANIZATIONAL AFFILIATIONS. Report your relevant business relationships (as an employee, owner, officer, director, consultant, etc.) and your relevant remunerated or volunteer non-business relationships (e.g., professional organizations, trade associations, public interest or civic groups, etc.).

See attached resume.

II. GOVERNMENT SERVICE. Report your relevant service (full-time or part-time) with federal, state, or local government in the United States (including elected or appointed positions, employment, advisory board memberships, military service, etc.).

See attached resume.

III. RESEARCH SUPPORT. Report relevant information regarding both public and private sources of research support (other than your present employer), including sources of funding, equipment, facilities, etc.

No research support.

IV. PUBLIC STATEMENTS AND POSITIONS. List your relevant articles, testimony, speeches, etc., by date, title, and publication (if any) in which they appeared, or provide relevant representative examples if numerous. Provide a brief description of relevant positions of any organizations or groups with which you are closely identified or associated.

See attached resume.

V. ADDITIONAL INFORMATION. If there are relevant aspects of your background or present circumstances not addressed above that might reasonably be construed by others as affecting your judgment in matters within the assigned task of the committee or panel on which you have been invited to serve, and therefore might constitute an actual or potential source of bias, please describe them briefly.

All information has been provided

PART II CONFIDENTIAL CONFLICT OF INTEREST DISCLOSURE

INSTRUCTIONS

It is essential that the work of committees of the institution used in the development of reports not be compromised by any significant conflict of interest. For this purpose, **the term "conflict of interest" means any financial or other interest which conflicts with the service of the individual because it (1) could significantly impair the individual's objectivity or (2) could create an unfair competitive advantage for any person or organization.** Except for those situations in which the institution determines that a conflict of interest is unavoidable and promptly and publicly discloses the conflict of interest, no individual can be appointed to serve (or continue to serve) on a committee of the institution used in the development of reports if the individual has a conflict of interest that is relevant to the functions to be performed.

The term "conflict of interest" means something more than individual bias. There must be an *interest*, ordinarily financial, that could be directly affected by the work of the committee.

Conflict of interest requirements are *objective* and *prophylactic*. They are not an assessment of one's actual behavior or character, one's ability to act objectively despite the conflicting interest, or one's relative insensitivity to particular dollar amounts of specific assets because of one's personal wealth. Conflict of interest requirements are objective standards designed to eliminate certain specific, potentially compromising situations from arising, and thereby to protect the individual, the other members of the committee, the institution, and the public interest. The individual, the committee, and the institution should not be placed in a situation where others could reasonably question, and perhaps discount or dismiss, the work of the committee simply because of the existence of conflicting interests.

The term "conflict of interest" applies only to *current interests*. It does not apply to past interests that have expired, no longer exist, and cannot reasonably affect current behavior. Nor does it apply to possible interests that may arise in the future but do not currently exist, because such future interests are inherently speculative and uncertain. For example, a pending formal or informal application for a particular job is a current interest, but the mere possibility that one might apply for such a job in the future is not a current interest.

The term "conflict of interest" applies not only to the personal interests of the individual but also to the *interests of others* with whom the individual has substantial common financial interests if these interests are relevant to the functions to be performed. Thus, in assessing an individual's potential conflicts of interest, consideration must be given not only to the interests of the individual but also to the interests of the individual's spouse and minor children, the individual's employer, the individual's business partners, and others with whom the individual has substantial common financial interests. Consideration must also be given to the interests of those for whom one is acting in a fiduciary or similar capacity (e.g., being an officer or director of a corporation, whether profit or nonprofit, or serving as a trustee).

Much of the work of this institution involves scientific and technical studies and assistance for sponsors across a broad range of activities. Such activities may include, for example: defining research needs, priorities, opportunities and agendas; assessing technology development issues and opportunities; addressing questions of human health promotion and assessment; providing scientific and technical assistance and supporting services for government agency program development; assessing the state of scientific or technical knowledge on particular subjects and in particular fields; providing international and foreign country science and technology assessments, studies and assistance. Such activities frequently address scientific, technical, and policy issues that are sufficiently broad in scope that they do not implicate specific financial interests or conflict of interest concerns.

However, where such activities address more specific issues having significant financial implications -- e.g., funding telescope A versus telescope B, government development or evaluation of a specific proprietary technology, promotion or endorsement of a specific form of medical treatment or medical device, connecting foreign research facilities to specific commercial interests, making recommendations to sponsors regarding specific contract or grant awards, etc. -- careful consideration must be given to possible conflict of interest issues with respect to the appointment of members of committees that will be used by the institution in the development of reports to be provided by the institution to sponsoring agencies.

The overriding objective of the conflict of interest inquiry in each case is to identify whether there are interests -- primarily financial in nature -- that conflict with the committee service of the individual because they could impair the individual's objectivity or could create an unfair competitive advantage for any person or organization. The fundamental question in each case is does the individual, or others with whom the individual has substantial common financial interests, have identifiable interests that could be directly affected by the outcome of the project activities of the committee on which the individual has been invited to serve? For projects involving advice regarding awards of contracts, grants, fellowships, etc., this institution is also guided by the principle that an individual should not participate in any decision regarding the award of a contract or grant or any other substantial economic benefit to the individual or to others with whom the individual has substantial common financial interests or a substantial personal or professional relationship.

The application of these concepts to specific scientific and technical studies and assistance projects must necessarily be addressed in each case on the basis of the particular facts and circumstances involved. The questions set forth below are designed to elicit information from you concerning possible conflicts of interest that are relevant to the functions to be performed by the particular committee on which you have been invited to serve.

1. FINANCIAL INTERESTS. (a) Taking into account stocks, bonds, and other financial instruments and investments including partnerships (but excluding broadly diversified mutual funds and any investment or financial interests valued at less than

\$10,000), do you or, to the best of your knowledge others with whom you have substantial common financial interests, have financial investments that could be affected, either directly or by a direct effect on the business enterprise or activities underlying the investments, by the outcome of the project activities of the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** on which you have been invited to serve?

(b) Taking into account real estate and other tangible property interests, as well as intellectual property (patents, copyrights, etc.) interests, do you or, to the best of your knowledge others with whom you have substantial common financial interests, have property interests that could be directly affected by the outcome of the project activities of the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** on which you have been invited to serve?

(c) Could your employment or self-employment (or the employment or self-employment of your spouse), or the financial interests of your employer or clients (or the financial interests of your spouse's employer or clients) be directly affected by the outcome of the project activities of the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** on which you have been invited to serve?

(d) Taking into account research funding and other research support (e.g., equipment, facilities, industry partnerships, research assistants and other research personnel, etc.), could your current research funding and support (or that of your close research colleagues and collaborators) be directly affected by the outcome of the project activities of the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** on which you have been invited to serve?

(e) Could your service on the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** on which you have been invited to serve create a specific financial or commercial competitive advantage for you or others with whom you have substantial common financial interests?

If the answer to all of the above questions under FINANCIAL INTERESTS is either "no" or "not applicable," check here X (NO).

If the answer to any of the above questions under FINANCIAL INTERESTS is "yes," check here (YES), and briefly describe the circumstances on the last page of this form.

2. OTHER INTERESTS. (a) Is the central purpose of the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** for which this disclosure form is being prepared a critical review and evaluation of your own work or that of your employer?

(b) Do you have any existing professional obligations (e.g., as an officer of a scientific or engineering society) that effectively require you to publicly defend a previously established position on an issue that is relevant to the functions to be performed in the

TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project activity?

(c) To the best of your knowledge, will your participation in the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** activity enable you to obtain access to a competitor's or potential competitor's confidential proprietary information?

(d) If you are or have ever been a U.S. Government employee (either civilian or military), to the best of your knowledge are there any federal conflict of interest restrictions that may be applicable to your service in connection with the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** activity?

(e) If you are a U.S. Government employee, are you currently employed by a federal agency that is sponsoring the **Upper Yuba Levee Improvement Project**? If you are not a U.S. Government employee, are you an employee of any other sponsor (e.g., a private foundation) of the **Upper Yuba Levee Improvement Project**?

(f) If the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** activity for which this form is being prepared involves reviews of specific applications and proposals for contract, grant, fellowship, etc. awards to be made by sponsors, do you or others with whom you have substantial common financial interests, or a familial or substantial professional relationship, have an interest in receiving or being considered for awards that are currently the subject of the review being conducted by the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project**?

(g) If the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** activity for which this form is being prepared involves developing requests for proposals, work statements, and/or specifications, etc., are you interested in seeking an award under the **Upper Yuba Levee Improvement Project** for which the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** on which you have been invited to serve is developing the request for proposals, work statement, and/or specifications -- or, are you employed in any capacity by, or do you have a financial interest in or other economic relationship with, any person or organization that to the best of your knowledge is interested in seeking an award under this program?

If the answer to all of the above questions under OTHER INTERESTS is either "no" or "not applicable," check here (NO).

If the answer to any of the above questions under OTHER INTERESTS is "yes," check here (YES), and briefly describe the circumstances on the last page of this form.

EXPLANATION OF "YES" RESPONSES:

*During your period of service in connection with the **TRLIA Board of Senior Consultants for the Upper Yuba Levee Improvement Project** for which this form is being completed, any changes in the information reported, or any new information, which needs to be reported, should be reported promptly by written or electronic communication to the responsible staff officer.*

Paul T. Walker

September 14, 2009

YOUR SIGNATURE

DATE

Reviewed by:

Paul M. Brunner

Paul Brunner
Executive Director TRLIA

9-17-09

Date