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Professional Experience

- Senior Engineer, Metropolitan Water District of S. Cal, Sacramento, June 2002 to present.
- Supervising Engineer, Calif. Dept. of Water Resources, Sacramento, July 1997 to June 2002.
- Senior Engineer, Calif. Dept. of Water Resources, Sacramento, May 1994 to July 1997.
- Associate Engineer, Calif. Dept. of Water Resources, Sacramento, Aug. 1990 to May 1994.
- Engineer, Pacific Gas and Electric, Sacramento, Oct. 1989 to Aug. 1990.
- Project Engineer, Los Angeles County Sanitation Districts, Feb. 1986 to July 1989.
- Associate Engineer, Montgomery-Watson Engineers, Pasadena, Oct. 1984 to Feb. 1986.

Education

- Ph.D., Civil and Environ. Engineering, University of California, Davis (Dec. 1994)
- M.S., Environ. Engineering, Deuchler Fellow, University of Illinois, Urbana, (Jan. 1985)
- B.S., Civil Engineering, Highest Honors, University of Illinois, Urbana (May 1983)

Management Development

- U.S. Executive Development Seminar, Denver (Feb. 2000)
- U.C. Davis Management Development Program (Nov. 1998)

Honors and Professional Affiliations

- California Water & Environmental Modeling Forum, Hugo B. Fischer Award, 2006.
- Metropolitan Water District, Innovation/Creativity Award, 2006.
- Metropolitan Water District, Leadership Award, 2006.
- Calif. Dept. of Water Resources, Meritorious Service Award, 1999.
- CALFED, Draft PEIS/EIR Superior Accomplishment Team Award, 1999.
- Calif. Dept. of Water Resources, DSM2 Development Team Unit Citation, 1998.
- ASCE Water Resources Plng. and Mgmt. Div. Outstanding Journal Paper Award, 1994.
- Calif. Dept. of Water Resources, Outstanding Professional Accomplishment Award, 1994.
- Calif. Professional Engineer Registration #C040795.

References

available upon request

Refereed Publications

- Hutton, P.H. and Chung, F.I. (1992). "Simulating THM Formation Potential in Sacramento Delta: Part I." *J. Water Resour. Plng. Mgmt.*, ASCE, 118(5), 513-529.
- Hutton, P.H. and Chung, F.I. (1992). "Simulating THM Formation Potential in Sacramento Delta: Part II." *J. Water Resour. Plng. Mgmt.*, ASCE, 118(5), 530-542.
- Hutton, P.H. and Chung, F.I. (1994). "Bromine Distribution Factors in THM Formation." *J. Water Resour. Plng. Mgmt.*, ASCE, 120(1), 1-16.
- Hutton, P.H. and Chung, F.I. (1994). "Correlating Trihalomethane Data." *J. Environ. Eng.*, ASCE, 120(1), 219-241.

Other Publications and Conference Presentations

- "Application of SANMAN: A San Joaquin River Salinity Management Spreadsheet Model", presented at the Calif. Water & Environmental Modeling Forum Annual Meeting, Pacific Grove, Calif., Mar. 2005.
- *CALFED Bay-Delta Program Programmatic EIS/EIR* (1999). June Draft
- *Calif. Water Plan Update, Bulletin 160-98*. (1998). Calif. Dept. of Water Resources, Sacramento.
- "Delta and Aqueduct Taste and Odor Precursors: Modeling Status", presented at the California Water and Environmental Modeling Forum Workshop on Overview of Delta Nutrient Water Quality Problems: Nutrient Load – Water Quality Impact Modeling, Sacramento, Calif., Mar. 2008.
- "Delta Island Consumptive Use Model", presented at the Annual Interagency Ecological Program Workshop & Bay-Delta Modeling Forum, Pacific Grove, Calif., Mar. 1995.
- "Delta Island Diversions and Returns", presented at the Bay-Delta Modeling Forum Workshop on Delta Modeling for End Users, Sausalito, Calif., Nov. 1995.
- "DWR's Delta Model on DBP Precursors", presented at the American Water Works Association Calif.-Nevada Section Spring Conference, San Jose, Calif., Apr. 1992.
- Enright, C., Hutton, P.H. and Chung, F.I. (1996). "Transport of Dormant Spray Pesticides in the San Francisco Bay-Delta." *Proceedings 1996 North American Water and Environment Congress*, ASCE, Anaheim, Calif., C.T. Bathala, Ed.
- Enright, C., Mahadevan, N. and Hutton, P.H. (1996). "Simulation of Dormant Spray Pesticide and Dissolved Organic Carbon Transport During 1993." *IEP Newsletter*, Interagency Ecological Program for the Sacramento-San Joaquin Estuary, 8(2), 27-31.
- "Estimating Combined Old and Middle River Flow", presented at the Calif. Water & Environmental Modeling Forum Annual Meeting, Pacific Grove, Calif., Feb. 2008.
- *Estimation of Delta Island Diversions and Return Flows* (1995). Calif. Dept. of Water Resources, Division of Planning, Sacramento, Calif., Feb.
- Hutton, P.H. and Enright, C. (1993). "Simulating THM Precursors Transport with DWRDSM." *Proceedings 1993 Hydraulic Div. National Conf.*, ASCE, San Francisco, Calif., H.W. Shen, Ed. 821-826.
- Hutton, P.H. , Sandhu, N. and Chung, F.I. (1996). "Predicting THM Formation with Artificial Neural Networks." *Proceedings 1996 North American Water and Environment Congress*, ASCE,

Anaheim, Calif., C.T. Bathala, Ed.

- Hutton, P.H., Mahadevan, N. and Chung, F.I. (1996). "Simulating DBP Precursor Transport in Sacramento Delta." *Proceedings 1996 North American Water and Environment Congress*, ASCE, C.T. Bathala, Ed.
- "Life After Bulletin 160-98: Ongoing DWR Statewide Planning Program Elements", presented at the Bay-Delta Modeling Forum Workshop on Approaches and Problems for Long-Term Regional Water Planning, Sacramento, Calif., Feb. 1999.
- "Metropolitan's Evaluation of the 2003 Colorado River Contingency Transfer", presented at the Calif. Water & Environmental Modeling Forum Annual Meeting, Pacific Grove, Calif., Feb. 2003.
- "Metropolitan's Policy Principles on Long-Term Delta Actions", presented at the Bay Planning Coalition's 19th Annual Decisionmakers Conference, Oakland, Calif., Mar. 2006.
- "Metropolitan's 2003 Colorado River Contingency Transfer in Retrospect", presented at the Calif. Water & Environmental Modeling Forum Annual Meeting, Pacific Grove, Calif., Feb. 2004.
- "Modeling of Delta Standards Using ANN Approach in the Joint CALSIM Model", presented at the Annual Interagency Ecological Program Workshop & Bay-Delta Modeling Forum, Pacific Grove, Calif., Feb. 2001.
- "Neural Networks and THM Prediction", presented at the Bay-Delta Modeling Forum Workshop on Drinking Water Quality, Sacramento, Calif., Oct. 1995.
- *Representative Delta Island Return Flow Quality for Use in DSM2*. (1995). Calif. Dept. of Water Resources, Division of Planning, Modeling Support Branch, Sacramento, Calif.
- "San Joaquin River Salinity Management Model, SANMAN", presented at the Calif. Water & Environmental Modeling Forum Technical Workshop on San Joaquin River Valley Modeling, Sacramento, Calif., Nov. 2005.
- "SANMAN: Decision Support for the DIP's San Joaquin River Salinity Management Plan", presented at the Calif. Water & Environmental Modeling Forum Annual Meeting, Pacific Grove, Calif., Mar. 2005.
- "Simulating DBP Precursor Transport", presented at the Bay-Delta Modeling Forum Workshop on Drinking Water Quality, Sacramento, Calif., Oct. 1995.
- *Trihalomethane Formation Potential in the Sacramento-San Joaquin Delta: Mathematical Model Development*. (1991). Calif. Dept. of Water Resources, Division of Planning, Sacramento, Calif.
- "Validation of DSM2 Volumetric Fingerprints Using Grab Sample Mineral Data", presented at the Calif. Water & Environmental Modeling Forum Annual Meeting, Pacific Grove, Calif., Mar. 2006.

***** missing reference for IEP newsletter on THM modeling ****

Detailed Professional Experience

- Senior Engineer, Metropolitan Water District of Southern California, Sacramento

Provide specialized technical support to multi-disciplinary, in-house teams for strategic negotiations and lawsuits related to the Bay-Delta and State Water Project. Evaluate alternative approaches and costs to improve water quality and supply reliability, monitor and work with state and federal agencies to implement operational changes to existing facilities and solutions identified in the CALFED Bay-Delta Program. Provide leadership to technical teams of water users in developing and evaluating solutions. Represent Metropolitan in public processes concerning the Bay-Delta and State Water Project.

- Supervising Engineer, Calif. Dept. of Water Resources, Sacramento

Delta Modeling Section – As the program manager, directed a staff of 17 engineers in the development and application of Delta water quality, hydrodynamic and biological models. The staff provides program support to a number of Department and non-Department clients, including: SWP Planning, Planning and Local Assistance, Operation and Maintenance, Flood Management, CALFED, SWRCB, and the Interagency Ecological Program. Lead the multi-disciplinary ISI In-Delta Storage Water Quality Investigations Team. Participated in a multi-agency work team tasked to develop a carriage water estimate for the SWRCB. Acted as the Department representative on the Bay-Delta Modeling Forum Steering Committee.

CALFED Bay-Delta Program, Drinking Water Quality Branch -- As the program manager, directed a multi-disciplinary Branch staff, CALFED consultants, and three multi-agency stakeholder work groups in developing actions and studies for implementing CALFED's Drinking Water Quality Improvement Strategy. Provided Program support to the Delta Drinking Water Council, a Bay-Delta Advisory Council (BDAC) subcommittee. Cooperated with policy-level agency and stakeholder staff on drinking water quality issues. Represented CALFED at public meetings.

CALFED Bay-Delta Program, Water Management Planning Branch -- Directed a team of six staff engineers and CALFED consultants in planning activities for CALFED's water management strategy, including system, engineering and economic analysis. Managed technical support, text development, and response to public comments for the program's programmatic EIS/EIR. Coordinated a multi-disciplinary effort with CALFED agencies and stakeholders to evaluate (through systems modeling and operation studies) potential drinking water quality improvements through the construction of new facilities and re-operation of existing facilities.

Statewide Planning Branch -- As the program manager for the Department's Statewide Planning Program, provided direct supervision for five senior engineers, provided direction to other Department staff that participate in the Program, and oversaw a \$3.5 million annual budget. Coordinated with management staff of key federal, State and local agencies to develop and implement Department policies related to the California Water Plan Update. Coordinated the development of Bulletin 160-98 with Program participants and outside agencies, including development of statewide water budgets and economic analysis of regional water management options. Conducted public meetings and incorporated public comments into the final document. Represented the Department, made presentations at various public meetings, and provided water demand and supply information to the public.

- Senior Engineer, Modeling Support Branch, Calif. Dept. of Water Resources, Sacramento

Hydrology & Operations Section – Directed a team of five engineers in the application of DWRSIM to evaluate State Water Project and Central Valley Project operations under a variety of facility planning and water right scenarios. Designed planning scenarios through interaction with program managers and other State and Federal agencies, including the SWRCB.

Delta Modeling Section – Directed a team of four engineers in the development and application of Delta water quality, hydrodynamic and biological models. Provided technical advice and modeling services to the Department's Municipal Water Quality Investigations Program. Represented the Department in the Bay-Delta Modeling Forum. Specific activities included: (i) development of a new one-dimensional finite difference hydrodynamics and water quality model of the Delta (DSM2), (ii) enhancement of the Delta Island Consumptive Use (DICU) model, (iii) application of the Particle Tracking Model to study fate and movement of biological resources under various Bay-Delta management alternatives, and (iv) application of artificial neural network technology to disinfection by-product formation prediction.

- Associate Engineer, Modeling Support Branch, Calif. Dept. of Water Resources, Sacramento

Developed an approach to evaluate disinfection by-product formation precursor transport in the Delta using DSM1. Developed a model to predict trihalomethane formation and speciation as a function of precursor transport and assumed water treatment conditions. Applied DSM1 to evaluate Delta hydrodynamics and water quality under a variety of planning scenarios. Provided technical advice and modeling services to the Department's Municipal Water Quality Investigations Program.

- Engineer, Pacific Gas & Electric, Sacramento Region

On contract, evaluated existing natural gas distribution facilities. Forecasted utility demands and made recommendations for facility expansions. Prepared reports and supervised the work of student assistants.

- Project Engineer, Los Angeles County Sanitation Districts

Performed duties of assistant resident engineer on the construction and start-up of a \$60 million wastewater sludge dehydration, combustion and energy recovery facility in Carson, Calif. Acted as liaison between Districts and City of Los Angeles in administering multi-million dollar wastewater disposal contracts for services in the City's regional system, representing the Districts in various public forums. Developed user fee rates.

- Associate Engineer, MWH Engineers (formerly JMM), Pasadena

Designed and supervised the sampling of industrial wastewaters from a large Midwest defense contractor, using the results to select and size appropriate treatment process trains. Designed sludge thickener for an industrial client. Assisted in the development of facility plans for wastewater sludge disposal and wastewater collection. Assisted in the preparation of proposals for potential studies and design projects.