Serving Stewards of Western Water since 1993

LINDSAY J. HALL

Project Engineer/Information Systems Specialist

Education

B.S., Agricultural Engineering, University of Arizona, Tucson, AZ.

Professional Registrations

California Engineer in Training, Certificate (No. 116719)

Summary

Ms. Hall has eight years of agricultural engineering experience at Davids Engineering since graduating from the University of Arizona in 2002. Her technical specialties include hydraulic modeling of agricultural water systems, crop water use modeling, land use analysis, database analysis and design, root zone modeling, and water balance analysis.

Selected Experience

Biggs-West Gridley Water District
Gray Lodge Water Supply Project

For Biggs-West Gridley Water District, Ms. Hall provided technical support in a number of areas for a critical review of the Gray Lodge Refuge Water District Design Data Report and Seepage Investigation. This included a thorough review of the project data collection plan focusing on data quality control and site calibration. She also performed an independent analysis of historical flows and system capacity, which served as the basis for evaluate proposed design flows. Ms. Hall compiled and reviewed Reclamation's earthen canal design criteria that were used to evaluate the proposed minimum velocity, maximum velocity and canal controllability design criteria. Ms. Hall provided HEC-RAS hydraulic modeling support focusing on review of the model developed by Reclamation's technical contractor, including review of design flow rates, Manning's n (roughness) values, water level set points, boundary conditions, backwater effects, canal velocities, and gate openings.

Yolo County Flood Control and Water Conservation District
China Slough Capacity Expansion

For Yolo County, Ms. Hall provided HEC-RAS modeling support for a potential 125 cfs capacity enlargement of the China Slough ditch. She realigned and merged individual canal geometry files into one model and applied the consolidated model to assess alternative canal cross-section modifications throughout the system targeted water surface elevations and to calculate earthwork quantities.

Dunnigan Water District
Groundwater Management Investigation
Ms. Hall served as project engineer on an investigation of groundwater conditions and conjunctive water management opportunities in the Dunnigan area for the Dunnigan Water District (DWD). Her work included compilation and analysis, including well logs, pumping data and historical groundwater levels and conjunctive operations analyses to account for projected increases in demands and to test whether continuation of existing practices would be sustainable. The fundamental conclusion of this work was that if substantial urban growth occurs and is supported by groundwater only and urban wastewater is not recycled, groundwater supplies would be overdrafted. Overdraft could be avoided, however, by using surface water to meet urban demands or recycling treated wastewater for irrigation purposes.

Oakdale Irrigation District
Water Measurement Program Design
For Oakdale Irrigation District (OID), Ms Hall provided support on a Water Measurement Program Design Project that examined boundary outflows at OID using the following two perspectives: Development of a comprehensive District water balance to determine the magnitude and temporal distribution of outflows across the District's boundaries; and Inspection and assessment of 17 candidate measurement sites located on channels or piped laterals that convey drainage flows and spillage from OID. Information from this inspection program was used to design a measurement program capable of producing reliable, reasonably comprehensive data on boundary flows at key locations in the District. Data from these sites will be used to determine how best to manage flows on individual conveyances and, in aggregate, how best to manage boundary flows as a resource.

Imperial Irrigation District
Efficiency Conservation Definite Plan and Efficiency Conservation Program
For Imperial Irrigation District (IID), Ms. Hall has provided Oracle SQL programming support for developing improvements to the Water Information System (WIS). The improvements include: Flow measurement quality control procedure that checks all data values prior to computation of flow and identifies and corrects large changes in levels that occasionally occur for duration of one or two 15-minute readings. Seepage recovery pumps quality control and daily saving estimation procedures. Programming for automatic or semi-automatic update of district-wide monthly water balance analysis and programming in support of a main canal decision support system.

Glenn Colusa Irrigation District
Resource Plan Water Supply and Water Transfer Element
For Glenn-Colusa Irrigation District (GCID), Orland-Artois Water District (OAWD) and the Orland Unit Water Users' Association (OUWUA), Ms. Hall worked on an investigation for development of a sustainable, regional conjunctive use program in order to improve water management efficiency for local and state needs. Ms. Hall main responsibilities involved developing both historical and future land use and cropping patterns, rootzone modeling, and surface water balance analyses in support of project alternative formulations.

Turlock Irrigation District
Turlock Irrigation District Water Management Plan 5-year Update
For Turlock Irrigation District (TID), Ms. Hall was involved in their Water Management Plan Update, Phase 1: Monthly Water Balance Update. This includes the development of cropping pattern based on

the District's delivery database. The development of tile drainage flows and private pumping utilizing flow data or energy consumption data, and running a root zone water balance model developed to provide specific information on flow paths in the root zone of irrigated lands including: effective precipitation; consumptive use of precipitation; consumptive use of applied water; evaporation of precipitation; evaporation of applied water; deep percolation of precipitation; deep percolation of applied water; uncollected surface runoff of precipitation, and uncollected surface runoff of applied water. Data from the above described analyses was be loaded into a database and the monthly water balance was updated. Ms. Hall is currently working on automating the water balance update process within an access database utilizing visual basic programming.

Professional Organizations

American Society of Agricultural Engineers
U.S. Committee on Irrigation and Drainage

Technical Skills

- Mathematical Modeling and Numerical Analysis – SQL, FORTRAN, Peak Performance, MS Excel, Visual Basic
- Hydraulic Modeling – HEC-RAS, WinFlume
- Database Analysis –MS Access, Oracle SQL, MS SQL Server
- Surface Irrigation Modeling –SIRMOD

Honors and Awards

- Alpha Epsilon, The Honor Society of Agricultural, Food and Biological Engineering, College of Agricultural Scholarship, 1999.
- T.F. Buehrer Scholarship, 1999.
- Student Travel Scholarship, 1999.
- Fitch Scholarship Award, 1998-99.
- Dean's List Honorable Mention, Spring Semester, 1998.
- B.P. Cardon Award, 1997-98.
- Harold C. Schwalen Award, 1996-97.
- Mary Roby Academic Achievement Award for softball, 1996.
- Member of the University of Arizona Softball Team for 1996-98 seasons. Contributed to winning the PAC-Ten Championship and NCAA National Championship for the 1996-97 season.

Publications

Ms. Hall has authored several project reports and professional papers.