

San Jose Water Company

San José, CA

I. Presenter: Dámaris Villalobos-Galindo, Associate Civil Engineer

II. Mission-Critical Job Category: Engineer

III. Treatment Plant Characteristics:

- Water Treatment and Distribution
- 374 employees
- 1,000,000+ customers served

IV. Nature of the job

As a member of the Planning Group within the Engineering Department of San Jose Water Company, I prepare planning level design for new tanks and pumps by recommending optimal size, dimensions, set points, and general station layout. I also perform hydraulic analysis of the distribution system to predict, evaluate and solve various design and operational problems and to help optimize distribution system operations. In addition, I perform hydraulic analysis for fire flow requirements to verify or estimate the adequacy of available fire flow and residual pressure, and I serve as the liaison between San Jose Water Company and municipalities in order to coordinate pipe replacement projects with other city projects in order to prevent conflicts and comply with street cut moratoriums.

V. Why is this work important for operational reliability?

The Planning group performs the foundation work for the optimization of system distribution operations at San Jose Water Company. By collecting all necessary information prior to the design and construction of a project or by analyzing the performance of a given asset, the Planning group studies and recommends the operational alternative that would result in improved efficiency not only for the company itself but, most importantly, for the reliability of the system in order provide high quality water and excellent customer service.

VI. Education and experiences that will help students prepare for career technical education

My educational background consist of completion of a B.S. in Environmental Engineering degree from the University of California, San Diego and a M.S. in Civil and Environmental Engineering degree from Stanford University with emphasis on Environmental Fluid Mechanics and Hydrology. During the completion of my undergraduate and graduate degrees, I completed a wide variety of courses that I believe gave me a strong basis for the work I do now. The classes that I have found most useful include: hydrology, water chemistry, computer modeling, fluid mechanics, and public speaking. However, after graduation I continued my education by enrolling in Community College classes that would allow me to further my education. At San Francisco City College, I took classes that ranged from Computed Aided Design to Geographic Information Systems (GIS), and I have obtained a variety of certifications such as a Professional Engineering certification and have become a Qualified Storm Water Pollution Prevention Developer and Practitioner. I have learned that as an engineer in a water career I have to constantly keep myself updated on new modeling and optimization software, learn about new and better products, and in general, learn things I just have never done before. I strongly believe that education for a career in the water industry is a continuous effort.

Depending on the project, the skills I have learned in school and at work are applied in different ways. As an example, currently I am working on completing a consequence of failure and a probability of failure study that would help San Jose Water Company prioritize water main replacement.

Since I have used computing modeling software before, I taught myself how to use a neural network fitting tool within the Matlab software to train a set of water main data and with this, predict the water mains that would fail in the future. This would help us decide which water mains to replace first since we have approximately 2,400-miles of water main and have been replacing about 1% of mains per year. This project also allowed me to use my GIS skills by using this software for spatial analysis.

VII. What do you like about your job?

- Salary/benefits
- Service to the community
- Interesting work/opportunity to learn
- Enjoy working in a team
- Work/life balance