baywork
bay area water/wastewater workforce reliability

ENGINEER PROFILE

Name: Chris Pachmayer (Associate Engineer)
Organization: Union Sanitary District

Engineering Discipline (Check one below):

☒ Civil
☐ Mechanical
☐ Electrical
☐ Environmental (including Process)
☐ Structural
☐ Information Technology
☐ SCADA
☐ Other

1. Please describe the work you do:

   I manage capital improvements projects for the District. Project engineers/project managers for the District are responsible for implementing the District's capital improvement program. This includes taking a project from concept (design) through construction. I manage consultants, contractors, internal resources and construction managers. Also depending on the size of the project I may complete the design of a project and/or do the construction inspection myself.

2. What combination of education, experience, and skill was required in order for you to obtain your job?

   - 4 Year College Degree - Bachelor of Science in Civil Engineering (4-year degree)
   - I was hired as an assistant engineer. This required 2 years of work experience in the civil engineering field (public or private). An associate engineer would need 2 years working as an assistant engineer and be licensed as a professional engineer in the state of California.
   - The skill set need to obtain this job included being a good communicator (both written and verbal), having the ability to work with a wide range of people, and being technically sound in standard engineering principals.

3. What do you like best about your job?

   There are two things that make my job enjoyable. The first is the satisfaction of knowing that I am building infrastructure that keeps the environment safe from wastewater and pollution. The second is that even though this is a position in civil engineering, I am exposed to all of the other engineering disciplines that are listed on the top of this questionnaire. This keeps the job interesting and allows me to learn about things that I might not otherwise be exposed to.

4. Please tell us about the water or wastewater engineering project you enjoyed working on the most, and what made it rewarding,

The engineering project that I enjoyed working on the most was the replacement of an electrical substation at the District's Treatment Plant. This was an electrical substation that was over 30 years old and was dubbed to be difficult to replace by both operations and maintenance staff. I was able to complete this project on time, on budget, and with minimal disruption to the treatment plant. In the process I was able to learn about the treatment plant's electrical distribution network, the Plant's backup generation system and control system that make the substation function.

5. What qualities and capabilities are needed in order for an engineer to be successful in the water/wastewater industry?

- Good communicator (both written and verbal).
- Have to be a willing learner. I would say that approximately 75% of what I do now was learned on this job. With each project that I complete for the District I learn something new. I don't expect this to ever change.
- Plays well with others. Engineers are exposed to a wide range of people from construction workers to presidents of large contracting and consulting firms to our District's Board of Directors. A person working in this industry has to be able to interact with a wide range of personalities. This bullet ties in to the first bullet of being a good communicator.
- Critical thinker. To be successful an engineer needs to think critically about what they are doing, how to get it done, and what can go wrong and what it impacts if it does go wrong. A utility does not have the luxury of shuttling down for a day. It has to run 24 hours a day, 7 days a week. An engineer must be able to plan their projects with this in mind.
- Ability to adapt. The construction process has a lot of difficult challenges and anyone who works in it needs to accept that there is no such thing as the perfect design. Things change and you need to adapt and take things in stride.
- Good sense of humor.
- Can't be afraid of wastewater (i.e. afraid of germs). I have personally seen engineers not make it in this industry because they can't be around wastewater (or the negative stigma associated with wastewater).

6. Do you have any advice for an individual who is considering pursuing a career as an engineer in the water/wastewater industry?

I would highly recommend the wastewater industry to any engineer. The work is interesting and challenging and I foresee a lot of work for years to come. The infrastructure continues to age, populations are expanding, and we will need a lot of engineers to build and/or rehab utility infrastructure.