

Competency Based Training System Model

Union Sanitary District
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1. Background Information – Union Sanitary District (USD)

The Union Sanitary District is a special district that provides wastewater treatment to the cities of Fremont, Newark and Union City in the San Francisco Bay Area. Founded in 1918, it's services about 325,000 people. The District maintains about 762 miles of pipe and it's treatment plant has an average dry flow of 27.5MGD. USD currently has 132 full time employees.

2. Setting Training Priorities

The District is known for being a progressive organization that is on the leading edge in workforce development. Significant investments have been made in retaining workforce and corporate knowledge in the operating groups (Plant Operations, Maintenance and Collection Services). Before developing and implementing the competency based training system, the District experienced the typical knowledge and performance issues that many organizations deal with on a daily basis.

Problems:

- Inability to measure the level of institutional knowledge held by the workforce
- No system to capture, retain and use institutional knowledge held by journeyman level employees
- Lack of standards to apply to performance assessment
- Differences in processes by senior employees when accomplishing tasks
- Little to no standardization of instruction of processes or assessment of performance
- No system to tie training requirements and outcomes to performance reviews and professional development plans
- Lack of a training schedule tied to the business and professional needs of the District and it's workforce
- No measurement instrument to assess the return on investment (ROI) of training events

Realizing the need to effect change in workforce development and establish what the ROI for training was, the District Executive Team (ET) included the development of a competency based training system in the strategic plan and hired a Technical Training Coordinator in November 2003. After seven years, the District has expended significant resources in the development of a comprehensive competency based training system. The benefits realized are:

- Development of standardized processes in the accomplishment of tasks and incorporation into Standard Operating Procedures (SOP) and District policies
- Extensive process analysis and validation
- Capturing of institutional knowledge and skills of journeyman employees

- Development of knowledge and skill based competencies tied to the systems and equipment used by the operating groups
- Development of training courses tied to the competencies
- Standardization of instruction and qualification/certification of employees
- Standardization of performance assessment
- Use of training needs and outcomes to develop the employee professional development plan
- Increase in institutional knowledge across the workforce
- Development of a District training plan tied to the mission of the District and the needs of it's workforce (Strategic Training)

3. The Union Sanitary District Approach

For many years, the union sanitary district supplied just-in-time training to its employees to meet its regulatory training requirements. Training duties and responsibilities rotated among employees, who either showed an inclination toward the administration of training, or knew enough about training to supply the basic information required. The effectiveness of the transfer of knowledge could not be gauged.

In 2004, the district took the initiative to correct the situation and began development of a competency-based training system. This system is comprised of training modules and standard operating procedures. The training module is comprised of a Job Competency Requirement (JCR), Standard Answers (SA), and may or may not have one or more Standard Operating Procedures (SOP) linked to it. Six years later, the District is beginning to realize the benefits of a competency based system.

Job Competency Requirements (JCR)

A JCR is a compilation of the minimum knowledge and skills that individual must know (knowledge) and demonstrate (skill) in order to qualify or be certified to perform specific routine or abnormal duties necessary for the safety and security of utilities employees and to ensure proper operation of equipment or systems.

The JCR provides a uniform, utility-wide documentation system that standardizes and facilitates these qualifications. The goal of the JCR is to:

- Maintain expertise by providing fully qualified employees who have met or exceeded the minimum standards for utilities routine and abnormal duties;
- Promote initiative and responsibility by providing the employee with specific objectives, job relevant training requirements, and a list of readily available references and resources; and
- Standardize and facilitate employee qualifications by detailing the skills necessary to qualify for a specific task, or to perform as a team member when teamwork is required to accomplish a task.

When the JCR is approved by the utility management, it becomes the competencies that are used in long term staffing, succession planning, professional development, and performance reviews.

Standard answers (SA)

In concert with the development of a JCR, the standards to which employees will be measured when accomplishing the skill or knowledge base tasks are developed. The SA consists of an approved process or statement that answers the competency questions listed in the JCR sections. The SA normally appears as a paragraph that explains the fundamental process or idea. The SA is written applying a measurement within the answer then employees strive to achieve in completing the task. The SA measurement can be a number, a measurement, a period of time, a percentage, or an estimate or approximate measurement toward the desired goal.

The SA is the expected outcome of the tasks that management has approved by applying existing standards or best practices in the event a standard does not already exist. The standard answers have a connection to the processes and or products of the utility.

Train the Trainer

Many employees were task with training their peers, even if they, themselves, had little to no training on how to effectively train and assess. The expectation was that training and knowledge transfer is taking place. Senior employees were left to conduct on-the-job training (OJT) and assess their peers ability to accomplish the task. To standardize this activity, the District has established a Train the Trainer program that provides detailed instruction on development of documents and a use of tools within the system. Subject Matter Experts (SME) are selected by management to attend a 12-hour course over three days, which introduces the employee to adult learning theories and principles, how develop the training module, how to instruct using the training module, and how to assess employee after they have attended classroom or OJT instruction.

Competency Assessments (CA)

The training system will sustain itself, but only if data is collected and action taken to correct deficiencies and optimize advantages. To this end, the District instructs the designated SME how to assess the competency of another employee based on the standard answers. The goal is to have assessments to provide management and employees with the “why” and employee did not accomplish a competency. The reasons fall into four categories.

- Training: Information was not successfully transferred from trainer to employee.
- Material: The equipment, and/or tools are inoperative or defective, thus affecting the employee's ability to accomplish the task.
- Knowledge, skill, ability (KSA): The employee did not have the requisite KSA to accomplish the task.
- Environment: The training environment affected the employees accomplishment of the task.

Using this assessment, the reasons and employee could not accomplish the competencies are identified. This information helps refine the training system and ensures that proper responsibilities are identified and corrections are made to ensure the employees future success in meeting the JCR.

The District has found this competency based training system to be a success. It provides a formalized structured training system that improves employee morale, provides institutional

knowledge management, and forecast future long term staffing needs. In addition, the district has begun exploring ways to use the data outcomes as inputs to employee succession planning, professional development, and performance reviews.

Today and Into Tomorrow

To date, the District has developed training modules in the following operating group areas:

Plant Operations

- SCADA Systems
- Influent Pumping
- Primary Sedimentation
- Secondary Treatment
- Effluent Pumping
- Sludge Thickening Operator
- Anaerobic Digestion
- Water Systems
- Chemical Systems
- Sampling Systems
- Electrical Power Generation and Distribution System for Operators

Maintenance

- Pump Station Mechanic
- Force Mains
- Electrical Power Generation and Distribution
- Programmable Logic Controllers

Collections Services

- 2100 Series Vector Jet Rodder
- Trouble Calls
- Point Repair
- SSO Response
- TV Inspection
- Plugging
- USA
- Tractor Loader Backhoe
- Spot Repair
- Stubs and Channels
- Skid Steer Loader
- By-Pass Pumping
- Easement Maintenance
- Winch Truck Operator
- Paving

The District has completed the instruction of Tractor Loader Backhoe and Skid Steer Loader using the competency based system. Initial employee response has been very positive and supportive of the process.

The District has also developed 208 Standard Operating Procedures (SOP) during the development of the training modules. SOPs are used as refreshers for journeyman employees or as a training tool for new employees.