

# Survey of Processes, Programs and Investments Required for Implementation of Effective Technical Training and Staff Development Programs

## Purpose of the Survey

One of the primary challenges of the water/wastewater industry at this time is to provide the staff development and technical training programs needed by staff in order for them to perform quality work. The purpose of this survey is to document the processes that are being used by water/wastewater utilities that are doing outstanding work in this area, as well as the investments they are making in order to develop quality programs and products. These findings will be published in a BAYWORK report, and posted to the BAYWORK website, for the benefit of the water/wastewater industry.

Name:	Todd Thomas
Agency:	Colorado Springs Utilities
Position:	Human Resources Supervisor
Email:	tthomas@csu.org
Date:	8/6/2012
Phone:	719-668-5933

1. Please provide the following information about your utility:

a. Please check all functions provided by your utility.

Water	Wastewater	Power	Gas
308	102	Electric T&D - 188 Power Plant - 273	172

b. How many staff members are employed by your utility?

1928

c. Please describe how different types of training/staff development are handled in your organization, in terms of roles and responsibilities (with an organization chart to help illustrate, if possible).

The University of Springs Utilities aligns with the strategies, goals and objectives of Colorado Springs Utilities and offers learning and development opportunities in an accessible and cost-effective manner. We operate under a Learning Sponsorship Council consisting of top level leaders throughout the organization and have associated Advisory Boards for the five Schools of Learning:

- ✓ Technical Field Operations
- ✓ Technical Plant Operations
- ✓ Environment, Health & Safety
- ✓ Customer Relationships
- ✓ Organizational and Professional Development.

This partnership allows the employees of Colorado Springs Utilities to be “owners” of their learning and to help in the identification and prioritization of essential training needs.

Through the five Schools of Learning, USU provides employee development opportunities in the following areas:

- ✓ Technical Craft
- ✓ Safety
- ✓ Heavy Equipment
- ✓ Environmental
- ✓ Customer Care
- ✓ Professional Development
- ✓ Leadership Development

d. If your utility has access to any communication technology that would allow for remote participation by SFPUC staff in this site visit (e.g., teleconferencing, videoconferencing, webinar, or skype), please describe. N/A

2. Please describe how you prioritize the projects you work on in regards to documentation, staff development, and technical training.

a. Who participates?

A request is filled out by a University of Springs Utilities staff member in collaboration with the requesting employee and is approved by the employee's manager.

The request then goes before an Advisory Board consisting of a cross section of Utilities stakeholders and leadership for approval, prioritization and funding.

b. What forms, survey, analysis, workshop, documentation, etc. are used to support the prioritization process? A formal request form is submitted. This form incorporates elements of cost analysis, gap analysis and training needs analysis.

c. What criteria are used as a basis for prioritization of specific tasks or processes? (Check all that apply)

Employee Safety YES

Regulatory Compliance YES

High Volume

High Consequence of Failure YES Cost in form of Fines, Safety, Environmental and Productivity)

Other (please explain): YES: Corporate mandate drives some priority.

3. What demonstrated knowledge, skills and abilities do you look for when hiring new employees to do instructional design, development and delivery?
  - Learning program definition, design, development, implementation, assessment and evaluation
    - Analyze program goals and objectives for appropriate learning methodologies
    - Design sequence and structure of learning
    - Develop and test materials
    - Implement training programs
    - Evaluate learning with established goals and objectives
  - Systems architecture, information hierarchies and interface design principles with content providers, learning management systems and virtual learning environments
  - Project management
  - Coaching and mentoring
  - Analytical skills to assess alternatives and reach conclusions
  - Communication and interpersonal skills to establish effective working relationships
  - Ability to work in and lead teams
4. What organizational rewards (e.g., job advancement opportunities) if any are provided to staff who receive technical and/or staff development training? **None**
5. What type of culture change do you believe are necessary in order for training and staff development programs to support successful succession management? In your opinion, has your organization made strides toward implementing such changes, and if so, how? If your organization collects data which relates to advancement in this area, which data do you collect, and how do you measure your advancement? **Colorado Springs Utilities has 2 approaches to Succession Planning. First is an Organizational Leadership Program where aspiring leaders are able to participate. The Second is addressed at the department level. The company has made strides and called out the gap but has no formal enterprise Succession Planning solution.**
6. Have you incorporated regulatory compliance procedures and documentation into your operating and maintenance work order system? **No**

7. What different formats for documentation, staff development, and training materials have you considered and used in your training programs? What have you found to be some of the pros and cons of different approaches?

<b>Material</b>	<b>Considered</b> <i>(check all that apply)</i>	<b>Used</b> <i>(check all that apply)</i>	<b>Pros</b>	<b>Cons</b>
Written SOPs		X	Consistent and safe application of regular tasks and processes	No room for craft discernment and abnormal operating conditions
Video SOPs	X		Considers a different learning style and provides visual validation of success	No room for craft discernment and abnormal operating conditions
Online training				Many field Employees are resistant to Technology
Video		X	Accessible and efficient.	No room for craft discernment and abnormal operating conditions
Interactive		X	Accounts for greater coverage of different situations employees may face. Allows for simulated decision making	Still limits craft discernment
Tutorial		X	Easy, quick, efficient reminders rather than full blown class	Not very deep and does not take into account of different learning styles
Avatar		X	Adds an interesting element to learning and personalizes it more	Again, is not as interactive and risks limiting craft discernment
Materials to be used in a classroom setting				
Powerpoint		X	Familiar format with some flexibility with presentation	Can be overused and boring.
Student guides		X	Great takeaway	Is seldom kept by

			from class for validation and application real time on the job	learner.
Video		X	When done appropriately, adds an interesting element and can hold attention longer.	Is subject to failure without interesting presentation
Other (Please Explain)				
Simulations using computer technology		X		
Field guides		X	Short and sweet cheat sheet for field personnel	Difficult to maintain. Must have robust updating process to be successful over time.
Scenario based training		X	Extremely valuable. Emulates the job and the most critical aspects. Hold attention and take all learning styles into consideration.	Time consuming and can be expensive
Field Demonstrations		X	Like Scenario based training, can emulate real field activity	Although valuable, the weakness is in the ability to ensure every participant is allowed a chance to practice.
Webinars		X	Convenient and productive	Technology issues are often on the user side and can take many hours to fix.
Skype	X			
Podcasts		X	Portable	Is not interactive
Videoconferencing	X			
Mentoring		X	Direct and individual one on one interaction. Best and most focused training.	Impossible to implement enterprise wide. Is inefficient and expensive.

8. Please provide information for any training program or product produced in each applicable category where documentation/training materials have been produced.

<b>Material</b>	<b>Sample product or program</b>
Written SOPs	Energy Supply (Power Plant) programs
Video SOPs	
Online training	
Video	Lab Spill and Response (Internally Developed)
Interactive	Security Awareness (Internally Developed)
Tutorial	PSS
Avatar	ITPP, Security Awareness, Supervisor Compliance (Internally Developed)
Materials to be used in a classroom setting	
PowerPoint	Hazwoper, Rigging
Student Guides	Rigging
Video	Confined Space/Enclosed Space (Internally Developed)
Other (Please Explain)	
Simulations using computer technology	N/A
Field guides	Hydrant Training (Internally Developed)
Scenario based training	AMI (Vendor) , Security Awareness (Internally Developed)
Field Demonstrations	Excavation and Trenching rescue (Internally Developed)
Webinars	This is new to us and we have one course under development.
Skype	N/A
Podcasts	Leadership Series (Internally Developed)
Videoconferencing	N/A

## Training/Staff Development Project Worksheet

Topic/purpose of training	Safety in work zones
Name or Title of Training Product(s) or Programs Produced	Roadway Safety and Traffic Control
Type of Products/Programs Produced	Web-based training with avatars and interaction
Date(s) Produced	January - May 2010

For this product or set of products or programs, please describe the following (if it is feasible to provide a flowchart or time line, this would be extremely helpful).

1. The process used to create it (them):

The customer was looking to provide a more efficient way of providing training for barricades. A training request was created by the Technical Training Specialist collaborating with the customer. During the analysis and brainstorming sessions it was determined web-based training would be the most efficient and consistent way to deliver the topic since the learning objectives seldom changed from year to year. The training request was presented to the School of Safety & Environmental Advisory Board for review and approval. Once approved by the board, the project was assigned to an Instructional Designer to begin work. The Instructional Designer met with the Technical Training Specialist and customer to discuss objectives and appropriate methodologies for delivery of scenario based content.

The Instructional Designer developed drafts of the course working directly with the customer. At specific milestones in the process both the customer and Technical Training Specialist reviewed the course and provided feedback. When course was read for implementation, it was submitted for final review and approval by the customer, Technical Training Specialist and Instructional Design Supervisor. Upon receiving approval, the course was published to the LMS and was run through a technical review by the LMS administrator to ensure proper execution and tracking for the learner.

2. Professional services and/or contractual costs:

None

3. Estimated staff time (by job category):

From January 2010 – May 2010

SME-Barricade Supervisor – 40 hours

Meetings with Technical Training Specialist and Instructional Designer to flush out content as it related to objectives and multiple reviews of course.

Safety Supervisor – 10 hours

Technical Training Specialist – 20 hours

Meetings with Technical Training Specialist and Instructional Designer to flush out content as it related to objectives and multiple reviews of course.

Instructional Designer – 280 hours

Design/storyboarding and development of deliverable.

Time to bridge gap in skill sets for technology (avatar and variables)

4. What issues did you run into that affected the amount of time it took to develop the product(s) or program(s), such as lack of specific skill sets, time allowed away from job to participate, etc.?

- Lack of skill sets for avatars (CodeBaby) and using variables in Lectora; CodeBaby was relatively new technology and provided a learning curve.
- Barricade Supervisor time away from job from January to May.

5. Any equipment and supplies that were required (including hardware/software):

CodeBaby - avatar creation tool: Created avatar and exported as a .swf flash file and imported to Lectora

Lectora – course authoring tool: Develop course

Adobe Audition: Edit audio and export .wav file to CodeBaby avatar creation tool

Adobe Premier: Edit video clip

Adobe Photoshop: Edit still photos

Digital camera: Take still photos

6. Incentives used to encourage staff to develop staff training material:

None

7. Tracking system used to track costs associated with development of training tools:

Excel spreadsheet for managing projects. We have since moved to Train Pro Central to help manage time and effort more accurately for all projects.



8. Support required for implementation of the training tool (e.g., providing equipment in the field to provide staff access to information, or change in work schedules to allow training time)

The Technical Training Specialist communicated with field personnel to show location of course and adoption of new training process.

9. What have you done to ensure that training products/programs are used? (Examples would be providing access to field staff through mobile computers, requiring supervisors to track staff use of training materials and verification of knowledge gained, tracking use through a Learning Management System, and scheduling formal training sessions using materials.)

The course was deployed and completions were tracked through the LMS. We use curriculum functionality for new employees and certification functionality for recurring training.

10. How do you evaluate the success of your training product(s) or program?

No laws require employers to provide training along the topic, however, if job is performed incorrectly we are susceptible to fines and revocation of corporate DOT license.

11. Lessons Learned:

We identified tools and their potential usage prior to beginning project. Better skill set of tools.