

WATER WORKFORCE WEBINAR SERIES Retaining a Strong and Resilient Water Utility Workforce

Office of Wastewater Management

Office of Water U.S. Environmental Protection Agency May 2022

We will start in a couple minutes. Thank you.



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Water Sector Workforce at EPA

- Reminders:
 - Check out our website for resources and updates: <u>https://www.epa.gov/sustainable-water-infrastructure/water-sector-workforce</u>
 - Workforce Initiative
 - Past Workforce Webinars
 - Workforce Case Studies
 - Stay tuned for information on our next webinar. If you are registered for this webinar you are automatically on the email list for future webinars!

May 4, 2022

Retaining a Strong and Resilient Water Utility Workforce

Jim Horne, Sustainable Utilities Program Manager, U.S. EPA Office of Wastewater Management

SEPA United States Environmental Protection Agency





er Works











Speakers:



Janet Barrow, Director of Human Resources and Administration, WaterOne, Johnson County, Kansas



Gerard Yates, Deputy General Manager, Central Utah Water Conservancy District, Utah

Webinar slides and recording will be sent to registrants within a week after the webinar.

May 4, 2022

Distribution Technician Program

Janet Barrow, Ed.D., Director of HR & Administration



WaterOne Distribution Technician Program

AWARDS





ABOUT WATERONE





- Founded in 1957
- Independent, non-profit public water utility
- Serves 17 cities throughout Johnson County
- The largest water utility in the state of Kansas

Mission

• To provide a safe, reliable, high-quality water supply with exceptional service and value.

Vision

• WaterOne: Setting the standard for utility excellence.

Values

Quality | Integrity | Safety | Accountability | Respect

One of Eight Strategic Goals

• Be an employer of choice



Be an employer of choice

- Attract and retain a high-quality, diverse, and engaged workforce.
- Provide a competitive total compensation package.
- Train, develop, mentor and plan for succession of employee talent.
- Foster an equitable and inclusive culture so employees have opportunity to thrive.
- Promote open employee communication.



Total Compensation Strategy

- Market competitiveness
- Attract and retain talent
- Internal equity
- Legally defensible
- Conducive to knowledge transfer and succession
- Sustainable
- Support excellence





Our Challenges/Opportunities

- Increasing retirement projections
- Recruitment challenges
- High turnover of new hires
- Knowledge transfer and cascading communication
- Specialization vs. team concepts
- Lack of pay/career progression
 - No defined parameters for upward movement within job family
 - Job movement dependent on retirement, separation or other
 - Undermines team spirit and morale ("vulture culture")



Designing the Program

- Researched programs in other water utilities
- Adoption of Distribution Operator Certification in other states
- Recommendation to develop competencies for each position
- Designed a self-paced competency-based "step" matrix
- Developed testing/requirements to demonstrate knowledge/skill

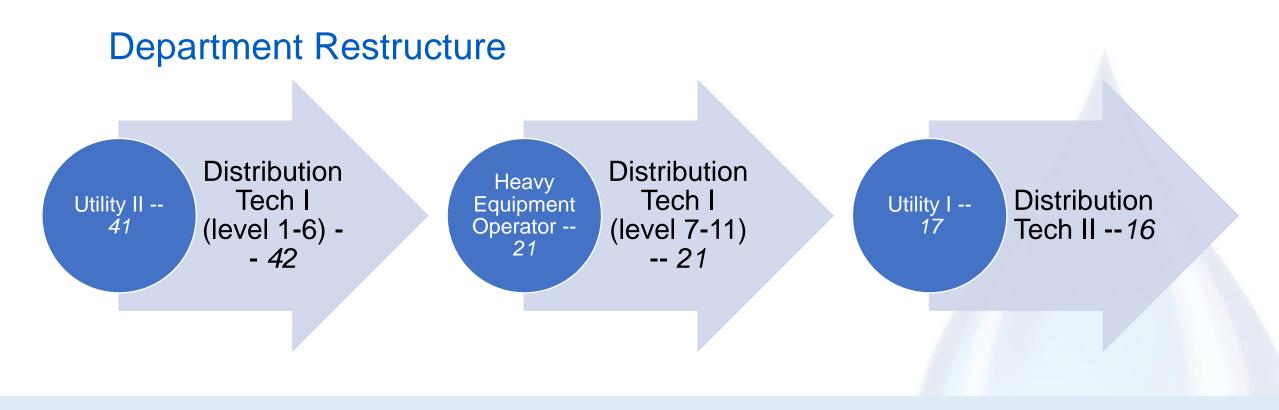
"The biggest positive for the DT program is stopping all the turnover. Now we are not spending time training new people all the time so we can progress with techs training even further. Helps to give techs incentive to stay because it incentivizes them through the multiple levels in the program." – **David Saultz, Foreman**

Example: Distribution Tech I (1-6) Competencies

	Step 1 (Entry	Step 2	Step 3	Step 4	
Licenses and Certifications	Class A CDL w/in 90 days (basic)	Confined Space Training. Trenching & Excavation. FEMA level 100 and 700 ICS training			
WaterOne Experience	None	6 Months	12 Months	18 Months	
Education	HS Diploma or GED	GIS, Tie's, and GPS competency exam, show basic knowledge of SAP such as timekeeping, notification entry and completion and complete	Complete PRV training class	CA State Univ. Water Distribution Operator Trng	
Non-Technical Skills	Follows standards and procedures, maintains excellent interpersonal skills, prioritizes work, listens to and follows instructions, shows a willingness to learn and work as needed, and attendance/ECO.				
Safety	Demonstrate knowledge of WaterOne's safety manual. Has completed saw and hot work training session. Shows good housekeeping skills for truck, equipment and jobsite. Has successfully completed all training and certification classes needed for DST1. Uses all PPE and needed safety equipment regularly w/out incident.			Excavato	lering pr/Backhoe
				Loader/Skid Steer	

Boom Truck





"The DT program is designed to get training to our techs ... a self-paced program in which techs determine their destiny at WaterOne. It provides attainable goals that don't require someone to retire or vacate a position in order to improve pay and responsibility levels. It also creates a safer work environment because it places an emphasis on safety training."

– Jason Kesinger, Assistant Manager

Transition Process

- Market analysis/revised pay structure
- Program communication (Summer 2016)
- Review of incumbent experience/competency
- Assignment to new position/level within matrix
- Individual review with each employee of placement within matrix (CMVS & HR)
- Initial pay adjustment (3rd quarter 2016) offset by vacancies
- 2017-2018 accelerated "catch up" of incumbents
- FLSA review of assistant manager positions' classification





The Results!

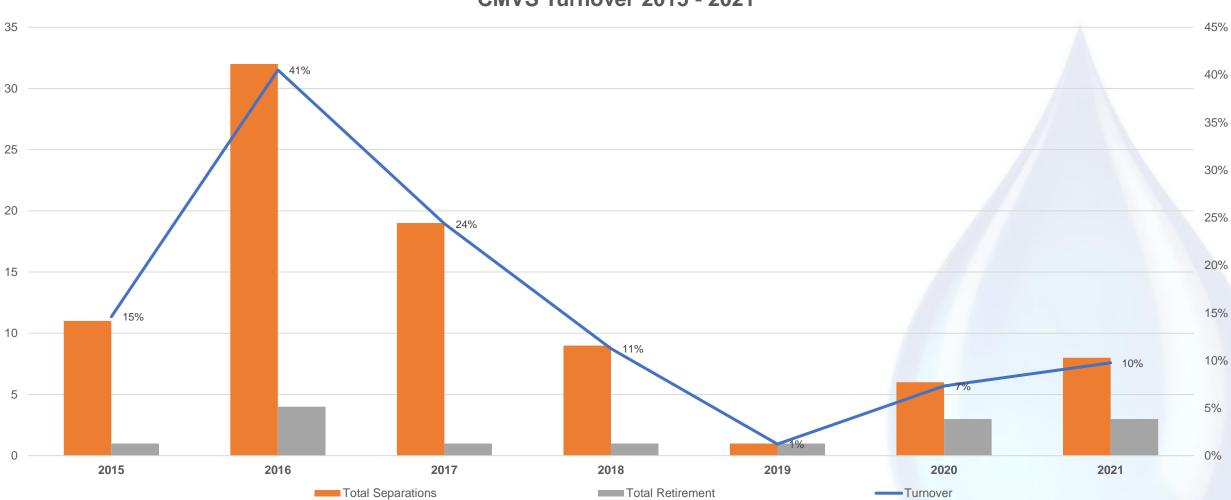


Results

- Voluntary resignations
- Program acceptance greater than anticipated
- Decrease in new hire turnover
- Improved recruitment & retention
- Improved skill sets in new hires

"I think it's a great program ... It helps people move up because they understand what their next set of goals are in the incremental process. The program is very goal-oriented and gives the tech the opportunity to fulfill those goals and show their initiative." – *Brandon Vallejos, DT 1-8*

WaterOne Distribution Tech Program



CMVS Turnover 2015 - 2021





231 Promotions!

DTs have increased average hourly rates by ~30% compared to merit increases which would have increased pay ~24.5% over the same period.



Lessons Learned Since Implementation

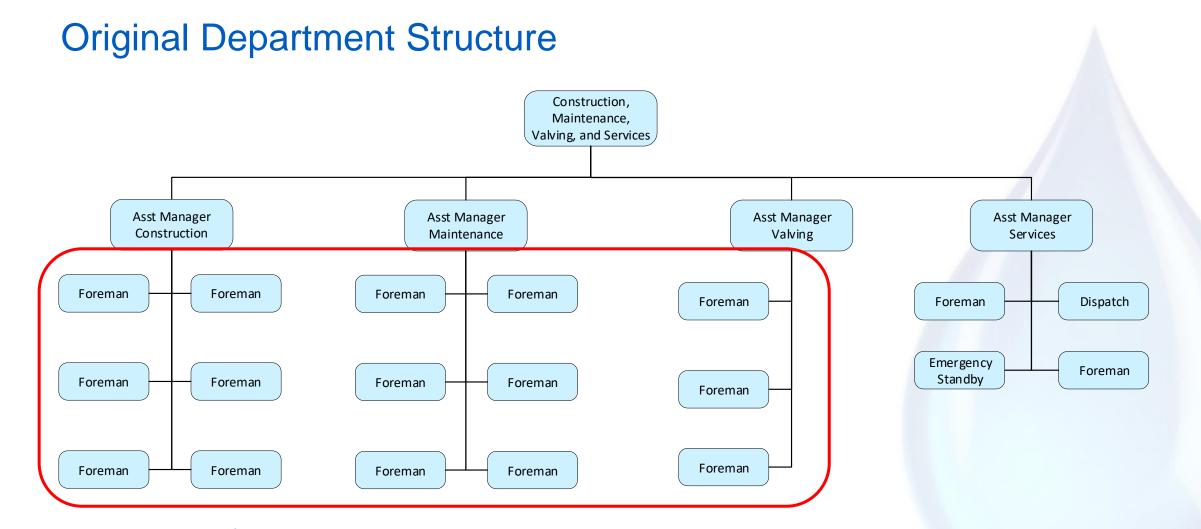


Lessons Learned

- Added Training Coordinator FTE
- Allow appropriate time for On-the-Job training
- Simplify record keeping
 - Transitioned recordkeeping to Learning Management System
- Consistent measurement
- Restructuring of department

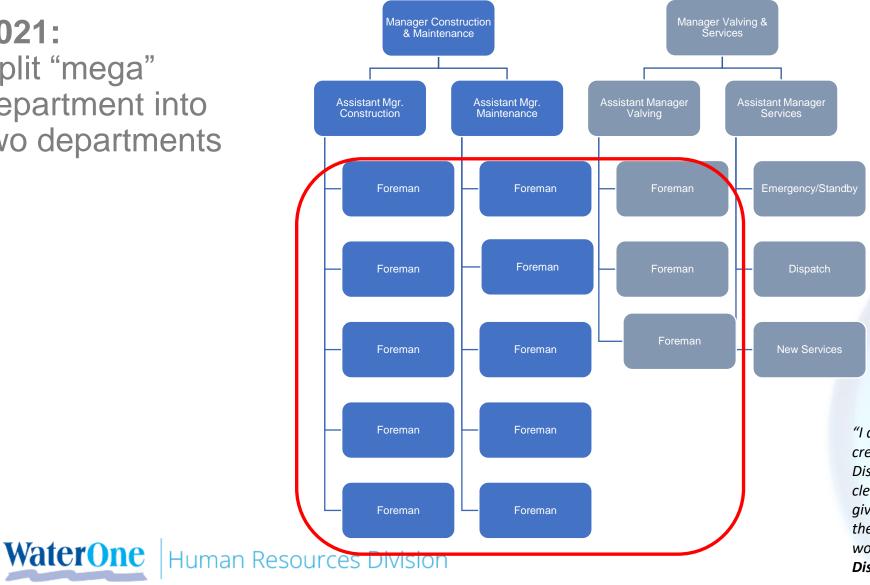






WaterOne Human Resources Division

2021: Split "mega" department into two departments



"I am so glad WaterOne took the initiative and created this wonderful program for the Distribution Technicians. It is very detailed with clear descriptions of what is needed to advance giving everyone the opportunity to succeed at their pace while creating a very skilled workforce." - Shaun Pietig, Director of Distribution

Future Steps

- Review and implement foreman competencies
- Continued refinement of program



"The foremen and their honest reviews are vital for a well-run DT program. They are constantly evaluating staff on a daily basis and must provide honest and direct feedback so we can appropriately train and advance the techs ... Staff also need training time in the seat of the equipment. We have simulators and opportunities to train off a job site, but having more OJT is vital for competent operators."

- Kiel Johnson, Valving & Services Manager

QUESTIONS?

Special thanks to former Distribution/CMVS Team – Dan Smith, Greg Johnson, Kevin Herschberger, Dusty Sease & Kevin Carter



Developing and Implementing a Comprehensive Strategic Workforce Training and Management Plan from Recruitment to Retirement

> Gerard Yates, Deputy General Manager Central Utah Water Conservancy District

> > May 4, 2022



Drivers for Utility Workforce Change



What Will The Future Look Like?

<u>More</u> Technology or <u>less</u> technology in the future?



More Regulations or Less Regulations?





More Emerging Contaminants? And Lower Detection Levels?



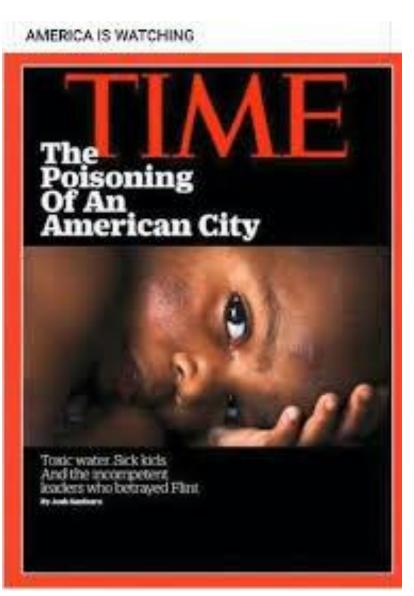
More Education or Less Education?





More or Less Public Awareness and Expectations?



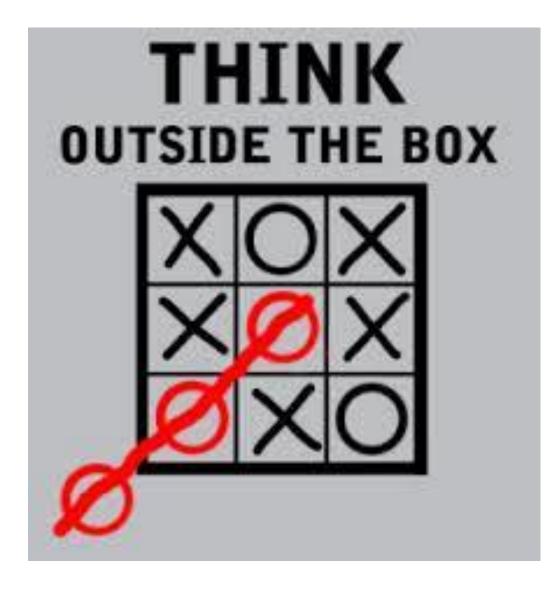


Will we be asked to do more with less?



More or Less Creative Thinking and Innovation?





More or Less Competition to Recruit and Retain Skilled Employees?





So, What Does It All Mean?

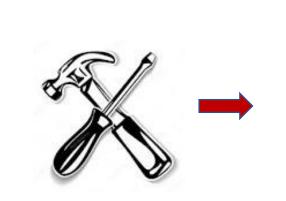




Are You Keeping Up With the Times?

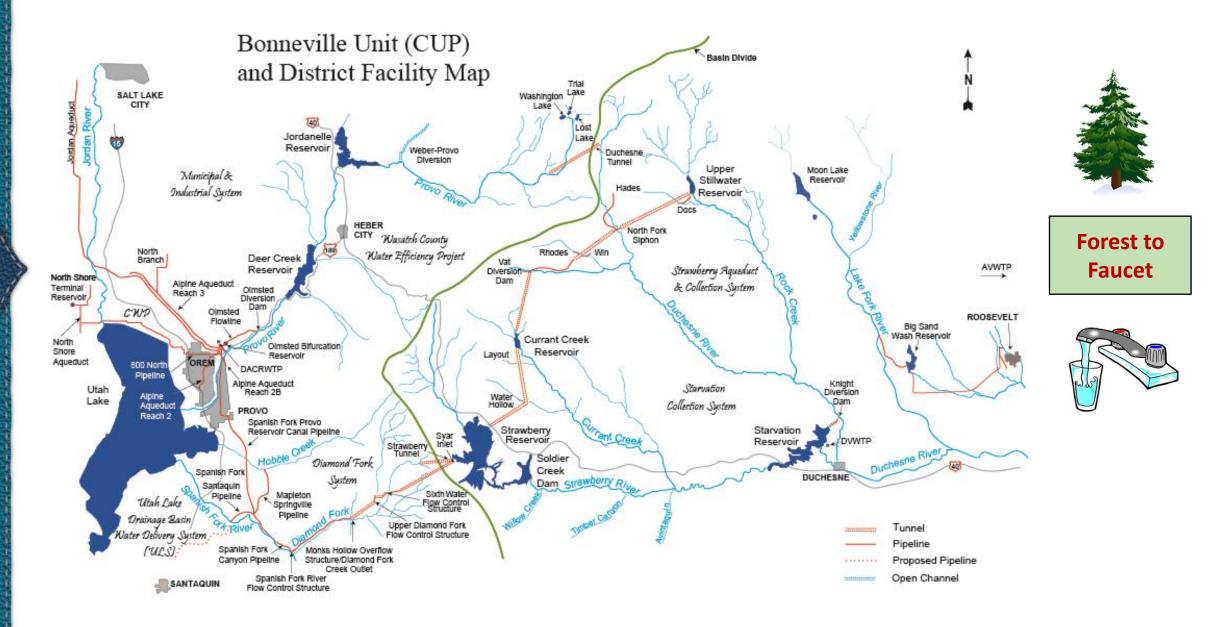








(Background) Central Utah Water Conservancy District



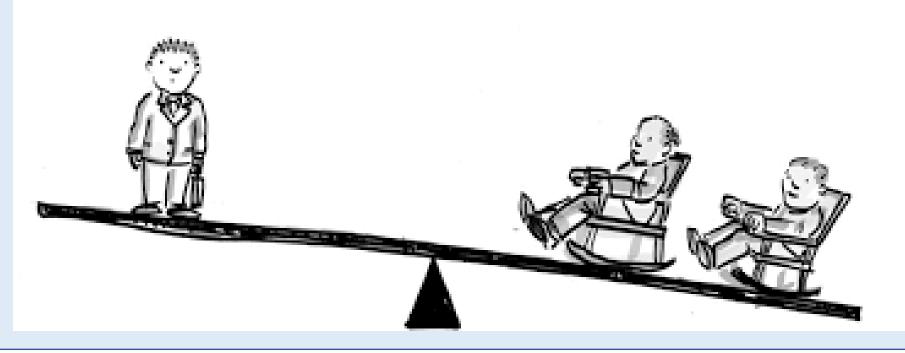
130 Employees

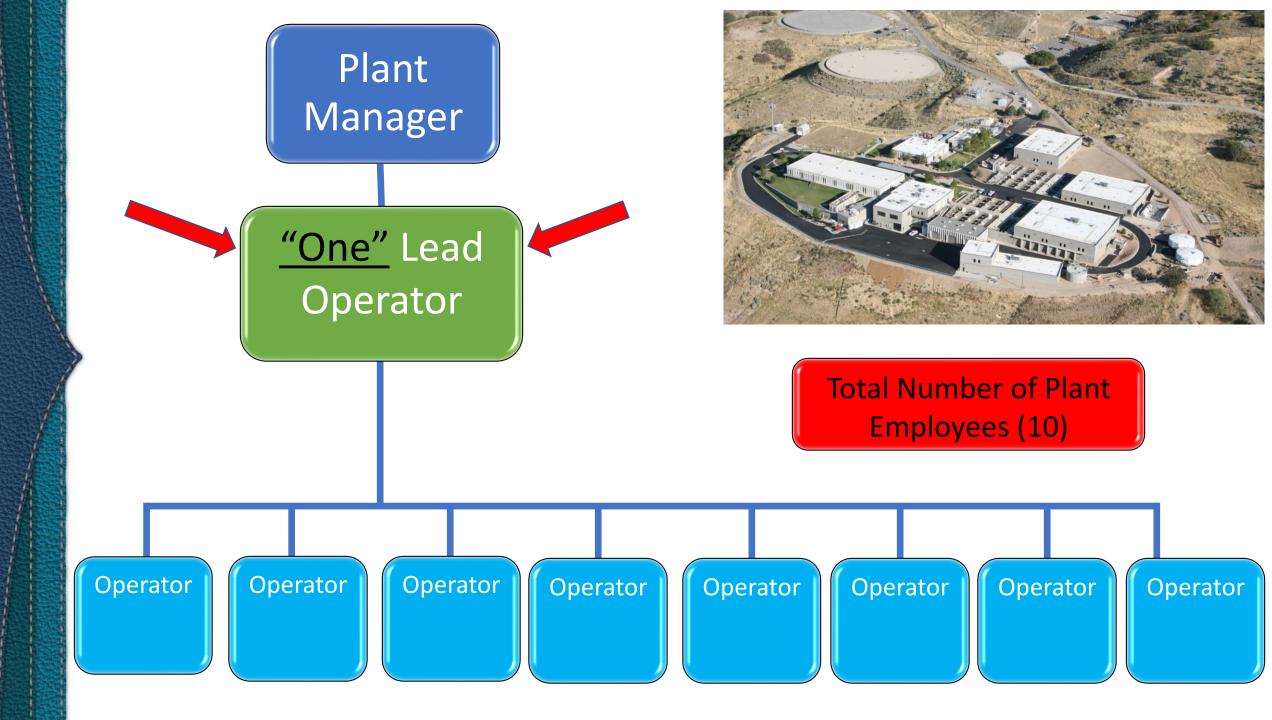




Task (1996) Hire a New Plant Manager

- **Outdated Hiring Practices:**
- Do not hire your replacement
- Do not train your replacement





All eggs in one basket

Wait Six Months – "Let Cream Rise to the Top"



Result: Hired Externally

Consequences:

.

- Low Morale
- Loss of Leadership Support
- No Organizational Knowledge Transfer
- Loss of Operational Continuity and Consistency
- Increased Risk
- Loss of Employee Trust.....

(Did not want to repeat this)





New Job Description: (STEM) **Position Title Change** (Operator \implies Water Systems Technician) **Advertisement Change:** (Colleges - specific departments, job fairs, interns, online recruitment resources) **Interview Selection Criteria:** (Weighted adjustable scoring, interview questions include the typical "operator" duties, but also science/process chemistry, instrumentation and electronics, computer skills, troubleshooting, and leadership experience...) Hire with Vision to the Future: (Fill the present need but hire an operator with a future manager in mind)

Interview Differently

 Selection Criteria: <u>Weighted Scoring</u>: (Example)
 Education – Water Experience 25% / Computers – Networking – SCADA 15% / Electrical 25% / Mechanical 10% / Tenacity -Stability 15%

- Invite Top 10 applicants for a "Facility Tour" (initial interview)
- Interview top 4-5 and adjust questions for specific needs (science, electrical, mechanical)
- Give a written quiz (assess computer skills & problem-solving)

<u>Retaining</u> Star Employees Who Work *Rotating Shifts*

- <u>Challenge</u>: Loosing trained employees to lateral transfers within the same organization. (Leaving because of shift work).
- <u>Final Straw</u>: Three highly trained plant operators left in succession when other non-shiftwork jobs came available within the organization.
- High rate of turnover was leaving the plant short on experienced staff resulting in increased risk.
- <u>Solution</u>: ("*Stop the Bleeding*") Increase the shift differential so that it is "financially painful" to transfer to the same job (without shiftwork).
- Increase shift differential pay from \$0.25/hr. (swing) and \$0.50/hr. (grave) to \$3.00/hr. (swing) and \$6.00/hr. (grave).
- <u>Benefits</u>: Exodus stopped, overtime almost stopped, sick leave almost stopped (especially when they worked swings, graves, or weekends).

Solution: "Train Differently" Develop a "Plant Manager Training Program"



- Program name will be called "Lead Operator Training Program"
- The Training Program will provide comprehensive training that will include all the knowledge/skills/ability necessary to become a successful Plant Manager
- Change organizational structure to allow for "multiple lead operators"
- Must complete *three* years of training as an "operator" <u>before</u> beginning "Lead Operator" training
- When there is more than one lead operator at a given facility the lead operators will rotate monthly providing leadership as the "Lead Operator in Charge"

Lead Operator Program Additional Explanation

- The Lead Operator in Charge will work on the day shift (Monday through Friday).
- Successful completion of the Lead Operator Training Program will include a one-time bonus (\$2500.00).
- Successful Completion <u>plus</u> supervisor recommendation and company approval will provide for promotion from an operator (water systems technician) to Lead Operator.
- Note: Training Completion will typically take approximately two years due to the comprehensive nature of the training program ("do not rush anyone through – it needs to take time").
- Program participation will be "voluntary"

Who needs Training Anyway?











(Critic) "If you hire educated people with advanced skills and you train them to excel in their jobs – then other employers will want them, and they will leave you"

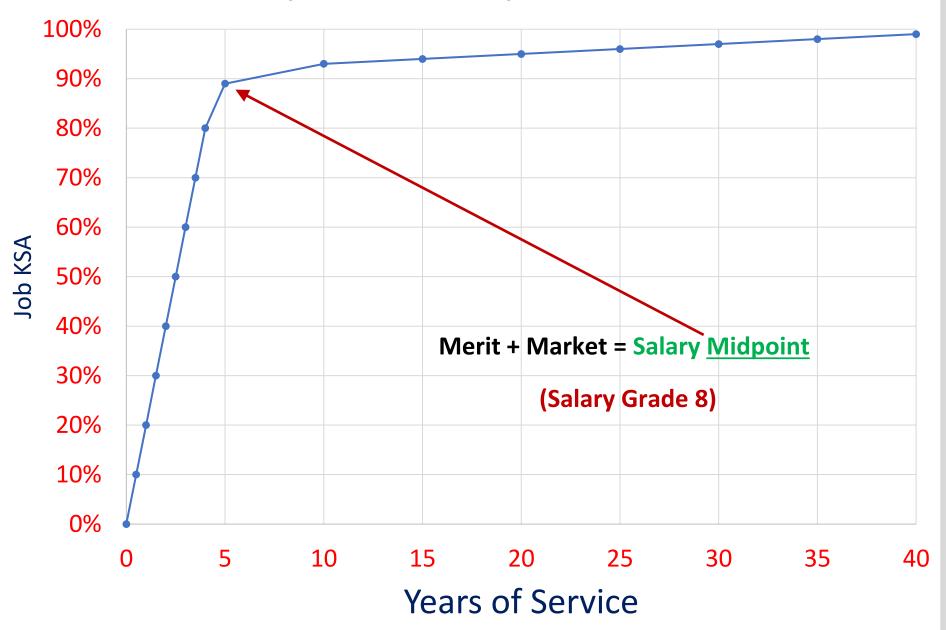
(Reply ③) "So your recommendation would be to hire employees without education, without skills, and don't train them so they can't excel in their jobs, so that no one else wants them, and then they stay - forever"



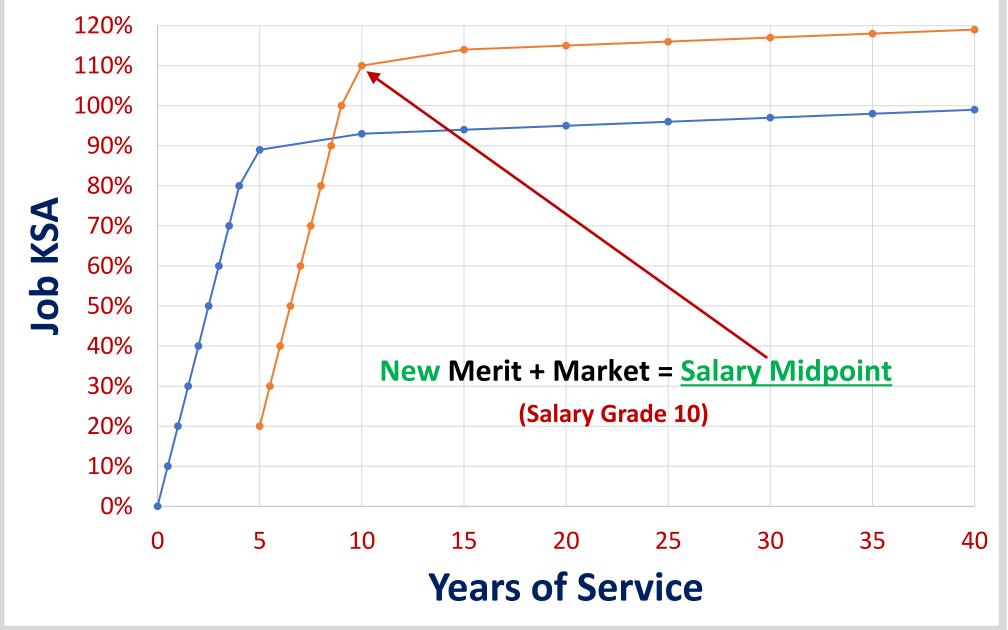
Operator Motivation to Participate ???

- Opportunity for Promotion
- Less Shiftwork
- More Job Satisfaction
 and Confidence
- More Money

Operator Compensation



Lead Operator Compensation



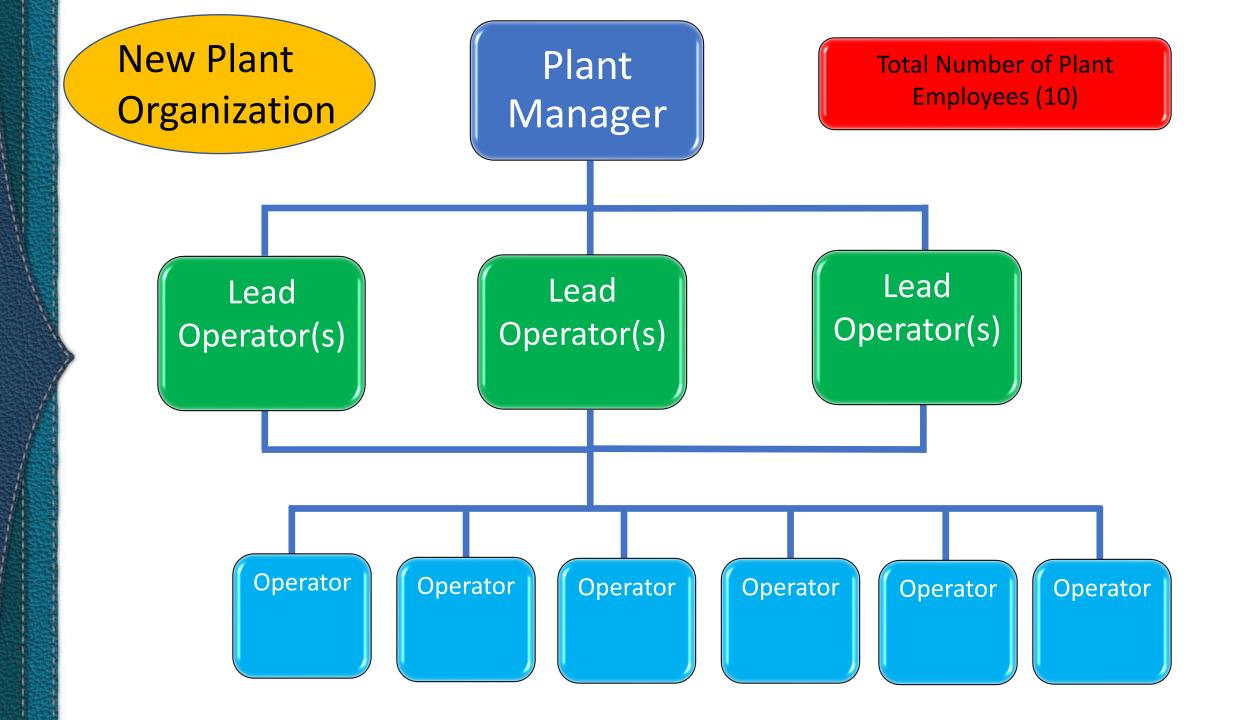
Successful Training Program Objectives:

Desired Consequences:

- Enhanced Morale
- Increased Leadership Support
- Successful Organizational Knowledge Transfer
- Maintain Operational Continuity / Consistency
- Low Operational Risk
- Enhanced Workforce Confidence
- Succession Planning (numerous choices)
- Meet the Needs of a Changing Workforce
- Enhanced Employee Trust
- "Sleep well at night"







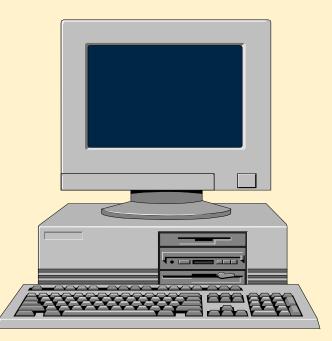
"December 1997" – Lead Operator Program Categories (12) (Skill Bases (72)

- General Computers
- Maintenance Aptitude (Electrical)
- Maintenance Aptitude (Mechanical)
- Physical Facilities Aptitude
- Management Training
- Safety Practices

- Standard Operating Procedures
- Treatment (Unit Process Optimization)
- State Rules / Regulations / Operator Certification
- Water Math
- Water Chemistry
- Water Microbiology / Bacteriological Training

Example Category: General Computers Skills

- Basic Computer Operation & File Management
- Basic Word Processing
- Basic Spreadsheet Skills
- Presentations Skills
- Computer Networks and Hardware



Skill Base Example: (Spreadsheets)

Central Utah Water Conservancy District Lead Operator Training Program

Skill Base: Basic Spreadsheet Abilities

Purpose:

For the operator to have the skill base to manipulate data in a useful manner and convert into a graph format.

Proficiency Required:

Demonstrate the basics of the Microsoft Excel environment <u>including</u>: functions, formatting, and graphing. Be able to acquire data from the plant SCADA system and import into a excel spreadsheet. (See Appendix, 1-2 & 1-3)

Training Options:

An introductory course to learn to use basic Excel will be offered in-house. Access to a computer with the necessary software will be made available. Schools and training services offer word processing courses. The plant manager will provide direction for training assistance.

Example: Maintenance Aptitude Skills (Electrical)

- Chemical Feed Systems
- Chlorine Analyzers
- Current Loops / Series / Parallel
- Differential Pressure Transmitters (DP)
- Electrical Safety / arc flash
- Emergency Generator System
- Flow Meters
- Particle Counters

- Plant Electrical Layout
- Reading Electrical Schematics
- Level Meters
- Sonic Meters
- Tie Breakers
- Transformers
- Turbidity Meters
- Valve Operators
- Cathodic Protection

Skill Base:

PLC - Troubleshooting

Purpose:

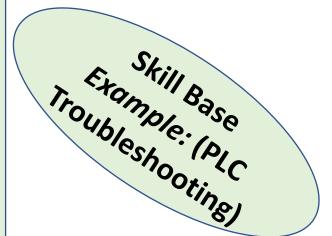
The operator learn how to troubleshoot and diagnose issues with PLC programs and determine the correct issue with the PLC - be it a network card, Discrete or Analog card or the program itself. He will know the configuration of the network room and be able to properly reboot all computers in that room as needed i.e., Historian, Terminal Server, etc.

Required Proficiency:

Be able to connect the PLC laptop to the network and connect to any PLC. Also be able to download a program from file backup to PLC. The operator shall be able to properly power cycle all components within a network cabinet and the network rooms to resolve issues.

Training Options:

Training can be received by the Control System Engineer, Plant Manager and the Instrumentation and Maintenance Supervisor



Program Skill Base Outline

• Skill Base: (Name)

• Purpose: (Why is this Important?)

 Proficiency Required: (Demonstrate understanding, confidence, and functional capabilities)

• Training Options:

(Where can I access training?)

Example: Management Training Skills

- Performance Coaching
- **Employment Law**
- Effective Communication
- Effective Listening
- Time Management & Delegation
- Conflict Resolution
- Budgets & Procurement

- Effective Hiring
- Public Relations
- Compensation and Performance Recognition
- Culture of Change
- Education and Outreach
- Water Law

Management Training example: "Start Today to be a Company Leader Tomorrow"

- Problem-solving/troubleshooting skills
- Technical aptitude (electrical/mechanical, science, math, computers...)
- Desire/Drive/Self-motivated
- Meet Education Requirements
- Understand the Plant Processes
- Apply Scientific Methods
- Be able to organize the work.
- Possess the people (soft) skills to do the job.



Physical Facilities Aptitude (1997 to Present)

- Basins, Tanks, Pipes, and Drain Systems
- Chemical Feed Systems and Application Points
- Electrical Layout / Breaker Locations
- Filter Pipes and operating Equipment
- Pump Station / Pump Building
- Use of Plant Plans and Specifications
- Valve and Meter Vaults Locations and Equipment
- Ozone Systems
- Mechanical Dewatering
- Reclamation Plant
- Drying Beds

*New <u>Distribution System</u> training program examples:

- System Pressure
- System Flushing
- Backflow Prevention
- Internal Corrosion Control
- External Corrosion Control
- Regulation requirements
- Disinfection Residual Maintenance
- Aesthetic Water Quality
- Customer Relations
- Energy Management
- Biological Stability

- Backflow Prevention
- Permeation Prevention
- Water Losses
- Valve Exercising & Replacement
- Fire Hydrant Maintenance/Testing
- Materials in Contact with Water
- Metering
- Treated Water Storage
- Pump Station O&M
- Well Head Protection
- Down Hole Maintenance
- Pipeline Rehab. & Replacement

****New <u>Raw Water Collection Systems</u>** training examples:

- Dam Operations & Maintenance [Large Dam O&M, (nondam) Diversions & Flow Control Facilities, and Conveyance Facilities (tunnels, aqueducts, pipelines, siphons)]
- Dam Performance
- Dam and Reservoir Monitoring
- Dam Instrumentation Package
- Data Analysis and Management
- Dam Filling Criteria
- Canal Operating Criteria
- Inspections (seeps, movement, change...)
- Physical Measurement Tools
- Inspection Proficiency w BOR
- Snowpack Forecasting
- Reservoir Operations
- Water Resource Management
- Contracting



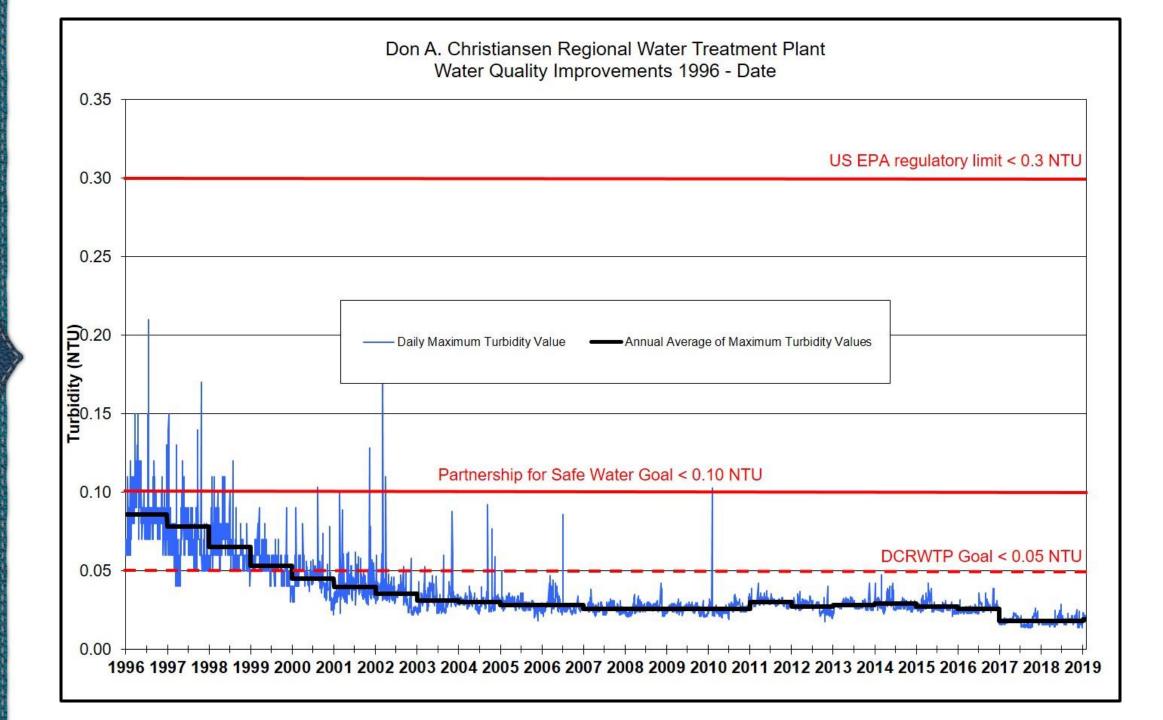


Training Key (Weekly Priority)

- Weekly "Thursday" Training (8:00 AM 9:00 AM)
- Training assignments *three* months in advance.
- Prepare training with PowerPoint or Video presentation.
- Training assignments also utilize company experts.
- Training to provide hands-on experience and <u>aptitude testing</u> to assess comprehension.

Training: Hands on training program fosters confidence and teamwork





We recognize and celebrate our accomplishments







Lead Operator Training Program Updates

- New added processes
- New Rules and Regulations
- Technology changes (e.g., Word Perfect/Quattro Pro bord/Excel) Word/Excel
- SOP changes
- Scheduled Update Reviews
- Improved Training Technology and Resources
- Training Availability (complete trainings as a PowerPoint presentations)
- New Programs (e.g., asset management)
- Cross-training additions
- Expanded training for both Treatment and Distribution Training Programs

Present Training Program(s)

Lead Water Treatment Plant Operator

- Original Categories (12)
- Original Program Skill Bases (72)
- Updated Categories (18)
- Updated Program Skill Bases (118)
- Lead Distribution System Operator
- Categories (18)
- Program Skill Bases (115)

"New" Lead Collection Systems Operator

What's Next? "Is the *operator* position a career position?" (No)

A Career Position Definition:

An employee can stay at one facility for an entire career with continuing opportunities for growth, development, advancement, and salary growth (even if the employee never becomes the facility manager).

 "Lead Operator" Position meets this for only about <u>10 years</u> (Career Positions need to take time – some will ask to go through quickly – <u>don't do it</u> – they need time to learn – "careers" are 30 years)

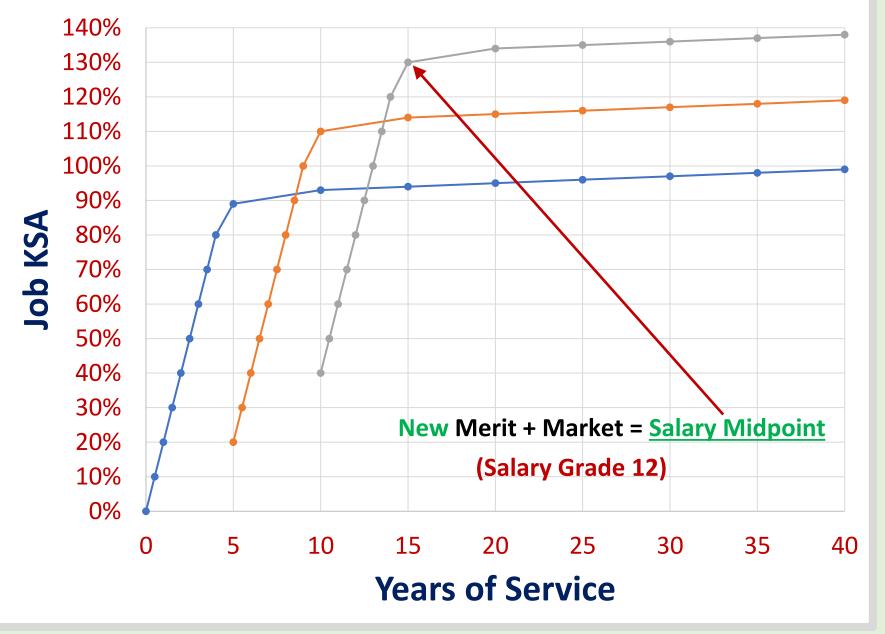
 We needed to add an additional position available for all who complete the Lead Operator Program. The position of "Operations Supervisor" provides operators with a "<u>Career Position</u>" opportunity.

Operations Supervisor (engineer) Position

• Minimum Requirements:

- Successfully complete the "Lead Operator Training Program" and then receive promotion
- Demonstrate leadership and facility O&M skills as an operator and lead operator for a total of 10-years experience (minimum)
- Complete a 4-year degree at an accredited university
- Must be recommended for promotion by supervisor
- <u>Note:</u> Upon promotion to this position a new operator will be hired to backfill your position as operator. This allows time and resources for additional opportunities and responsibilities throughout the organization.

Operations Supervisor Compensation



Review: Training Materials Preparation and Records

- Beginning in 1997 completed program training materials were typically prepared as a paper handout and then filed in a 3-ring binder for future reference and use.
- Prepared training has typically been organized in an electronic presentation format for the past 20 years.
- Presently training is regularly recorded with an iPhone and then saved on the network and made available for internal company use. Video learning is preferred by many younger employees. Video training by senior employees is a valuable method to quickly preserve institutional knowledge.
- Video training documents and knowledge transfer documents are now becoming part of our company Asset Management Program. Training videos are now linked to physical assets, where applicable, and are used in the field when troubleshooting, repairing, or replacing assets.

Conclusions:

- Utilities need to overcome protectionary hiring practices that block hiring and limit developing top employees.
- Consider adding selective advertising (colleges/departments) who teach and train students with needed specialized skills for the future (STEM).
- Potential top employees review the job title and essential <u>functions</u> when searching for a job where they can use their education. Changing the title from <u>Operator</u> to <u>Water Systems</u> <u>Technician and</u> adjusting the job description essential functions (key internet search words) in order to highlight desired technical skills, effectively attracting highly skilled applicants.

More Conclusions:

- Always interview with the future in mind (search for the next manager when interviewing for an operator). Ask questions in the interview that separate those with advanced education and technical skills then score and select accordingly.
- Provide a comprehensive operator training program with the specific purpose to train the next facility manager.
- An organizational paradigm shift may be needed to provide the opportunity for (many) future leaders, rather than "placing all of your eggs in <u>one basket</u>" with a single employee, a timely shift can result in a leadership selection pool of <u>several</u> highly qualified future leaders while enhancing job satisfaction and significantly <u>reducing risk</u>.

Final Conclusions

- <u>Comprehensive training programs</u> provide the workforce knowledge, skills, and abilities necessary to adapt to the high-tech water industry changes. Identifying and providing technical training needs, including tracking the training provided and the competency acquired, is key to utility sustainability.
- <u>Retaining</u> millennials (next-generation employees) includes providing jobs that provide clearly identified career paths with opportunities for both career and financial growth.
- Utilities need to provide generational training and development. (The "University of YouTube" is a preferred method of learning as compared to reading training documents and listening to formal presentations for most younger employees).
- Hire right, train right, and provide innovative opportunities for employee growth and development for a changing workforce.
- (Help employees succeed and sleep well at night). <u>SUCCESS</u>

Doubts?

Creating the Water Workforce of the Future



- Yes, this may seem challenging
- Yes, this may take time to accomplish (hiring differently)
- Yes, change is <u>work</u> but this <u>work</u> is worth it!

• Alternative? ("hire poorly, without education, skills, & potential, then don't train them - so they can't excel in their jobs, so that no one else wants them, and then they will stay - forever")



Questions??

Yes, I am happy to share our complete training programs with you.

Gerard Yates Email: gerard@cuwcd.com



CENTRAL UTAH WATER CONSERVANCY DISTRICT

Q&A Session

Webinar slides and recording will be sent to registrants within a week after the webinar.



On a scale of 1-10, with 10 being the best score and 1 being the worst, how would you rate today's webinar?

If you do not see a poll window pop up, please use the **Chat function** to type in your answer.

Thank you!





American Water Works Association



Water Environment Federation the water quality people*



