


EXHIBIT 3

"EMBRACE THE PROCESS"

CONTROLLING YOUR THREE- FOOT WORLD

HRIS MANAGEMENT CONFERENCE
 FEBRUARY 16-17, 2012
 WILSON PARK UNIVERSITY • PLAZA AND SUITE 1000
 CORONA, CALIFORNIA 92626


HRIS CONFERENCE 2012
 CONFERENCE ORGANIZATION



Embrace the Process

Development and Updating Standard Operating Procedures:

- Training: new and existing employees can greatly be achieved utilizing SOP's.
- Customer operations and maintenance, streamline processes and provide excellent management services and strong benefits of leading SOP's.
- All workers, perform unskilled laboratory or maintenance of our health care facilities and operations of SOP's.
- High commitment and skill of the process, maintain excellence in quality and safety standards of our operations and maintenance.



"STAY IN YOUR THREE- FOOT WORLD"

A CHANGING WORLD

SOP's A Way To Always WIN



YOU CAN DO IT!

STAY IN YOUR THREE-FOOT WORLD

CONTROL

- Individual Preparation
- Attitude
- Work Ethic

S

WHAT YOU SHOULD FOCUS ON

Mark Queen, Carl Time Sr.

OUR JOB (OUR LIFE) IS A PROBLEM

- What's in my three-foot world?
- Is this something I can control?
- Is this something I should be doing now?
- Will working change anything?
- If so, how should I react?

S

MAKE YOUR BED


"If You Want to Change the World, Make Your Bed!"

Retired Admiral William H. McRaven, Commander US Special Operations

HUA! Heard, Understood, Acknowledged


Teamwork

S



**"STRENGTHS"
FOUR REASONS
"OPERATOR"**



- > Determination
- > Trust
- > Individual & Team Training
- > Interdependency / Teamwork / Adherence




Our daily experiences can sometimes be overwhelming.

There is always more than meets the eye.


**Embrace the Process
PROCEDURES**

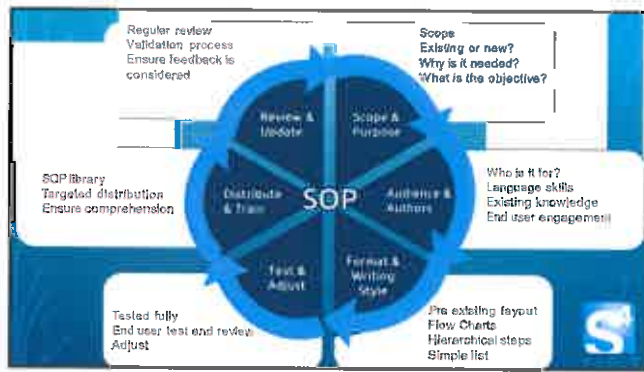


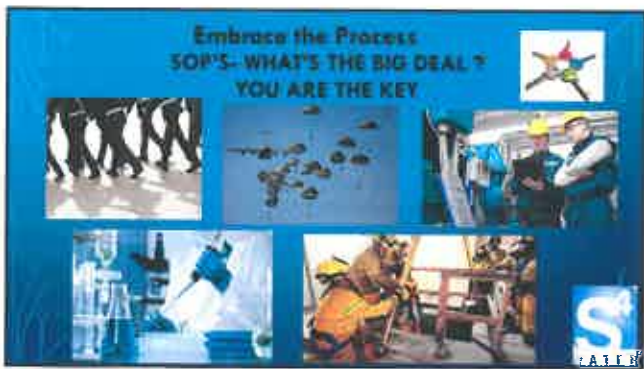
SOP Development- Standard Operating Procedures (SOPs) are written documents or work instructions that detail each of the steps involved in a procedure or process. The SOPs should be adopted to your template and organization structures.

In case you don't have a Template!









PROCESS

WHAT IS IMPORTANT TO YOU?

- Regulation & Requirements
- Safety
- Cost Efficiency
- Public Health Benefit
- Public Education
- Operational Control
- Reliable
- Scalability, etc.
- ...etc.
- ...etc.
- ...etc.

Filter Backwash Implementation

CHEMICAL FEED CALIBRATION

Consistency is the Best Policy

DESIGN, IMPLEMENTATION, AND VERIFICATION MEANS EVERYTHING




FOLLOW DIRECTIONS

SAFETY IS PART OF SCIENCE

CHOOSE YOUR TEST KIT

SOP- PREPARATION



- What procedures or processes need to be documented?
- These SOPs should then be written by individuals knowledgeable with the activity and the organization's institutional culture (I Know Your People! Strengths & Weaknesses)
- These individuals are subject-matter experts who perform the work or run the process
- A basic approach can be followed, especially for multi-person processes where the experience of several individuals are utilized, which includes appropriate "Review" team members (see p. 208)


SOPs should be written with sufficient detail so that someone with limited experience with or knowledge of the procedure, but with a basic understanding, can successfully reproduce the procedure when unsupervised.

The experience requirement for performing an activity should be noted in the section on personnel qualifications. For example, if a basic chemistry or biological course experience or additional training is required, this requirement should be included.

SOP- PREPARATION

OPERATIVE



SOP OVERVIEW

- Standard Operating Procedures- SOPs
- Best Management Practices -BMPs
- Guidelines & Recommendations- G & R's
- Inventory or Workbooks
 - o Inventory
 - o Recommendations
 - o Recommendations



Peer Review



OVERVIEW

- A Standard Operating Procedure (SOP) is a set of written instructions that document a routine or repetitive activity followed by an organization.
- The development and use of SOPs are an integral part of a successful quality system as it provides individuals with the information to perform a job properly and facilitates consistency in the quality and integrity of a product or process.

SOPs may also always be appropriate and serve various purposes, including:

- Facilitating safe operations
- Ensuring consistent results
- Reducing variability
- Improving efficiency
- Reducing risk


In general, SOPs are used to:

- Control the quality of the product or process
- Control the safety of the process
- Control the cost of the process
- Control the time of the process




PURPOSE

- SOPs describe the regularly recurring work processes that are to be conducted or followed within an organization. They document the way activities are to be performed to facilitate consistent performance in technical and quality aspects, operations and to support other goals.





PURPOSE

- SOPs are fundamental programmatic actions and technical actions such as analytical processes, and processes for maintaining, calibrating, and using equipment.
- SOPs are intended to be specific to the organization so facility where activities are described and assist that organization to maintain their quality system and quality assurance processes in a consistent manner with international requirements.





WRITING STYLES

- SOPs should be written in a concise, step-by-step, easy-to-read format. The information presented should be straightforward and not overly complicated.
- The active voice and present verb tense should be used. The term "you" should not be used, but implied.





Verification for Writing

- The document should not be overly redundant, or overly lengthy. Keep it simple and short.
- Information should be conveyed clearly and explicitly to remove any doubt as to what is required.
- Clear and direct should be illustrated with relevant writing examples.



- Texas is Getting the Point Across
- Provide Information
- Make it "Crystal Clear"
- Reliability/Quality Information

The development and use of SOPs minimizes variation and promotes quality through consistent implementation of a process or procedure within the organization, even if there are temporary or permanent personnel changes.

SOPs can ensure compliance with regulatory and governmental requirements and can be used as a primary process training resource. SOPs are also used to ensure consistency in operations.



BENEFITS




A resource opportunity for communication and can address safety concerns. When historical data are being evaluated for current use, SOPs can also be valuable for reconstructing project activities when no other references are available.

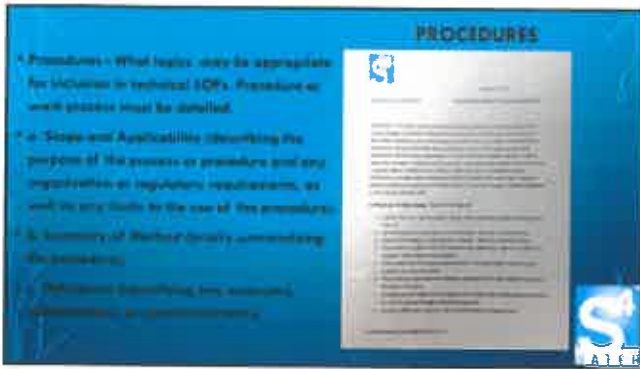
In addition, SOPs are frequently used as standards by inspectors when auditing procedures. Ultimately, the benefits of a well-written SOP can extend much further than with writing.

BENEFITS

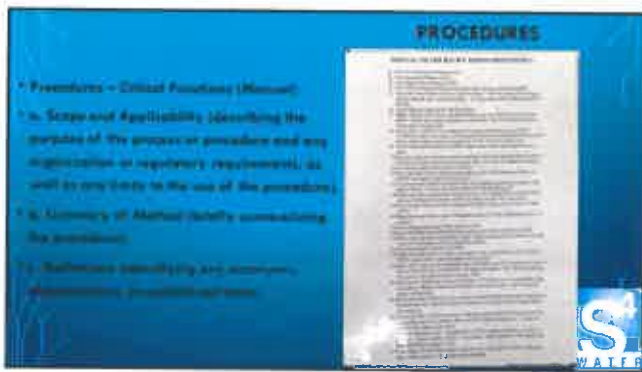
PROCEDURES

- Procedures – What tests only be appropriate for inclusion in technical SOPs. Procedure or work process must be detailed.
- a. Scope and Applicability (describing the purpose of the process or procedure and any organization or regulatory requirements, as well as any limits to the use of the procedure).
- b. Summary of Method (briefly summarizing the procedure).
- c. References (describing any external requirements, organizations, or standards).



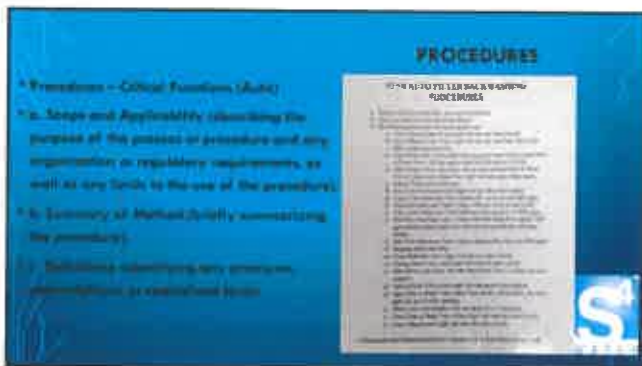
PROCEDURES

- Procedures – Critical Functions (Manual)
- a. Scope and Applicability (describing the purpose of the process or procedure and any organization or regulatory requirements, as well as any limits to the use of the procedure).
- b. Summary of Method (briefly summarizing the procedure).
- c. References (describing any external requirements, organizations, or standards).



PROCEDURES

- Procedures – Critical Functions (Auto)
- a. Scope and Applicability (describing the purpose of the process or procedure and any organization or regulatory requirements, as well as any limits to the use of the procedure).
- b. Summary of Method (briefly summarizing the procedure).
- c. References (describing any external requirements, organizations, or standards).



PROCEDURES

- Procedure (Identifying all pertinent steps, materials, and the materials needed to accomplish the procedure such as:
 - Instrument or Method Calibration and Standardization
 - Sample Collection
 - Sample Handling and Preservation
 - Sample Preparation and Analysis (such as: accuracy, precision, sensitivity, identification, and detection limit)




PROCEDURES

- Troubleshooting
- Data Acquisition, Calculations & Data Reduction Requirements (such as listing any mathematical steps to be followed)
- Computer Hardware & Software (used to store, find, compile, report, manipulate and print results and/or report data, with Data and Access Management (e.g., identifying any calculations to be performed, forms to be used, reports to be written, and data and report formats)




Checklist

- Many protocols use checklists to ensure that steps are followed in order. Checklists are also used to document completed activities.
- Any checklist or form developed as part of an activity should be referenced in the points in the procedure where they are to be used and then attached to the SOP.
- If forms, checklists, checklists are prepared specifically for a given activity it should state the SOP number, describe, in brief, generally, how the checklist is to be prepared, or the steps it is to be used.
- Copies of specific checklists should be cross-referenced to the SOP with the activity steps where they are used.
- Remember that the checklist is not the SOP but a part of the SOP.

CHECKLIST- DO YOU FOLLOW DIRECTIONS?




POWER OF THE PENCIL

**THE BIGGEST LIE I
TELL MYSELF IS,
AND I QUOTE:**

**"I DON'T NEED TO
WRITE THIS DOWN
BECAUSE I CAN
REMEMBER IT."**

SECURITY



The White Flint is enclosed in a security perimeter fence with an electronically monitored gate. The gate itself has an electronic lock and must be open. The City School Police Department, which also monitors the perimeter fence, is responsible for the day-to-day security of the school. The gate is always open.

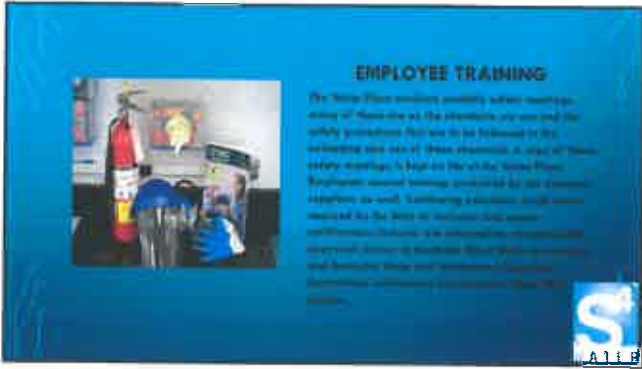


Job & Safety Meeting

Job & Safety Meeting
Date: 10/10/2018
Time: 10:00 AM
Location: 1000
Attendees: [List of names]
Agenda:
1. Review of the day's work plan
2. Safety discussion
3. [Other items]

SAFETY

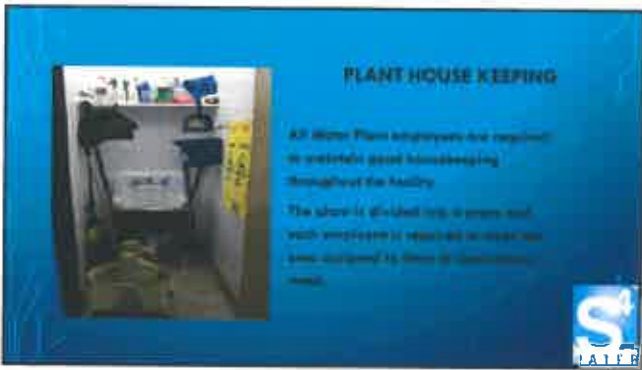




EMPLOYEE TRAINING

The Water Plant workers routinely attend meetings, many of them on the plant site, and receive the safety guidelines that are to be followed in the working area. At these meetings, a lot of time every meeting is spent on the safety of the plant. Employees receive training provided by the company as well. Continuing education will also be provided to the staff on a regular basis.

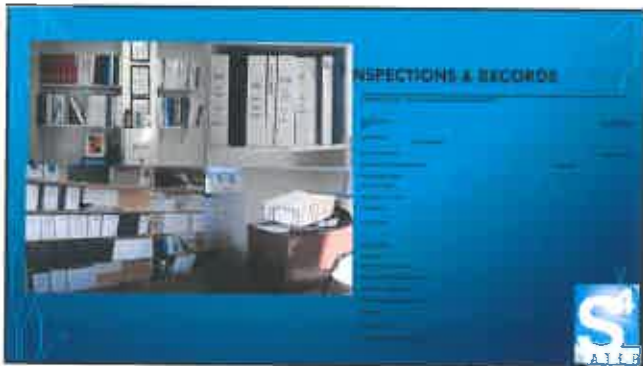
S
A I F P



PLANT HOUSE KEEPING

All Water Plant employees are required to maintain good housekeeping throughout the facility. The plant is divided up in areas and each employee is required to clean the area assigned to them at all times.

S
A I F P



INSPECTIONS & RECORDS

The Water Plant maintains a comprehensive record of all inspections and records. These records are maintained in a secure and organized manner. The records are used to track the performance of the plant and to identify areas for improvement. The records are also used to provide a history of the plant's operations.

S
A I F P

Flash Mixer

Skarpe Mixer Model #SN42-18
Serial #38254

6 SEP 1788 2276

Installed: 2000
New Clean Tech Installed 2014



EQUIPMENT

Flash Mixer



Change Oil Annually - 4000 Hours
Grease

Grease Tank Annually - 4000
Change Oil Annually - 4000

Change Oil on Flasher


EQUIPMENT



Equipment Name: Flasher
 Make: S.A.L.B. (S.A.L.B. Inc.)
 Model: S.A.L.B. (S.A.L.B. Inc.)
 Location: S.A.L.B. (S.A.L.B. Inc.)
 Date Installed: S.A.L.B. (S.A.L.B. Inc.)
 Date Last Maint: S.A.L.B. (S.A.L.B. Inc.)
 Date Next Maint: S.A.L.B. (S.A.L.B. Inc.)
 Description: S.A.L.B. (S.A.L.B. Inc.)
 Remarks: S.A.L.B. (S.A.L.B. Inc.)
 Operator: S.A.L.B. (S.A.L.B. Inc.)
 Status: S.A.L.B. (S.A.L.B. Inc.)
 Notes: S.A.L.B. (S.A.L.B. Inc.)

END RESULTS ARE CRITICAL

Steady-Growth &
Consistency Means Better
Verification

Verification is Essential

BE CREATIVE

Video Clips
Illustrations
Drawings




* With Smart Plans and associated capabilities our SOP's can be as detailed as you want them to be or as high level as you want them to be.




PLAN & EXECUTE & VERIFY

Utilizing SOP's will determine the outcome and provide you guidance along the journey



Before you start anything learn how to finish it.





THE ONLY EASY DAY WAS YESTERDAY



BASIC TRAINING/ UNDERWATER DEMO/ JUMP SCHOOL/ MEDICAL/ A SCHOOL/ AIRBORNE/ AIR ASSAULT/ HALO/ ADVANCED MEDICAL/ SNIPER/ TRAINING IS NEVER ENDING


TEAMWORK

" Is The Ability To Work Together Toward A Common Vision.

The Ability To Direct Individual Accomplishment Toward Organizational Objectives.


It Is The Force That Allows Common People To Achieve Uncommon Results."



- * Lead by Example- "We Must Be Responsible"
- * SOP Used for Training
- * Team Works is Always Best- "None of Us is as smart as all of Us"
- * Show Everybody Results- Management, Customers, Brands, CHIXEN, DOW, Other systems
- * Easier & less expensive to do it right the first time
- * Improve Month- "The bestings will continue until we are perfect"

HOW TO GET PEOPLE TO "BUY IN"





TEN TIPS FOR EFFECTIVELY DEALING WITH THE PUBLIC SERVICE COMMISSION

PRESENTATION TO KRWA 2022 MANAGEMENT CONFERENCE

FEBRUARY 16, 2022

Gerald Wuetcher
Stoll Keenon Ogden PLLC
gerald.wuetcher@skofirm.com
<https://twitter.com/gwuetcher>
(859) 231-3017



INTRODUCTION

- Current regulatory environment
 - Criticism of H₂O utility management
 - Threats to penalize/remove H₂O Officials
 - Ratemaking decisions adverse to H₂O utility interest
 - Greater emphasis on formal proceedings



INTRODUCTION

- PSC organizational changes
 - Significant Staff turnover
 - Smaller, less experienced Staff
 - Significant increase in case workload
 - Fewer available PSC resources
 - Newly appointed commissioners
 - Pandemic conditions limiting opportunities to meet with PSC and discuss issues informally



STOLL
KEENON
OGDEN

**WHAT ACTIONS CAN A WATER UTILITY TAKE TO
DEAL EFFECTIVELY WITH PSC?**



STOLL
KEENON
OGDEN

TIP NO. 1

**ENSURE THAT THE PSC CAN
COMMUNICATE WITH YOUR
UTILITY**



STOLL
KEENON
OGDEN

TIP NO. 2

**STAY CURRENT WITH THE
TECHNOLOGIES NECESSARY TO
FUNCTION BEFORE THE PSC**



TIP NO. 3

**IDENTIFY ALL REQUIRED FILINGS
AND TIMELY MAKE THOSE FILINGS**



TIP NO. 4

**BECOME FAMILIAR WITH PSC LAWS
AND REGULATIONS**



TIP NO. 5

**STAY CURRENT WITH PSC
DECISIONS AND ANNOUNCEMENTS**



TIP NO. 6

PREPARATION IS ESSENTIAL TO OBTAINING YOUR REQUESTED RELIEF FROM THE PSC



TIP NO. 7

DON'T ASSUME THE PSC IS INFORMED ON AN SUBJECT. EXPLAIN AND EDUCATE.



TIP NO. 8

YOUR LAWYER AND ENGINEER ARE ESSENTIAL PLAYERS ON YOUR TEAM. USE THEM.



TIP NO. 9

HAVE A STRATEGY FOR THE CASE BEFORE FILING THE APPLICATION



TIP NO. 10

THOROUGHLY DOCUMENT YOUR UTILITY'S ACTIONS



TIP NO. 11

THE PSC IS NOT YOUR FRIEND – IT'S YOUR REGULATOR. TREAT IT ACCORDINGLY.




Questions?



Contact Information:

Gerald E. Wuetcher
Stoll Keenon Ogden PLLC
300 W. Vine Street, Suite 2100
Lexington, Kentucky 40507
gerald.wuetcher@skofirm.com
<https://twitter.com/gwuetcher>
(859) 231-3017

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Revisions to Kentucky's Underground Facility Protection Statute


Patrick Keal
Duke Energy Kentucky
Senior Government Affairs Specialist

June 2, 2021

2021 Revisions to the Kentucky Underground Facility Protection Act

- House Bill 303 (Santoro)
 - Industry Backed Overhaul Bill


- Senate Bill 172 (Howell)
 - Public Service Commission Cleanup Bill

 © June 2, 2021

House Bill 303

- The most recent effort to revise the statute began three years ago; largely based on the work of KGA's Damage Prevention Committee

- The initial version of the recently passed legislation was developed by a working group comprised of more than 25 organizations over a two-year period

 © June 1, 2021

HB 303 Working Group

- 811
- Association of General Contractors
- Association of Master Contractors
- Atmos
- AT&T
- Big Rivers
- Columbia Gas
- Commerce Lexington
- Delta Natural Gas
- Duke Energy
- East Kentucky Power Company
- Energy and Environment Cabinet
- Greater Louisville Inc.
- Home Builders Association
- Kentucky American Water
- Kentucky Association of Counties
- Kentucky Association of Electric Cooperatives
- Kentucky Chamber of Commerce
- Kentucky Gas Association
- Kentucky Oil and Gas Association
- Kentucky League of Cities
- Kentucky Power
- Kentucky Rural Water Association
- Kentucky Telecom Association
- LG&EKU
- Marathon Oil
- Northern Kentucky Chamber of Commerce
- Public Service Commission



4 June 3, 2019

HB 303- 2021 General Assembly

- Sponsored by Representative Sal Santoro (R-Boone)
- February 2nd, introduced in the House
- February 25th, passed the House 94-0 with two amendments
- March 12th, passed the Senate 31-0 with one amendment
- March 15th, received concurrence in the House 92-0
- March 23rd, signed by Governor Beshear
- January 1st, 2022, effective date



11 April 3, 2021

HB 303- Substantial Changes to Current Statute (Section 1- Definitions)

- "Operator" means any entity or individual owning or operating underground facilities to serve the public, but does not include any entity or individual owning or operating underground storage tanks that are subject to Subchapter 60 of KRS Chapter 224;**
- "Approximate location," when referring to an underground facility, means:**
 - (a) For underground metallic facilities and underground nonmetallic facilities with metallic tracer wire, a distance not to exceed the combined width of the underground facility plus twenty-four (24) ~~eighteen (18)~~ inches measured from the outer edge of each side of the underground facility; or**
 - (b) For unmapped or unmappable facilities ~~[nonmetallic facilities without metallic tracer wire], the underground facility shall be located as accurately as possible from field location records and shall require notification from the operator of the inability to accurately locate the facility;~~**



6 October, 2021

HB 303- Substantial Changes to Current Statute (Section 1- Definitions)

- "Working day" means every day, except Saturday, Sunday, and holidays established by federal or state statute. For purposes of measuring any period of time prescribed or allowed under the Underground Facility Damage Prevention Act of 1994, a working day shall commence at 12:01 a.m. eastern time and end at 12 midnight eastern time excluding the day the locate request was made a twenty-four (24) hour period commencing from the time of receipt of the notification by the Kentucky Contact Center except Saturday, Sunday, and holidays established by federal or state statute;
- "Positive response" means an automated or written communication system provided by each protection notification center for all locate requests the center receives pursuant to Section 2 of this Act that allows excavators, locators, operators, and other interested parties to determine the status of locating an underground facility and requires response and verification by operators and excavators to comply with their respective requirements of the Underground Facility Damage Prevention Act of 1994;



7 | June 2, 2021

HB 303- Substantial Changes to Current Statute (Section 1- Definitions)

- "Second notice" means a notice that is made by an excavator to a notification center when an operator has failed to comply with the positive response requirements under subsection (5) of Section 2 of this Act;
- "Tolerance zone" means a strip of land at least four (4) feet wide but not wider than the width of the underground facility plus two (2) feet on either side of the outer limits of the facility;
- "Untonable facility" means an underground facility that cannot be located from the surface using locating methods which meet industry standards and that requires additional efforts and extended time;
- "Fiber-to-the-premises" means a service that provides network connectivity between a location and a subscriber using fiber.



8 | June 2, 2021

HB 303- Substantial Changes to Current Statute (Section 2)

- (5) An operator shall respond to facility locate requests and provide a positive response as follows:
 - (a) To a normal excavation locate request, within two (2) working days after receiving notification from an excavator or any time prior to the scheduled excavation start date if agreed upon as provided in subsection (7) of Section 5 of this Act, excluding large project requests, design information requests, emergency locate requests, and unmapped or untonable facilities; excluding large projects;
 - (b) To an emergency locate request, as quickly as possible but not to exceed forty-eight (48) hours after receiving notification from an excavator;
 - (c) To a design information request, within ten (10) working days after receiving notification from the person making the request; and



9 | June 2, 2021

HB 303- Substantial Changes to Current Statute (Section 2)

(d) To a large project request, within two (2) working days the operator shall notify the excavator that an excavation area has been determined to be a large project, and the operator shall respond to the request within five (5) working days from the later of receiving notification from an excavator or prior to the scheduled excavation start date for that location if agreed upon as provided in subsection (7) of Section 5 of this Act;

(e) To an unmapped or untonable facility request, within two (2) working days the operator shall notify the excavator that an excavation area has been determined to be an unmapped or untonable project, and the operator shall respond to the request within five (5) working days for a normal locate request or eight (8) working days for a large project request from the later of receiving notification from an excavator or prior to the scheduled excavation start date if agreed upon as provided in subsection (7) of Section 5 of this Act; and



11 | June 2, 2011

HB 303- Substantial Changes to Current Statute (Section 2)

(f) To a fiber-to-the-premises broadband deployment excavation request, in locations not already served by fiber-to-the-premises, within four (4) working days.

- (6) Within one (1) working day after receiving a second notice request from an excavator pursuant to subsection (12) of Section 3 of this Act, an operator shall locate its facility and update the positive response system.



11 | June 2, 2011

HB 303- Substantial Changes to Current Statute (Section 2)

- (7) An operator shall, after[upon] receiving an emergency locate request, [or] a normal excavation locate request, an unmapped or untonable locate request, or a large project request as provided in subsection (5) of this section:

(a) Inform the excavator of the approximate location and description of any of the operator's underground facilities that may be damaged or pose a safety concern because of excavation or demolition;

(b) Inform the excavator of any other information that would assist in locating and avoiding contact with or damage to underground facilities;

(c) Unless permanent facility markers are provided, provide temporary markings to inform the excavator of the ownership and approximate location of the underground facility; and

(d) Provide a positive response to the requesting party [Notify the requesting party if underground facilities are not in conflict with the excavation or demolition].



11 | June 2, 2011

HB 303- Substantial Changes to Current Statute (Section 2)

- ~~(11)(10)~~ If extraordinary circumstances exist, an operator shall notify the excavator of the operator's inability to comply with this section. Notification under this subsection shall temporarily relieve the operator of complying with subsections (5) and (6) of this section until the operator can recover from the extraordinary circumstances. Extraordinary circumstances include weather that makes it impossible for any combination of facility markers identified in subsection (10) of this section to be used, extreme weather conditions, force majeure, disasters, or civil unrest that make timely response difficult or impossible.



11 | June 2, 2021

HB 303- Substantial Changes to Current Statute (Section 3)

- (1) (a) Each excavator, or person responsible for an excavation, planning excavation, or demolition work shall, not less than two (2) full working days nor more than ten (10) full working days prior to commencing work, unless a future start date is agreed upon as provided in subsection (7) of Section 5 of this Act, notify each affected operator's designated protection notification center ~~(operator)~~ of the excavator's intended work and work schedule. ~~Contacting the applicable protection notification centers shall satisfy this requirement.~~
- (b) ~~[An excavator may commence work before.]~~ The two (2) full working days provided for in paragraph (a) of this subsection have elapsed if all affected operators have notified the person ~~that the location of all the affected operators' facilities have been marked or that they have no facilities in the area of the proposed excavation, demolition, or timber harvesting.~~



11 | June 2, 2021

HB 303- Substantial Changes to Current Statute (Section 3)

- (3) Each excavator shall provide each applicable protection notification center with adequate information regarding:
 - (a) Name and phone number of the excavator or person requesting the underground facility locate;
 - (b) Approximate location and type of work being performed by the excavator, including if the request involves a fiber-to-the-premises broadband deployment excavation;
 - (c) Name and phone number of work site contact;
 - (d) Estimated start date and start time of excavation; and ~~The name of the individual making the notification;~~
 - (e) ~~The excavator's name, address, and a telephone number; (e)~~



15 | June 2, 2021

HB 303- Substantial Changes to Current Statute (Section 3)

- (e) The excavation or demolition site location or locations, each of which shall not exceed five thousand (5,000) ~~two thousand (2,000)~~ feet in length unless the excavator and operator agree to a larger area, the city or community, county and street address, including the nearest cross street;
- (e) ~~The type and extent of excavation or demolition to be performed;~~
- (e) ~~A contact name and telephone number of the person responsible for the work to be performed.~~



10/26/12, 2011

HB 303- Substantial Changes to Current Statute (Section 3)

- (7) If, after the response time ~~two (2) day period~~ provided by KRS 367.4909(5) ~~(e)~~, the excavator finds evidence of an unmarked underground facility at the site, he shall immediately notify ~~the~~ protection notification center. When an excavator has complied with subsection (1) of this section and evidence of an unmarked underground facility is uncovered, the operator shall have six (6) business hours to identify the underground facility.



11/16/12, 2011

HB 303- Substantial Changes to Current Statute (Section 3)

- (10) When excavation or demolition is necessary within the tolerance zone ~~(approximate location of the underground facility)~~, the excavator shall hand-dig or use noninvasive means to avoid damage to the underground facility, except that mechanized equipment may be used:
 - (a) To remove the pavement or other manmade hard surface if used during the initial penetration only to the depth necessary and if an individual other than the equipment operator visually monitors the excavation activity;
 - (b) To remove indigenous rock if used during the initial penetration only to the extent necessary, if an individual other than the equipment operator visually monitors the excavation activity, and if the excavation is planned to avoid damage to the underground facility. However, if the underground facility contains flammable, toxic, corrosive, or hazardous products, the excavator shall notify the facility owner of the excavator's intent prior to removing indigenous rock;



10/26/12, 2011

HB 303- Substantial Changes to Current Statute (Section 3)

(c) To remove materials that are more than twelve (12) inches in any direction from the outer edge of the located facility if the excavator visually identifies the precise location of the underground facility or visually confirms that no facility is present within the depth of the excavation, if an individual other than the equipment operator visually monitors the excavation activity, and if the excavation is planned to avoid damage to the underground facility; and

(d) To place shores into an existing excavation or remove shores from an existing excavation.



21 | June 2, 2021

HB 303- Substantial Changes to Current Statute (Section 3)

* (12) If an operator has failed to give a positive response within the timeframes provided in subsection (5) of Section 2 of this Act, the excavator shall submit a second notice to the protection notification center. If one (1) working day after receiving a second notice request as provided in subsection (6) of Section 2 of this Act, the operator has still failed to give a positive response, an excavator that has fully complied with this section shall not be deemed liable for any damages to an underground facility that would have been located if the operator had complied with the operator's duties under Section 2 of this Act, except for damages to a person or an underground facility due to negligence or intentional misconduct of an excavator. This subsection shall not apply to any underground facility used to transport gas or hazardous liquid subject to the federal pipeline safety laws, 49 U.S.C. secs. 60101 et seq.



21 | June 5, 2021

HB 303- Substantial Changes to Current Statute (Section 4)

(1) All [Each] protection notification centers [center] shall:

(a) Provide locate request services during working days and provide an emergency contact number for incidents occurring outside the working day [Operate the protection notification center during all working days];

(b) Provide a positive response system for excavators, locators, operators, and other interested parties to determine the status of locating an underground facility;

(c) Provide any excavation request with an identification number and the names of the facility owners or operators who will be notified for each locate request [Provide a locate request identification number to the excavator for each excavation or demolition location request];

(d) [(e)] Promptly after receiving an excavation or demolition work notification from an excavator, provide to each of its affected operator members the excavator information required by KRS 367.4911 (3);



21 | June 2, 2021

HB 303- Substantial Changes to Current Statute (Section 4)

(e)(e) Maintain a list of all its operator members (member identities), their business addresses (address) and their business and emergency telephone numbers and provide (provide) this information in accordance with KRS 64.012 with the county clerk of each county where the operator member has underground facilities. The county clerk shall provide this information upon request for the actual cost of providing a copy, to be paid by the requesting party to the county clerk. The county clerk shall assume no liability associated with the receipt of this information from the protection notification center or for subsequent provision of this same information to the requesting party;

(f)(f) Make the operator members information list available to any person for inspection at its place of business without charge or provide a copy of the list to any person for any county upon request for a fee not to exceed the actual cost of providing a copy;

(g)(g) Define and adopt policies and procedures for processing design information requests; [and]

(h)(h) Provide the person making a design information request a list of identified operators that will receive notification and notify those operators;



22 / June 2, 2015

HB 303- Substantial Changes to Current Statute (Section 4)

(l) Maintain the following information provided by excavators for all requests to locate facilities for at least five (5) years from the date of the request:

- 1. Name and phone number of the excavator or person requesting the underground facility locate;
- 2. Location and type of work being performed by the excavator;
- 3. Name and phone number of work site contact;
- 4. Name, address, and phone number of underground facility operators; and
- 5. Estimated start date and start time of excavation;

(j) Provide contact information for the protection notification center on its Web site or pursuant to paragraph (e) of this subsection; and

(k) Provide public awareness education and damage prevention programs in the manner and amount determined by each protection notification center.



23 / June 2, 2015

HB 303- Substantial Changes to Current Statute (Section 4)

(2) The Kentucky Contact Center shall be governed by a board of directors (composed of representatives of member operators) who are elected by the membership. Board seats shall be composed of no more than twenty-one (21) voting members and six (6) nonvoting members and may be filled by representatives of the following:

- (a) A natural gas provider;
- (b) An electric provider;
- (c) A telecommunications provider;
- (d) A water/sewer provider;
- (e) An interstate pipeline operator;
- (f) A municipal utility operator; [and]
- (g) A commercial excavator;
- (h) An oil and gas operator;



24 / June 2, 2015

HB 303- Substantial Changes to Current Statute (Section 4)

(j) At least one (1) but not more than six (6) advisory, nonvoting members representing the following:

- 1. Public Service Commission;
- 2. Kentucky Transportation Cabinet;
- 3. Home Builders Association of Kentucky;
- 4. National Electrical Contractors Association;
- 5. Associated General Contractors of Kentucky; or
- 6. Kentucky Association of Master Contractors[An advisory, nonvoting representative of one (1) of the following:
 - 1. Home Builders Association of Kentucky;
 - 2. National Electrical Contractors Association;
 - 3. Associated General Contractors of Kentucky; or
 - 4. Kentucky Association of Plumbing, Heating-Cooling Contractors].



25 | June 2, 2021

HB 303- Substantial Changes to Current Statute (Section 4)

* (3) Nonvoting members shall be elected by a majority of the voting members and shall serve for one (1) year terms which expire on December 31. Nonvoting members are eligible for reappointment by a majority of the voting members.



26 | June 2, 2021

HB 303- Substantial Changes to Current Statute (Section 5)

- (1) An excavator who fails to comply with any provision of KRS 387.4911, or an operator who fails to comply with any provision of KRS 367.4909, ~~shall be guilty of endangering underground facilities and~~ may be subject to a civil penalty [fine] of two hundred [and] fifty dollars (\$250) for the first violation [offense], no more than one thousand dollars (\$1,000) for the second violation [offense within one (1) year] and no more than three thousand dollars (\$3,000) for the third and any subsequent violation. A violation shall be considered a first violation under this subsection if more than three hundred sixty-five (365) days have elapsed since the last incident attributable to a person in violation of Section 2 or Section 3 of this Act. If a person commits a violation in the course and scope of employment, the penalties shall be imposed on the employer [offense].
- (2) A protection notification center that fails to comply with any provision of KRS 367.4913 shall be subject to a civil penalty [fine] of one thousand dollars (\$1,000) for each violation [offense].



27 | June 2, 2021

HB 303- Substantial Changes to Current Statute (Section 5)

- (3) A person that knowingly provides false notice to a utility notification center of an emergency as defined in KRS 367.4903 shall be subject to a civil penalty~~(fine)~~ of one thousand dollars (\$1,000) for each violation~~(offense)~~.
- (4) Any person who violates any provision of the Underground Facility Damage Prevention Act of 1994, KRS 367.4901 to 367.4917, that involves damage to a facility containing any flammable, toxic, corrosive, or hazardous material or results in the release of any flammable, toxic, corrosive, or hazardous material shall be subject to a civil penalty, in addition to the civil penalty in subsection (1) of this section,~~(fine)~~ not to exceed one thousand dollars (\$1,000) for each violation~~(offense)~~. The penalties of this subsection are not in conflict with and are in addition to civil damages for personal injury or property damage.



20 | June 2, 2021

HB 303- Substantial Changes to Current Statute (Section 5)

- (5) (a) Except as provided in subsection (6) of this section, all civil penalties~~(fines)~~ recovered for a violation of this section shall be paid to the general fund of the state, county, city, or fire protection agency which issued the citation.
- (b) In the event that more than one (1) government agency was involved, the court shall direct an apportionment of the civil penalties~~(fines)~~.
- (c) Failure to comply with the provisions of the Underground Facility Damage Prevention Act of 1994, KRS 367.4901 to 367.4917, may be determined at the conclusion of an investigation and shall be based on evidence available to state, county, or city officials, law enforcement, or fire protection agencies which issue the citation.
- (7) The commission shall make available on its Web site a written agreement form for an operator and an excavator to agree to a date or series of dates by which time the locate request must be completed if different from those dates established in Section 2 of this Act. The form shall contain but is not limited to the parties' names, the locate request number, the date requested, and the location. The parties shall make the executed agreement form available upon request of the commission.



20 | June 1, 2021

Senate Bill 172

- Addressed potential concerns from PHMSA
- Offers additional protections when underground facility damages occur as a result of exempt activities



19 | June 2, 2021

SB 172- 2021 General Assembly

- Sponsored by Senator Jason Howell (R-Calloway)
- February 4th, introduced in the Senate
- March 2nd, passed the Senate 36-0
- March 15th, passed the House 97-0 with House Committee Substitute
- March 16th, received concurrence in the Senate 35-0
- March 24th, signed by Governor Beshear
- June 28th, 2021, effective date



31 | June 2, 2021

SB 172- Substantial Changes to Current Statute (Section 1)

- (9) (a) Each excavator who conducts or is responsible for any excavation or demolition that results in underground facility damage shall cease excavation or demolition activities and notify all affected operators of the location and nature of the underground facility damage immediately upon discovery of the damage.
- (b) Any individual or entity that is otherwise exempt from the requirements of KRS 367.4901 to 367.4917 under Section 2 of this Act, who conducts or is responsible for any excavation or demolition that results in underground facility damage to an underground facility or system used for producing, storing, conveying, transmitting, or distributing gas, petroleum, petroleum products, or hazardous liquids, shall cease excavation or demolition activities and notify all affected operators of the location and nature of the underground facility damage immediately upon discovery of the damage.



32 | June 2, 2021

SB 172- Substantial Changes to Current Statute (Section 1)

- (c) If the underground facility damage causes concern for public or workplace safety, the excavator, or the individual or entity that is otherwise exempt from the requirements of KRS 367.4901 to 367.4917 under Section 2 of this Act, shall notify appropriate public safety agencies of the location and nature of the safety concern.
- (d)(e) If the underground facility damage results in the escape or suspected escape of any flammable, toxic, or corrosive gas or liquid, the excavator, or the individual or entity that is otherwise exempt from the requirements of KRS 367.4901 to 367.4917 under Section 2 of this Act, shall cease excavation or demolition activities and immediately report to the appropriate authorities by calling the 911 emergency telephone number.



33 | June 2, 2021

SB 172- Substantial Changes to Current Statute (Section 2)

Except as provided in subsection (9) of Section 1 of this Act, the requirements of KRS 367.4905 to 367.4917 shall not apply to the following:

- (1) Excavation by an operator on its own easement except where that easement is crossed by another operator's facilities;
- (2) Routine road maintenance or railroad maintenance or repairs;
- (3) Tilling of soil for agricultural purposes;
- (4) Excavators excavating on private property, using nonmechanized equipment, if there is no encroachment on any operator's right-of-way or easement;
- (5) The opening of a grave in a cemetery;
- (6) A solid waste disposal site which is properly permitted;
- (7) Coal mining operations which are currently regulated under KRS Chapter 350;



34 | June 1, 2011

SB 172- Substantial Changes to Current Statute (Section 2)

- (8) A utility operator or utility operator subcontractor performing emergency work as defined in KRS 367.4903;
- (9) Leak migration testing using metal probes inserted by hand by an authorized representative of the operator; ~~or~~
- (10) Any nonintrusive excavating performed by an operator or his subcontractor to locate the operator's underground facilities in response to a notice of excavation from the notification center, if all reasonable precautions have been taken to protect the underground facilities; or
- (11) Nonintrusive excavating to inspect or perform maintenance for an existing utility pole.




35 | June 1, 2011

Questions?



36 | June 2, 2011




Revisions to Kentucky's Underground Facility Protection Statute

Patrick Keal
Duke Energy Kentucky
Senior Government Affairs Specialist

February 16, 2022


2021 Revisions to the Kentucky Underground Facility Protection Act

- House Bill 303 (Santoro)
 - Industry Backed Overhaul Bill
- Senate Bill 172 (Howell)
 - Public Service Commission Cleanup Bill

 2 | February 16, 2022

House Bill 303

- The most recent effort to revise the statute began three years ago; largely based on the work of KGA's Damage Prevention Committee
- The initial version of the recently passed legislation was developed by a working group comprised of more than 25 organizations over a two-year period

 4 | February 16, 2022

HB 303 Working Group

- 811
- Association of General Contractors
- Association of Master Contractors
- Amos
- AT&T
- Big Rivers
- Columbia Gas
- Commerce Lexington
- Delta Natural Gas
- Duke Energy
- East Kentucky Power Company
- Energy and Environment Cabinet
- Greater Louisville Inc.
- Home Builders Association
- Kentucky American Water
- Kentucky Association of Counties
- Kentucky Association of Electric Cooperatives
- Kentucky Chamber of Commerce
- Kentucky Gas Association
- Kentucky Oil and Gas Association
- Kentucky League of Cities
- Kentucky Power
- Kentucky Rural Water Association
- Kentucky Telecom Association
 - LG&E/KU
- Marathon Oil
- Northern Kentucky Chamber of Commerce
- Public Service Commission



4/1 January 01, 2021

HB 303- 2021 General Assembly

- Sponsored by Representative Sal Santoro (R-Boone)
- February 2nd, introduced in the House
- February 25th, passed the House 94-0 with two amendments
- March 12th, passed the Senate 31-0 with one amendment
- March 15th, received concurrence in the House 92-0
- March 23rd, signed by Governor Beshear
- January 1st, 2022, effective date



5/1 February 18, 2021

HB 303- Substantial Changes to Current Statute (Section 1- Definitions)

- "Operator" means any entity or individual owning or operating underground facilities to serve the public, but does not include any entity or individual owning or operating underground storage tanks that are subject to Subchapter 60 of KRS Chapter 224;
- "Approximate location," when referring to an underground facility, means:
 - (a) For underground metallic facilities and underground nonmetallic facilities with metallic tracer wire, a distance not to exceed the combined width of the underground facility plus twenty-four (24) [eighteen (18)] inches measured from the outer edge of each side of the underground facility; or
 - (b) For unmapped or untonable facilities/nonmetallic facilities without metallic tracer wire, the underground facility shall be located as accurately as possible from field location records and shall require notification from the operator of the inability to accurately locate the facility;



8/1 February 18, 2022

HB 303- Substantial Changes to Current Statute (Section 1- Definitions)

- "Working day" means every day, except Saturday, Sunday, and holidays established by federal or state statute. For purposes of measuring any period of time prescribed or allowed under the Underground Facility Damage Prevention Act of 1994, a working day shall commence at 12:01 a.m. eastern time and end at 12 midnight eastern time excluding the day the locate request was made [a twenty-four (24) hour period commencing from the time of receipt of the notification by the Kentucky Contact Center except Saturday, Sunday, and holidays established by federal or state statute];
- "Positive response" means an automated or written communication system provided by each protection notification center for all locate requests the center receives pursuant to Section 2 of this Act that allows excavators, locators, operators, and other interested parties to determine the status of locating an underground facility and requires response and verification by operators and excavators to comply with their respective requirements of the Underground Facility Damage Prevention Act of 1994;



1 | February 19, 2023

HB 303- Substantial Changes to Current Statute (Section 1- Definitions)

- "Second notice" means a notice that is made by an excavator to a notification center when an operator has failed to comply with the positive response requirements under subsection (5) of Section 2 of this Act;
- "Tolerance zone" means a strip of land at least four (4) feet wide but not wider than the width of the underground facility plus two (2) feet on either side of the outer limits of the facility;
- "Untonable facility" means an underground facility that cannot be located from the surface using locating methods which meet industry standards and that requires additional efforts and extended time;
- "Fiber-to-the-premises" means a service that provides network connectivity between a location and a subscriber using fiber.



2 | February 19, 2023

HB 303- Substantial Changes to Current Statute (Section 2)

- (5) An operator shall respond to facility locate requests and provide a positive response as follows:
 - (a) To a normal excavation locate request, within two (2) working days after receiving notification from an excavator or any time prior to the scheduled excavation start date if agreed upon as provided in subsection (7) of Section 5 of this Act, excluding large project requests, design information requests, emergency locate requests, and unmapped or untonable facilities [excluding large projects];
 - (b) To an emergency locate request, as quickly as possible but not to exceed forty-eight (48) hours after receiving notification from an excavator;
 - (c) To a design information request, within ten (10) working days after receiving notification from the person making the request [and];



3 | February 19, 2023

HB 303- Substantial Changes to Current Statute (Section 2)

(d) To a large project request, within two (2) working days the operator shall notify the excavator that an excavation area has been determined to be a large project, and the operator shall respond to the request within five (5) working days from the later of receiving notification from an excavator or prior to the scheduled excavation start date for that location if agreed upon as provided in subsection (7) of Section 5 of this Act;

(e) To an unmapped or untonable facility request, within two (2) working days the operator shall notify the excavator that an excavation area has been determined to be an unmapped or untonable project, and the operator shall respond to the request within five (5) working days for a normal locate request or eight (8) working days for a large project request from the later of receiving notification from an excavator or prior to the scheduled excavation start date if agreed upon as provided in subsection (7) of Section 5 of this Act; and



11 February 16, 2021

HB 303- Substantial Changes to Current Statute (Section 2)

(f) To a fiber-to-the-premises broadband deployment excavation request, in locations not already served by fiber-to-the-premises, within four (4) working days.

(g) Within one (1) working day after receiving a second notice request from an excavator pursuant to subsection (12) of Section 3 of this Act, an operator shall locate its facility and update the positive response system.



11 February 16, 2021

HB 303- Substantial Changes to Current Statute (Section 2)

(7) An operator shall, after receiving an emergency locate request, a normal excavation locate request, an unmapped or untonable locate request, or a large project request as provided in subsection (5) of this section:

(a) Inform the excavator of the approximate location and description of any of the operator's underground facilities that may be damaged or pose a safety concern because of excavation or demolition;

(b) Inform the excavator of any other information that would assist in locating and avoiding contact with or damage to underground facilities;

(c) Unless permanent facility markers are provided, provide temporary markings to inform the excavator of the ownership and approximate location of the underground facility; and

(d) Provide a positive response to the requesting party. Notify the requesting party if underground facilities are not in conflict with the excavation or demolition.



17 February 16, 2021

HB 303- Substantial Changes to Current Statute (Section 2)

~~(11)(10)~~ If extraordinary circumstances exist, an operator shall notify the excavator of the operator's inability to comply with this section. Notification under this subsection shall temporarily relieve the operator of complying with subsections (5) and (6) of this section until the operator can recover from the extraordinary circumstances. Extraordinary circumstances include weather that makes it impossible for any combination of facility markers identified in subsection (10) of this section to be used, extreme weather conditions, force majeure, disasters, or civil unrest that make timely response difficult or impossible.



11 February 16, 2021

HB 303- Substantial Changes to Current Statute (Section 3)

(1) (a) Each excavator, or person responsible for an excavation, planning excavation, or demolition work shall, not less than two (2) full working days nor more than ten (10) full working days prior to commencing work, unless a future start date is agreed upon as provided in subsection (7) of Section 5 of this Act, notify each affected operator's designated protection notification center~~(operator)~~ of the excavator's intended work and work schedule~~(operator)~~. ~~Contacting the applicable protection notification centers shall satisfy this requirement.~~

(b) ~~(An excavator may commence work before.)~~ The two (2) full working days provided for in paragraph (a) of this subsection have elapsed if all affected operators have notified the person~~that the location of all the affected operators' facilities have been marked or that they have no facilities in the area of the proposed excavation, demolition, or timber harvesting.~~



14 February 16, 2021

HB 303- Substantial Changes to Current Statute (Section 3)

(3) Each excavator shall provide each applicable protection notification center with adequate information regarding:

- (a) Name and phone number of the excavator or person requesting the underground facility locate;
- (b) Approximate location and type of work being performed by the excavator, including if the request involves a fiber-to-the-premises broadband deployment excavation;
- (c) Name and phone number of work site contact;
- (d) Estimated start date and start time of excavation; and~~the name of the individual making the notification;~~

~~(b) The excavator's name, address, and a telephone number. (c)~~



10 February 16, 2021

HB 303- Substantial Changes to Current Statute (Section 3)

- (e) The excavation or demolition site location or locations, each of which shall not exceed five thousand (5,000) ~~two thousand (2,000)~~ feet in length unless the excavator and operator agree to a larger area, the city or community, county and street address, including the nearest cross street;
- ~~(d) The type and extent of excavation or demolition to be performed;~~
- ~~(e) A contact name and telephone number of the person responsible for the work to be performed.~~



11 February 03, 2012

HB 303- Substantial Changes to Current Statute (Section 3)

- (7) If, after the response time ~~two (2) day period~~ provided by KRS 387.4909(5) ~~(a)~~, the excavator finds evidence of an unmarked underground facility at the site, he shall immediately notify ~~a~~ the protection notification center. When an excavator has complied with subsection (1) of this section and evidence of an unmarked underground facility is uncovered, the operator shall have six (6) business hours to identify the underground facility.



11 February 03, 2012

HB 303- Substantial Changes to Current Statute (Section 3)

- (10) When excavation or demolition is necessary within the tolerance zone ~~(approximate location of the underground facility)~~, the excavator shall hand-dig or use nonintrusive means to avoid damage to the underground facility, except that mechanized equipment may be used:
 - (a) To remove the pavement or other manmade hard surface if used during the initial penetration only to the depth necessary and if an individual other than the equipment operator visually monitors the excavation activity;
 - (b) To remove indigenous rock if used during the initial penetration only to the extent necessary, if an individual other than the equipment operator visually monitors the excavation activity, and if the excavation is planned to avoid damage to the underground facility. However, if the underground facility contains flammable, toxic, corrosive, or hazardous products, the excavator shall notify the facility owner of the excavator's intent prior to removing indigenous rock;



11 February 03, 2012

HB 303- Substantial Changes to Current Statute (Section 3)

- (c) To remove materials that are more than twelve (12) inches in any direction from the outer edge of the located facility if the excavator visually identifies the precise location of the underground facility or visually confirms that no facility is present within the depth of the excavation, if an individual other than the equipment operator visually monitors the excavation activity, and if the excavation is planned to avoid damage to the underground facility; and
- (d) To place shores into an existing excavation or remove shores from an existing excavation.



18 | February 16, 2022

HB 303- Substantial Changes to Current Statute (Section 3)

- (12) If an operator has failed to give a positive response within the timeframes provided in subsection (5) of Section 2 of this Act, the excavator shall submit a second notice to the protection notification center. If one (1) working day after receiving a second notice request as provided in subsection (6) of Section 2 of this Act, the operator has still failed to give a positive response, an excavator that has fully complied with this section shall not be deemed liable for any damages to an underground facility that would have been located if the operator had complied with the operator's duties under Section 2 of this Act, except for damages to a person or an underground facility due to negligence or intentional misconduct of an excavator. This subsection shall not apply to any underground facility used to transport gas or hazardous liquid subject to the federal pipeline safety laws, 49 U.S.C. secs. 60101 et seq.



20 | February 16, 2022

HB 303- Substantial Changes to Current Statute (Section 4)

- (1) All ~~Each~~ protection notification centers ~~center~~ shall:
 - (a) Provide locate request services during working days and provide an emergency contact number for incidents occurring outside the working day ~~Operate the protection notification center during all working days~~;
 - (b) Provide a positive response system for excavators, locators, operators, and other interested parties to determine the status of locating an underground facility;
 - (c) Provide any excavation request with an identification number and the names of the facility owners or operators who will be notified for each locate request ~~Provide a locate request identification number to the excavator for each excavation or demolition location request~~;
 - (d) ~~It~~ Promptly after receiving an excavation or demolition work notification from an excavator, provide to each of its affected operator members the excavator information required by KRS 367.4911(3);



21 | February 16, 2022

HB 303- Substantial Changes to Current Statute (Section 4)

~~(e)(4)~~ Maintain a list of all its operator members ~~(member identities)~~, their business addresses ~~(address)~~ and their business and emergency telephone numbers and ~~provide~~ this information in accordance with KRS 84.012 with the county clerk of each county where the operator member has underground facilities. The county clerk shall provide this information upon request for the actual cost of providing a copy, to be paid by the requesting party to the county clerk. The county clerk shall assume no liability associated with the receipt of this information from the protection notification center or for subsequent provision of this same information to the requesting party;

~~(f)(e)~~ Make the operator members information list available to any person for inspection at its place of business without charge or provide a copy of the list to any person for any county upon request for a fee not to exceed the actual cost of providing a copy;

~~(g)(f)~~ Define and adopt policies and procedures for processing design information requests; ~~and~~

~~(h)(g)~~ Provide the person making a design information request a list of identified operators that will receive notification and notify those operators;



22 | February 18, 2022

HB 303- Substantial Changes to Current Statute (Section 4)

~~(f)~~ Maintain the following information provided by excavators for all requests to locate facilities for at least five (5) years from the date of the request:

- 1. Name and phone number of the excavator or person requesting the underground facility locate;
- 2. Location and type of work being performed by the excavator;
- 3. Name and phone number of work site contact;
- 4. Name, address, and phone number of underground facility operators; and
- 5. Estimated start date and start time of excavation;

~~(j)~~ Provide contact information for the protection notification center on its Web site or pursuant to paragraph (e) of this subsection; and

~~(k)~~ Provide public awareness education and damage prevention programs in the manner and amount determined by each protection notification center.



23 | February 18, 2022

HB 303- Substantial Changes to Current Statute (Section 4)

~~(2)~~ The Kentucky Contact Center shall be governed by a board of directors ~~(composed of representatives of member operators)~~ who are elected by the membership. Board seats shall be composed of no more than twenty-one (21) voting members and six (6) nonvoting members and may be filled by representatives of the following:

- (a) A natural gas provider;
- (b) An electric provider;
- (c) A telecommunications provider;
- (d) A water/sewer provider;
- (e) An interstate pipeline operator;
- (f) A municipal utility operator; ~~and~~
- (g) A commercial excavator;
- (h) An oil and gas operator;



24 | February 18, 2022

HB 303- Substantial Changes to Current Statute (Section 4)

(j) At least one (1) but not more than six (6) advisory, nonvoting members representing the following:

- 1. Public Service Commission;
- 2. Kentucky Transportation Cabinet;
- 3. Home Builders Association of Kentucky;
- 4. National Electrical Contractors Association;
- 5. Associated General Contractors of Kentucky; or
- 6. Kentucky Association of Master Contractors (An advisory, nonvoting representative of one (1) of the following:
 - 1. Home Builders Association of Kentucky;
 - 2. National Electrical Contractors Association;
 - 3. Associated General Contractors of Kentucky; or
 - 4. Kentucky Association of Plumbing, Heating-Cooling Contractors).



23 February 16, 2022

HB 303- Substantial Changes to Current Statute (Section 4)

- * (3) Nonvoting members shall be elected by a majority of the voting members and shall serve for one (1) year terms which expire on December 31. Nonvoting members are eligible for reappointment by a majority of the voting members.



23 February 16, 2022

HB 303- Substantial Changes to Current Statute (Section 5)

- * (1) An excavator who fails to comply with any provision of KRS 367.4911, or an operator who fails to comply with any provision of KRS 367.4909, shall be guilty of endangering underground facilities and may be subject to a civil penalty [fine] of two hundred [and] fifty dollars (\$250) for the first violation [offense], no more than one thousand dollars (\$1,000) for the second violation [offense within one (1) year], and no more than three thousand dollars (\$3,000) for the third and any subsequent violation. A violation shall be considered a first violation under this subsection if more than three hundred sixty-five (365) days have elapsed since the last incident attributable to a person in violation of Section 2 or Section 3 of this Act. If a person commits a violation in the course and scope of employment, the penalties shall be imposed on the employer [offense].
- * (2) A protection notification center that fails to comply with any provision of KRS 367.4913 shall be subject to a civil penalty [fine] of one thousand dollars (\$1,000) for each violation [offense].



23 February 16, 2022

HB 303- Substantial Changes to Current Statute (Section 5)

- (3) A person that knowingly provides false notice to a utility notification center of an emergency as defined in KRS 367.4903 shall be subject to a civil penalty [fine] of one thousand dollars (\$1,000) for each violation [offense].
- (4) Any person who violates any provision of the Underground Facility Damage Prevention Act of 1994, KRS 367.4901 to 367.4917, that involves damage to a facility containing any flammable, toxic, corrosive, or hazardous material or results in the release of any flammable, toxic, corrosive, or hazardous material shall be subject to a civil penalty, in addition to the civil penalty in subsection (1) of this section, [fine] not to exceed one thousand dollars (\$1,000) for each violation [offense]. The penalties of this subsection are not in conflict with and are in addition to civil damages for personal injury or property damage.



20 | February 16, 2022

HB 303- Substantial Changes to Current Statute (Section 5)

- (5) (a) Except as provided in subsection (6) of this section, all civil penalties [fines] recovered for a violation of this section shall be paid to the general fund of the state, county, city, or fire protection agency which issued the citation.
(b) In the event that more than one (1) government agency was involved, the court shall direct an apportionment of the civil penalties [fines].
(c) Failure to comply with the provisions of the Underground Facility Damage Prevention Act of 1994, KRS 367.4901 to 367.4917, may be determined at the conclusion of an investigation and shall be based on evidence available to state, county, or city officials, law enforcement, or fire protection agencies which issue the citation.
- (7) The commission shall make available on its Web site a written agreement form for an operator and an excavator to agree to a date or series of dates by which time the locate request must be completed if different from those dates established in Section 2 of this Act. The form shall contain but is not limited to the parties' names, the locate request number, the date requested, and the location. The parties shall make the executed agreement form available upon request of the commission.



20 | February 16, 2022

Senate Bill 172

- Addressed potential concerns from PHMSA
- Offers additional protections when underground facility damages occur as a result of exempt activities



20 | February 16, 2022

SB 172- 2021 General Assembly

- Sponsored by Senator Jason Howell (R-Calloway)
- February 4th, introduced in the Senate
- March 2nd, passed the Senate 36-0
- March 15th, passed the House 97-0 with House Committee Substitute
- March 16th, received concurrence in the Senate 35-0
- March 24th, signed by Governor Beshear
- June 28th, 2021, effective date



10/16/2021

SB 172- Substantial Changes to Current Statute (Section 1)

- (9) (a) Each excavator who conducts or is responsible for any excavation or demolition that results in underground facility damage shall cease excavation or demolition activities and notify all affected operators of the location and nature of the underground facility damage immediately upon discovery of the damage.
- (b) Any individual or entity that is otherwise exempt from the requirements of KRS 367.4901 to 367.4917 under Section 2 of this Act, who conducts or is responsible for any excavation or demolition that results in underground facility damage to an underground facility or system used for producing, storing, conveying, transmitting, or distributing gas, petroleum, petroleum products, or hazardous liquids, shall cease excavation or demolition activities and notify all affected operators of the location and nature of the underground facility damage immediately upon discovery of the damage.



3/2/2021

SB 172- Substantial Changes to Current Statute (Section 1)

- (c) If the underground facility damage causes concern for public or workplace safety, the excavator, or the individual or entity that is otherwise exempt from the requirements of KRS 367.4901 to 367.4917 under Section 2 of this Act, shall notify appropriate public safety agencies of the location and nature of the safety concern.
- (d) If the underground facility damage results in the escape or suspected escape of any flammable, toxic, or corrosive gas or liquid, the excavator, or the individual or entity that is otherwise exempt from the requirements of KRS 367.4901 to 367.4917 under Section 2 of this Act, shall cease excavation or demolition activities and immediately report to the appropriate authorities by calling the 911 emergency telephone number.



3/2/2021

SB 172- Substantial Changes to Current Statute (Section 2)

Except as provided in subsection (9) of Section 1 of this Act, the requirements of KRS 367.4905 to 367.4917 shall not apply to the following:

- (1) Excavation by an operator on its own easement except where that easement is crossed by another operator's facilities;
- (2) Routine road maintenance or railroad maintenance or repairs;
- (3) Tilling of soil for agricultural purposes;
- (4) Excavators excavating on private property, using nonmechanized equipment, if there is no encroachment on any operator's right-of-way or easement;
- (5) The opening of a grave in a cemetery;
- (6) A solid waste disposal site which is properly permitted;
- (7) Coal mining operations which are currently regulated under KRS Chapter 350;



10 | February 18, 2022

SB 172- Substantial Changes to Current Statute (Section 2)

(8) A utility operator or utility operator subcontractor performing emergency work as defined in KRS 367.4903;

(9) Leak migration testing using metal probes inserted by hand by an authorized representative of the operator; ~~or~~

(10) Any nonintrusive excavating performed by an operator or his subcontractor to locate the operator's underground facilities in response to a notice of excavation from the notification center, if all reasonable precautions have been taken to protect the underground facilities; or

(11) Nonintrusive excavating to inspect or perform maintenance for an existing utility pole.




11 | February 18, 2022

Questions?



12 | February 18, 2022

Help! Where Did the Chemicals Go?



Water Solutions Unlimited, Inc.

The Chemical Crisis is Real




Shortages

Higher Prices

LOGO

What's Driving the Shortages?

There are even more than these



Covid-19
Laid the groundwork
Weather
Texas Ice
Hurricanes
Freight
Trucks
Rail
Cargo Ships

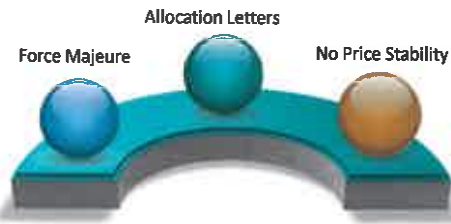
LOGO

Chemicals Floating in the Ocean



LOGO

What are we seeing?



LOGO



Who has sent out Force Majeure or Allocation Letters in 2021



LOGO

Letters of Price Increases

LOGO

November 2012

Dear Customer,

As you are aware, JCI has recently implemented a new pricing structure for our products and services. This is a result of our commitment to providing you with the highest quality products and services at the most competitive prices. The new pricing structure is effective as of November 1, 2012. We have worked hard to ensure that our products and services remain the industry leader, and we are confident that you will continue to find value in our products and services.

The price increases are a result of the rising costs of raw materials, labor, and other factors. We have worked hard to ensure that our products and services remain the industry leader, and we are confident that you will continue to find value in our products and services.

We are committed to providing you with the highest quality products and services at the most competitive prices. We have worked hard to ensure that our products and services remain the industry leader, and we are confident that you will continue to find value in our products and services.

Thank you for your continued support and loyalty. We look forward to serving you for many years to come.

Sincerely,
Sumner Mayo
President, JCI
11111 1st Street, Suite 100
Denver, CO 80202
Tel: 303.733.1111
Fax: 303.733.1111
www.jci.com

LOGO

 **lin**[®]

Letters

LOGO



400 North Road, St. Charles, Missouri 63075
Phone: 636.455.4400 • Fax: 636.455.4400
Market Address: www.olin.com

February 23, 2021

SUBJECT: Sodium Hypochlorite (Bleach) Price Increase Announcement

Dear Customer:

Effective immediately, or as outlined below herein, Olin Corporation's Chlor Alkali Products and Vinyls Division (Olin) is increasing the unit price of both Sodium Hypochlorite (Bleach) by \$0.001 LBS per gallon (\$0.001 GPD per liter) for all 12.5 wt% Sodium Hypochlorite solutions produced at our North American Bleach facilities, and by \$0.004 LBS per gallon (\$0.004 GPD per liter) for all 12.5 wt% High Strength Sodium Hypochlorite concentrations.

Your sales representative will be in contact with you to answer any questions you may have regarding this price increase announcement.

Thank you for your valued business. We appreciate the continued commitment you place in Olin as your supplier.

Sincerely,
Olin Chlor Alkali Products and Vinyls

Linda Blankenship
Marketing Director - Bleach

LOGO



400 North Road, St. Charles, Missouri 63075
Phone: 636.455.4400 • Fax: 636.455.4400
Market Address: www.olin.com

February 23, 2021

SUBJECT: Sodium Hypochlorite (Bleach) Price Increase Announcement & 99% Sodium Hypochlorite (Bleach) Order Commitment

Dear Customer:

Effective immediately, or as outlined below herein, Olin Corporation's Chlor Alkali Products and Vinyls Division (Olin) is increasing the unit price of both Sodium Hypochlorite (Bleach) by \$0.001 LBS per gallon (\$0.001 GPD per liter) for all 12.5 wt% Sodium Hypochlorite solutions produced at our North American Bleach facilities, and by \$0.004 LBS per gallon (\$0.004 GPD per liter) for all 12.5 wt% High Strength Sodium Hypochlorite concentrations.

Additionally, effective May 1, 2021, Olin is implementing 99% order commit for all gallons of Sodium Hypochlorite (Bleach) across our entire system, as outlined below herein.

Lead times for all sales orders of Sodium (+4) days and terms (30) days for all new sales orders (over 25 days to ship and committed) will be strictly enforced.

Your sales representative will be in contact with you to answer any questions you may have regarding this price increase announcement.

Thank you for your valued business. We appreciate the continued commitment you place in Olin as your supplier.

Sincerely,
Olin Chlor Alkali Products and Vinyls

Linda Blankenship
Marketing Director - Bleach

LOGO



400 North Road, St. Charles, Missouri 63075
Phone: 636.455.4400 • Fax: 636.455.4400
Market Address: www.olin.com

February 23, 2021

SUBJECT: Oxalic Acid Price Increase Announcement

Dear Customer:

Effective immediately, or as outlined below herein, Olin Corporation's Chlor Alkali Products and Vinyls Division (Olin) is increasing the unit price of Oxalic Acid (Oxalic) by \$0.001 per pound (\$0.001 per kilogram) for all Oxalic Acid (Oxalic) produced at our North American Oxalic Acid facilities, and by \$0.004 per pound (\$0.004 per kilogram) for all Oxalic Acid (Oxalic) produced at our High Strength Oxalic Acid facilities.

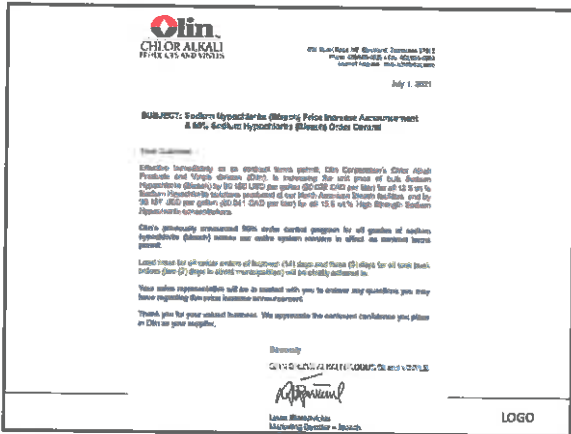
Your sales representative will be in contact with you to answer any questions you may have regarding this price increase announcement.

Thank you for your valued business. We appreciate the continued commitment you place in Olin as your supplier.

Sincerely,

Linda Blankenship
Marketing Director, North American Oxalic Acid
Olin Chlor Alkali Products and Vinyls

LOGO









490 South River Rd., Cleveland, TN 37317
Phone 423-262-4622 Fax 423-262-4623
Internet Address: www.olin.com

September 2, 2021

SUBJECT: Caustic Soda Price Increase Announcement

Dear Customer

Effective immediately, or as contract terms permit, Olin Corporation's Chlor Alkali Products and Vinyl Division (Olin) is increasing off-schedule prices of Commercial Grade (dryweight) and Membrane Grade caustic soda by \$100 per dry short ton (DST) in the U.S. and \$21.55 per dry metric ton (DMT) in Canada, net to ex-manufacturer.

Prices are per net ton, 75% NaOH basis, ex-works.

Olin will continue to implement an order control program based on 80% allocation. Lead times for all orders will be strictly adhered to in the following manner: 72 hours for truck shipments, 14 days for railcar shipments, and 30 days for large shipments.

Your account manager will be in contact with you to answer any questions you may have regarding this price increase announcement and factors driving the current price increase.

We appreciate your business and your confidence in selecting Olin as your supplier.

Sincerely,

Marketing Director, North America Caustic Soda
Olin Chlor Alkali Products and Vinyls

LOGO



490 South River Rd., Cleveland, Tennessee 37317
Phone 423-262-4622 Fax 423-262-4623
Internet Address: www.olin.com

September 20, 2021

Dear Customer

Effective immediately, or as contract terms permit, Olin Corporation's Chlor Alkali Products and Vinyl Division (Olin) is increasing the on-schedule and off-schedule price of chlorine by \$154.04 per short ton in the U.S. and by €33.82 per metric ton in Canada.

Olin will continue to implement an order control program based on 80% allocation. Lead times for all orders will be strictly adhered to in the following manner: 72 hours for truck shipments, 14 days for railcar shipments, and 30 days for large shipments.

Your account manager will be in contact with you to answer any questions you may have regarding this price announcement.

We appreciate your business and your confidence in selecting Olin as your supplier.

Sincerely,

Marketing Director, Chlorine & H₂O
Olin Chlor Alkali Products and Vinyls

LOGO



490 South River Rd., Cleveland, Tennessee 37317
Phone 423-262-4622 Fax 423-262-4623
Internet Address: www.olin.com

September 16, 2021

SUBJECT: Caustic Soda Price Increase Announcement

Dear Customer

Effective immediately, or as contract terms permit, Olin Corporation's Chlor Alkali Products and Vinyl Division (Olin) is increasing off-schedule prices of Commercial Grade (dryweight) and Membrane Grade caustic soda by \$100 per dry short ton (DST) in the U.S. and \$21.55 per dry metric ton (DMT) in Canada, net to ex-manufacturer.

Prices are per net ton, 75% NaOH basis, ex-works.

Olin will continue to implement an order control program based on 80% allocation. Lead times for all orders will be strictly adhered to in the following manner: 72 hours for truck shipments, 14 days for railcar shipments, and 30 days for large shipments.

Your account manager will be in contact with you to answer any questions you may have regarding this price increase announcement and factors driving the current price increase.

We appreciate your business and your confidence in selecting Olin as your supplier.

Sincerely,

Marketing Director, North America Caustic Soda
Olin Chlor Alkali Products and Vinyls

LOGO



4800 West 116th St., Houston, Texas 77056
Phone 281.261.0500 • Fax 281.261.0501
www.olin.com

October 18, 2007

SUBJECT: Sodium Hypochlorite (Bleach) Price Increase Announcement

Dear Customer,

Effective immediately or as permitted herein, Olin Chlor-Alkali Chlor Alkali Products and Waste Systems (Olin) is increasing the unit price of bulk Sodium Hypochlorite (Bleach) by \$0.100 USD per gallon (0.020 CAD per liter) for all US and Canadian Hypochlorite customers, and by \$0.157 USD per gallon (0.039 CAD per liter) for all 16.9 oz./1.06 qt. High Strength Sodium Hypochlorite customers.

Lead times for all water orders of fourteen (14) days and less (13 days for all tank truck orders 1000-gal to 4000-gal) will be strictly adhered to.

Your sales representative will be in contact with you to answer any questions you may have regarding this price increase announcement.

Thank you for your valued business. We appreciate the continued confidence you place in Olin as your supplier.

Sincerely,

OLIN CHLORALKALI/STYDOL/STYCL/STYLS

Linda Rosenfield
Marketing Director - Bleach

LOGO



Westlake

Letters

LOGO



2801 Post Oak Blvd., Suite 600
Houston, TX 77056
Tel 713 960 9111

May 26, 2021

Dear Customer,

Effective immediately, or as permitted by contract, Westlake is announcing a price increase for Chlorine (and independently or as part of an ECU) by US\$ 65 per short ton in the United States and C\$ 120 per metric ton in Canada. This increase is necessitated by a tightening supply/demand balance of chlorine and chlorine derivatives, in addition to previously announced price increases.

Westlake's chlorine order management program (OMP) remains in effect with the standard lead time for all chlorine rail shipments at 21 days.

If you have any questions regarding this price change, please contact your sales professional. Westlake values the opportunity to supply your Chlorine requirements, and will strive to earn your business every day.

Sincerely,

David Kolowaty
Director, Commercial Chlor-Alkali

LOGO



2901 Post Oak Blvd., Suite 600
Houston, TX 77056
Tel 713 960 5111

August 31, 2021

Dear Customer:

Effective immediately, or as permissible by contract, Westlake is announcing a price increase for Chlorine (sold independently or as part of an ECU) by US\$ 14.5 per short ton in the United States, and C\$ 20.9 per metric ton in Canada. This increase is necessitated by a tightening supply/demand balance of chlorine and chlorine derivatives, this is in addition to previously announced price increases.

Westlake's chlorine order management program (OMP) remains in effect with the standard lead time for all chlorine and shipments at 21 days.

If you have any questions regarding this price change, please contact your sales professional. Westlake values the opportunity to supply your Chlorine requirements and will strive to earn your business every day.

Sincerely,

David Kolowich
Director, Commercial Chlor-Alkali

LOGO



2019-01-01 09:00:00 - 10/00/00 1000 7700
1111 8888 99

August 31, 2021

Dear Customers,

Effective immediately, or when permissible by contract, Westlake Chemical will increase the price for dry nitrogen gas (sold as a gas) by US\$ 5.0 per dry short ton in the US and C\$ 7.5 per dry metric ton in Canada. Westlake Chemical will increase the price for all primary grades of liquid oxygen sold by US\$ 7.5 per dry short ton in the US and C\$ 10.0 per dry metric ton in Canada.

Westlake's standard lead times for all liquid shipments continue to be as follows:

Barge 30 days
Rail 14 days
Truck 7 days

If you have any questions regarding this price increase or lead time, please contact your Westlake sales professional. Westlake values your business. Thank you for the opportunity to supply your liquid oxygen and soda requirements.

Sincerely,

David Kolowich
Director, Commercial Chlor-Alkali

LOGO



FANG PHOS, INC.

Letters

LOGO



FANG PHOS, INC.

2388 Norman Road - Canton, Georgia 30116-1772-302-8767 - Fax (770) 430-8711

August 21, 2021

Subject: Price increase effective October 1, 2021

To our valued customer,

I would like to thank you for your business and support.

I am sorry to inform you that the manufacturer has increased the price of Phosphoric acid to us by \$0.04/lb starting September 1, 2021 but we will hold our price increase to you until October 1, 2021. As we mentioned in a earlier about the price of Phosphoric acid going up by \$0.10-\$0.15/lb before this price increase but we have not passed on all the increase that manufacturer has passed on to us. At this time, we are not able to absorb the increase. We are hoping that the price increase on Phosphoric acid will settle down. We are continuing to work with multiple sources on finding the best price and pass the savings to our customers. I believe we are still in a very competitive position as a phosphoric acid supplier.

J



FANG PHOS, INC.

2388 Norman Road - Canton, Georgia 30116-1772-302-8767 - Fax (770) 430-8711

October 11, 2021

Subject: Price increase effective October 11, 2021

To our valued customer,

I would like to thank you for your business and support.

I am sorry to inform you that the manufacturer has increased the price of Phosphoric acid to us by \$0.10/lb as of last week without any notice. We are told by Manufacturer that there is big shortage of Phosphoric acid globally and the cost of manufacturing has gone up substantially. Unfortunately, we do not have any choice but to pass on the increase of \$.10/lb on all grades of phosphoric acid as of today. I am also sending you a US Producer Price Index Chart, so you can see how the price has changed from January 2021 to August 2021. We are hoping that the price increase on Phosphoric acid will settle down. We are continuing to work with multiple sources on finding the best price and pass the savings to our customers. I believe we are still in a very competitive position as a phosphoric acid supplier.

JGO



FANG PHOS, INC.

2388 Norman Road - Canton, Georgia 30116-1772-302-8767 - Fax (770) 430-8711

November 12, 2021

Subject: Price increase effective December 1, 2021

To our valued customer,

I would like to thank you for your business and support.

I am sorry to inform you that we received an another notice from manufacturer last week of October 2021 that the price of Phosphoric acid will be going up by \$.20/lb starting November 1, 2021. We did not pass on the increase to our valuable customers, hoping that the price will not reach. We are told by Manufacturer that there is still shortage of Phosphoric acid globally and demand is high. Also, the cost of manufacturing has gone up substantially. Unfortunately, at this time we do not have any choice but to pass on the increase of \$.20/lb on all grades of phosphoric acid as of December 1, 2021. We are hoping that the price increase on Phosphoric acid will settle down. We are continuing to work with multiple sources on finding the best price and pass the savings to our customers. I believe we are still in a very competitive position as a phosphoric acid supplier.

LOGO



B. No. 11 351

Dear Valued Customer

Our website carries some significant information and alerts. This includes the threat of a major impact on the production costs of Fyres products. Some examples include labor, and other supply chain related costs to meet our markets demand which is high. In addition to the threat of these events, availability of raw materials becoming much more sensitive. Given this current reality, effective immediately, 1, 2021, or an early test period, Fyres will request pricing as follows:

40 Grades of Phosphate Acid	\$8.50/tonnet
40 Phosphate Salt	\$9.25/tonnet

All other items and conditions remain unchanged

Payment terms remain 30 days.

Thank you for your support in providing us with the forecasts of your phosphate and phosphate acid needs. This information has a positive effect on our ability to manage a system supply chain. We will continue to work with you to ensure we meet your needs. We will not be obligated to supply additional volume beyond our mutually agreed upon commitments or original monthly averages.

As a reminder, attached are our standard terms and conditions of sale for your review.

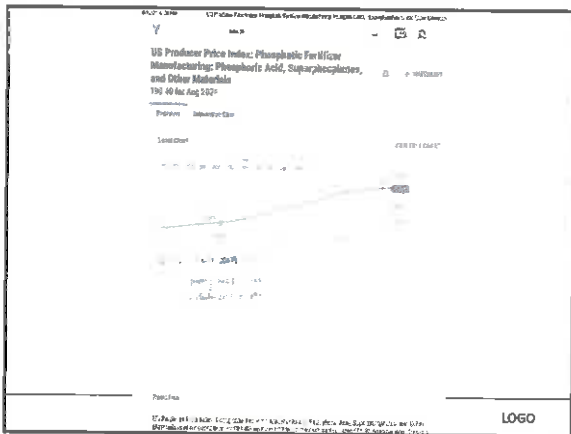
We appreciate your business and place with Fyres and remain committed to providing you with superior products and service.

If you have any questions, please contact your Area Sales Manager.

Sincerely,

 1234567890
 1234567890
 1234567890

LOGO



Now What – Suppliers not delivering

Placed an order
 Get the email back- "Can deliver in 4 weeks vs 1 normal 1 week"

Call another Supplier
 They likely have the same issue

Alternative Product
 Can another chemical be substituted

LOGO

Major Issues Right Now

1. Chlorine & Sodium Hypochlorite

2. Calcium Chloride

3. Sodium Hydroxide

4. Cyanide - dry and liquid

5. Sodium Permanganate

Plastic - Drums / Totes

LOGO

What can you do to keep plant operating?

Gas Chlorine
Special Equipment



Sodium
Hypochlorite
Pump & Injection
Point

Disinfect the Water
Both are a problem -
long lead times
Allocated deliveries

LOGO

What can you do to keep plant operating?

Sodium Bisulfite
Pump & Injection
Point



Sodium Thiosulfate
Pump & Injection
Point

Remove Chlorine from
the Water
Seeing longer lead
times, but no critical
shortages

LOGO

What can you do to keep plant operating?

Sodium Fluoride
Special Equipment
Needed



Hydrofluorosilicic Acid
Pump & Injection
Point

Fluoridate the Water
Solvay dropped out of
dry business – longer
lead times on liquid

LOGO

What can you do to keep plant operating?

Potassium Permanganate
Special Equipment
Needed



Sodium Permanganate
Pump & Injection
Point

Oxidize the Water
Both reliant on
International Freight

LOGO

What can you do to keep plant operating?

Ferric Chloride
Pump & Injection
Point



Ferric Sulfate
Pump & Injection
Point

Coagulation of the Water
Ferric Chloride more
issue now – Can not just
put into same tank

LOGO

What can you do to keep plant operating?

Citric Acid
Pump and injection point



Specialty cleaning chemicals
Pump & Injection Point

Clean RO

LOGO

What can you do to keep plant operating?

Sodium Hydroxide
PH Control - Pump and injection point



Phosphates
Pump & Injection Point

Corrosion Control
May need to either increase PH more or switch to phosphate - Both Tight

LOGO

What can you do to keep plant operating?

Sodium Hydroxide
PH Control - Pump and injection point



Magnesium Hydroxide
Mixer, Pump & Injection Point

Waste Water
Magnesium Hydroxide need special setup

LOGO

New Problems show up everyday

Don't Relax now.

Will have struggle through 2022


Initiative – Have done what needs done, before you need to do it

LOGO

Things to Show Initiative


Pumps

Have extra pump and parts on hand -




Injection

Take Care please Equipment used is vital! know where going to place.




Research

Know your options for all your chemicals Check with suppliers and engineers



State EPA - IDEM



Safe Drinking Water

Must maintain high quality water for public

Temporary Permits

30-90 days permanent if longer

Local IDEM Rep

Start here – They will give direction for next steps

LOGO

Increases beyond Chemicals

	Insurance
	Property / Casualty Health
	Plastic
	Drums Totes
	Freight
	See Gas prices Repair of trucks up
	Wages
	Warehouse Drivers

LOGO

How can you ahead of problem

Which chemicals are you most worried about?

Can't jam these alternate chemicals in

A Little Extra on hand – a drum or a tote – No Supplier will allow hoarding

LOGO

Where should you look first?	Where most vulnerable?	For many this is the one.
	5 Corrosion	Chlorine
	A 10 Coagulant	
	2 Price	
	DBPs	

LOGO

What Are Suppliers Doing?

- Increasing Prices
- Allocating What They can get
- Partnering with Competitors
- Finding new Sources

LOGO

What we worked out with a large customer

We bring them 4 totes each month in case tanker is late

They get a 1 to 2 tankers a week of Sodium Hypochlorite

LOGO

How Can You Help Your Supplier?

- Lead Time**
Give flexibility – Hard to 2-3 Days - Need at least week Tankers even more
- Communication**
Let know if something out of ordinary happens - Flush, Chlorine burnout, etc.
- Short term change - OK**
Drums vs Totes
Different bag – same product

LOGO

Summary

1 | Been Rough – Watch the News and live life

2 | Not going away soon

3 | Be Patient and Flexible

4 | Be Proactive looking at alternatives

5 | Inform your Town Boards

LOGO

Questions

Kentucky Representatives
Denver Blain - dblain@getwsu.com
 270-589-1706
Troy Carrier - tcarrier@getwsu.com
 606 – 669-8932

Water Solutions Unlimited
Mike Ricks - mricks@getwsu.com
 317-339-6639

LOGO

Disaster Response for Utilities in Kentucky

Presented by
Kentucky Rural Water Association



www.kywarn.com

Kentucky Rural Water Association

- Kentucky Rural Water Association is a key member of Kentucky's Management Agency
- Joe Burns – Communicates with or travels to Kentucky Emergency Management Agency in Frankfort
- We support the Agency's actions as a representative of Kentucky drinking water and wastewater utilities

www.kywarn.com


KYWARN

- KYWARN is a statewide Water/Wastewater Agency Response Network (WARN) of "utilities helping utilities"
- KY WARN Mission: Support and promote statewide emergency preparedness, disaster response, and mutual assistance matters for public and private water and wastewater utilities.

www.kywarn.com

December 11, 2021

- On December 11, 2021 Kentucky was impacted by a swarm of tornadoes
- At least 2 tornadoes were long track and on the ground for over 100 miles
- Many communities affected, Mayfield, Benton, Dawson Springs, Bremen, Bowling Green, and more.

 Kentucky State Office of Emergency Services





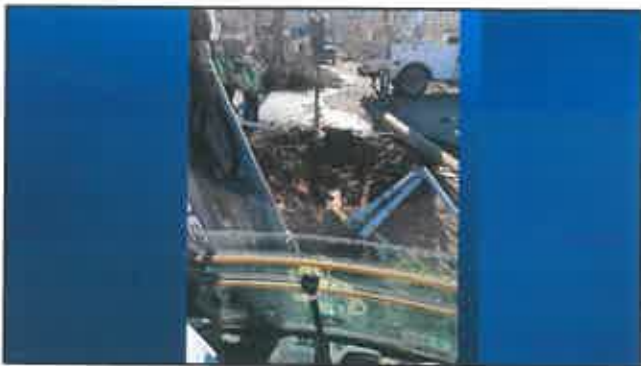








































- Damage in Dawson Springs and other communities is incredible
 - Many challenges facing the water and wastewater utilities

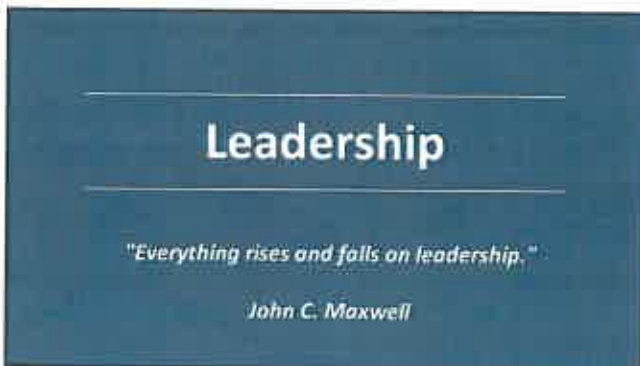
 - Short term challenges
 - Immediate response, clearing road for ambulances
 - Shutting off service to destroyed and damaged homes

 - Longer term challenges
 - Revenue?
 - Will the residents return?
 - What if only a few return?
 - Partial rebuilding in neighborhoods?
- Dawson Springs Water & Sewer Association









Cybersecurity is everyone's responsibility – and it starts at the TOP



Board of Directors

Superintendent / General Manager

Office Manager



Utilities don't talk about cybersecurity or know much about it

Does not believe it will happen to them

Never ask their IT vendor

BREACHES HAPPEN

Take responsibility

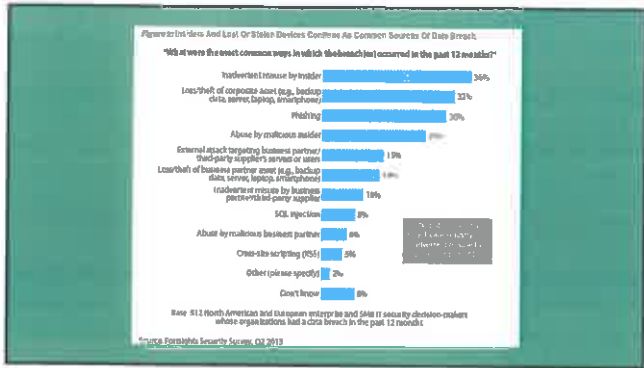
Ask their IT vendor

Because BREACHES HAPPEN

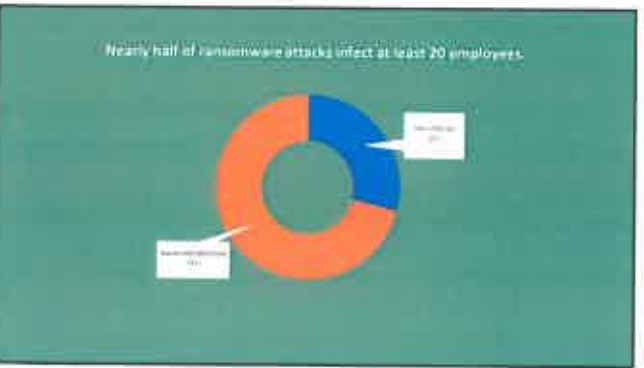
Knowledge

"If you think education is expensive, try estimating the cost of ignorance."

Howard Gardner







More than half (51 percent) of the data breaches analyzed in the report involved malware, 74 percent of the breaches were financially motivated, and 75 percent of security incidents were tracked back to outside actors. This year's report found that email was the No. 1 malware delivery vector, compared to last year when it was web-driven download attacks.



Every year, Verizon's researchers point out that password insecurity is the biggest problem, and that hasn't changed. Verizon found that 21 percent of hacking-related breaches succeeded through stolen passwords or weak passwords. That's an 18 percent increase from last year's report, suggesting that rather than getting better, password security is getting worse.

Why it does not happen

- Utilities don't talk about cybersecurity or know much about it...we need to be talking about the basics. They are extremely vulnerable because they don't have any resources for cybersecurity.
- When it comes to IT security, research reveals a tepid commitment to investing in a strong security stance.

Practice

"Knowledge is of no value unless you put it into practice."

Anton Chekhov

Champion teams work at it.

Your team is your last line of defense. They need to be trained and remain on their toes with security top of mind.



The Five Generations of Security Awareness Training

1. **Outreach:** Security is a public enemy.
2. **The Great Wall:** Security is a wall that will be breached, so it is a total effort.
3. **The Morley Security Model:** The security wall is built by security awareness training classes.
4. **The Holistic Security Model:** The security wall is built by security awareness training classes, and other security measures.
5. **The Human Firewall Approach:** The security wall is built by security awareness training classes.

How Do You Measure Your Training Results?

- Pre-Training:** Pre-training baseline testing to assess the "Phishers"™ awareness of your staff through a free simulated phishing attack.
- Post-Training:** The world's largest library of security awareness training content including interactive modules, videos, games, quizzes and assessments. Additional features include social media sharing.
- Real-time reporting:** Real-time, 24-hour access to complete training activity, feedback of responses, and performance metrics, and advanced reporting features.
- Compliance:** A complete compliance reporting, tracking, and audit trail for both internal and external audits. Meet the great NIST.



Leadership

Knowledge

Practice

Leadership

"Everything rises and falls on leadership."

John C. Maxwell















Platform	Users	Revenue	Profit	Market Cap
Facebook	1.2B	\$1.5B	\$1.2B	\$150B
Twitter	0.3B	\$0.5B	\$0.3B	\$20B
LinkedIn	0.1B	\$0.2B	\$0.1B	\$10B

YouTube
 55% of people ages 18-25
 71% of people ages 30-45
 67% of people ages 50-65
 66% of people ages 66-75
 58% of people that are 66+ years old use YouTube

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Fly your flag

Fly your flag

Fly your flag

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Who

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Rural Water

WATER WORKFORCE:
Valuing the Product & Those That Provide It

Heather Stevenson
Workforce Development Coordinator
Kentucky Rural Water Association



thirst
verb [intransitive]

- to feel a need to drink
- to have a strong desire for something



It's a thirsty world.



Industry is thirsty...



Agriculture is thirsty...

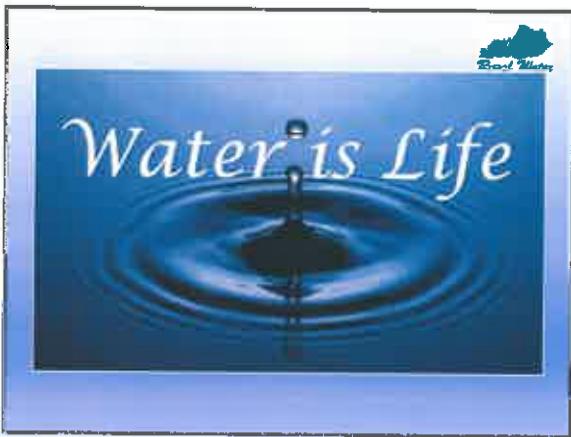


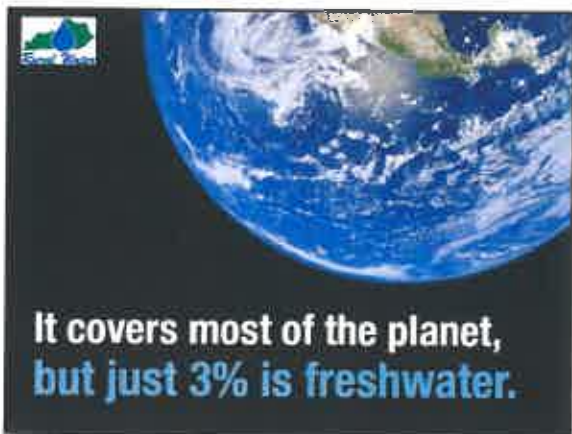
We are thirsty...

Slide 5

DP1 127 gallons of water to produce 1 pound of corn
Donald Papai, 2/28/2020



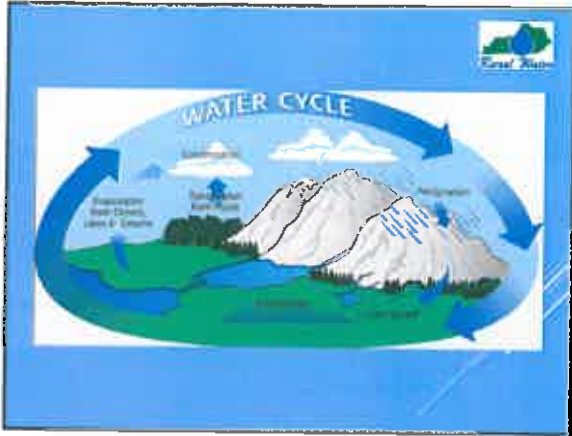


















**A quarter of all the clean water
that enters your home...**




**...is used to
flush toilets.**




**One toilet flush
uses 3 gallons**

Approximately 322 billion gallons of water are used in the United States per day.



It takes approximately 9 days for that much water to flow over Niagara Falls.

Meanwhile...





Millions of people in the world live on less than 3 gallons each day.

BIGTHIRST

THE COLLECTIVE





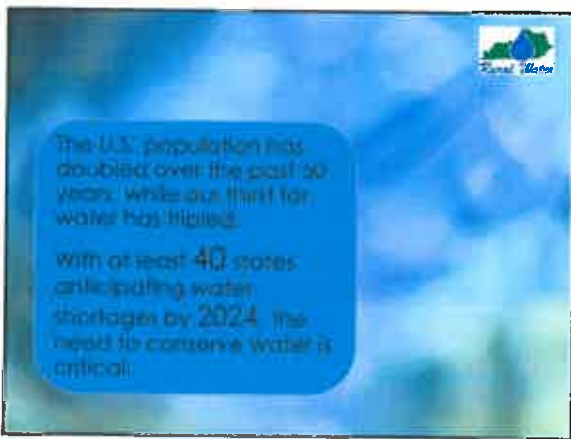
DID YOU KNOW






**Our water sources
are under pressure.**






The U.S. population has doubled over the past 50 years, while one third of water has been lost.

With at least 40 states anticipating water shortages by 2024, the need to conserve water is critical.



**The Los Angeles basin
can support about
1 million people
with its own water.**





THE POPULATION OF LOS ANGELES IS ESTIMATED TO BE 3.9 MILLION.

Do You Know Where This Is?

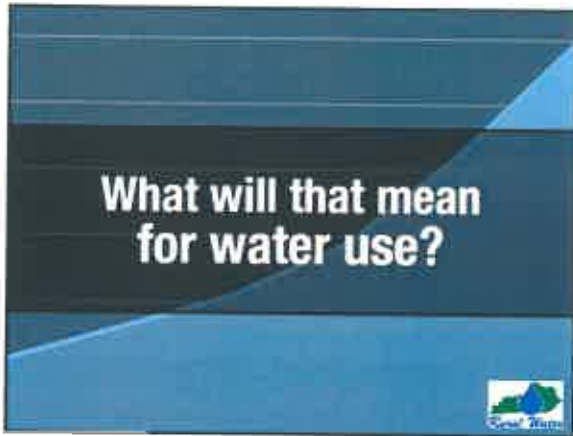


The Hoover Dam reservoir is at an all-time low

Such of the Western US faces drought, extreme heat, and fire risk

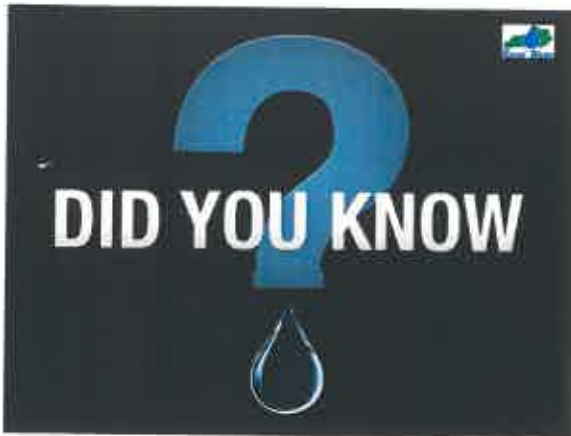


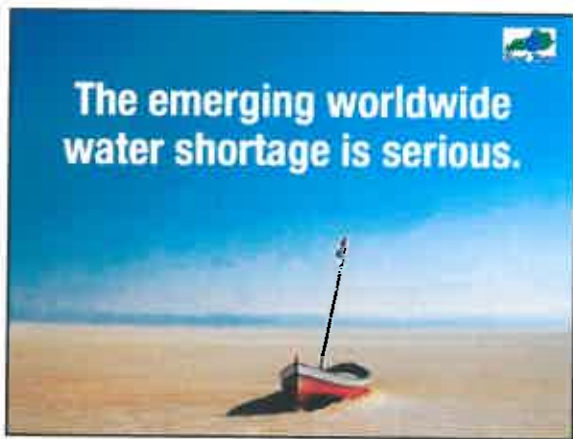
A record low water level in the Hoover Dam reservoir is the result of a combination of factors, including a severe drought in the West and the fact that the dam's reservoir is at its lowest level since it was built in 1935. The dam's reservoir is at its lowest level since it was built in 1935. The dam's reservoir is at its lowest level since it was built in 1935.









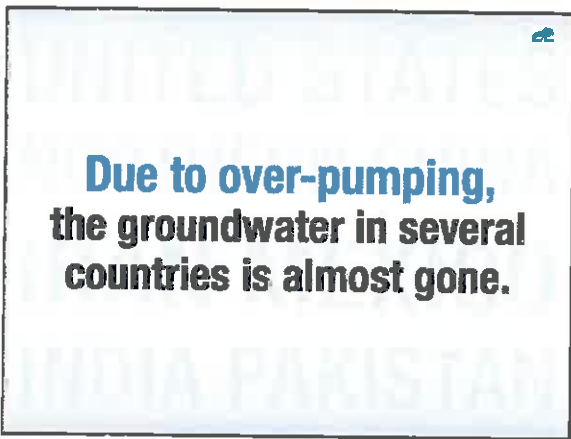


The emerging worldwide water shortage is serious.



It's been said,
we're going to
run out of water
before we run out of oil.

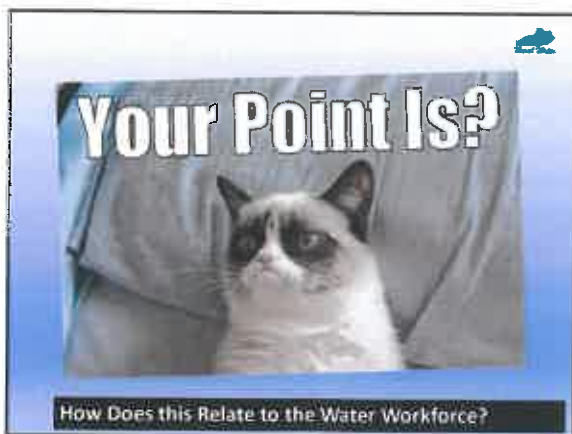















A Better Understanding of the value of the Product 

↓

Places a Larger Value of the Services provided to Deliver the Product AND

↓

The Value of Those that provide them

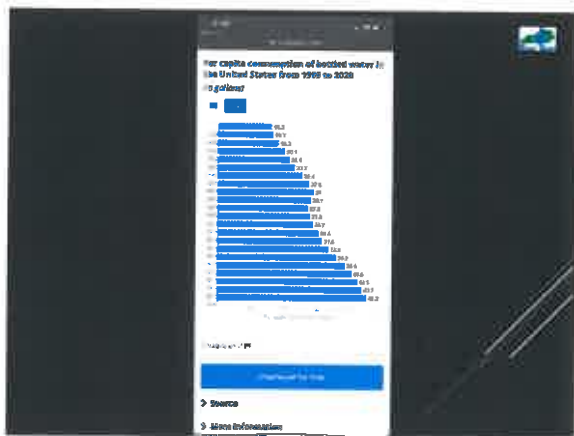
- Drinking Water and Wastewater Operators are on the front lines of protecting the Environment and ensuring the health and safety of customers
- Provide access to safe, affordable drinking water and effective sanitation management.

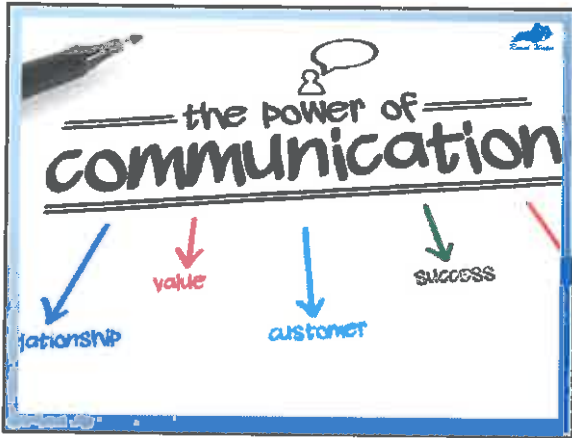


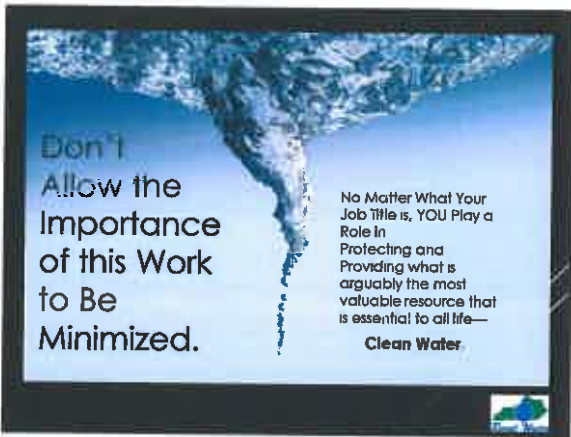
WHAT WAS THE MOST PURCHASED BOTTLED BEVERAGE IN THE UNITED STATES IN 2020?

















WORKFORCE CONSIDERATIONS, OLD AND NEW...

- Rural water workers tend to be significantly older than the national median according to Brookings Institute study - *Renewing the Water Workforce 2018*.
- 70% of water workers are aged 40 or older, compared to 40% for the general workforce.
- 75% of water workers are aged 45 or older, compared to 45% for the general workforce.
- Most communities struggle to recruit and retain qualified staff.
- Cannot offer same wages as large utilities.
- High turnover rates.
- High unemployment rates.

It's a Job Seeker's Market!



Kentucky Employment: November 2021

Seasonally Adjusted

	Nov 2021	Oct 2021	Nov 2020	OVER-the-MONTH Change	Rate	OVER-the-YEAR Change	Rate
Civilian Labor Force	1,997,106	1,983,738	1,983,574	4,886	0.2%	13,790	0.7%
Employment	1,876,423	1,927,439	1,872,880	7,982	0.4%	42,736	2.3%
Unemployment	81,683	84,598	110,694	-2,916	-2.6%	-29,500	-26.2%
Unemployment Rate	4.1%	4.2%	5.6%	-0.1%	-	-1.5%	-
U.S. Unemployment Rate	4.2%	4.8%	5.7%	-0.4%	-	-2.9%	-

Utilities Aren't Just Competing With Each Other to Find Good Talent.

Right Now, EVERY Industry Is Desperate for Good Employees.

What Are We Up Against?

Manufacturing Associate-Night & Weekend Shifts
Independent Spine Company 35+
Fordhead, KY 40351

Easy Apply

Production Line Associate
Searcy Field Farms Inc & Blend Pak Inc
Bardonia, KY 40304

\$15 - \$16 an hour

Easy Apply Urgently Hiring

Job Sign On Bonus!
Pay up to \$2000
Per job # 40211
with 90-day bonus

Job details
Salary
\$18.50 - \$19
Benefits
Medical, Vision, Dental, 401k, PTO

Business Customer - Small Account
Great Benefits, 401k, PTO, and more! We are seeking individuals with 3+ years of experience in sales or business development.
\$17.50 an hour (plus benefits and bonus) Full-time

Apply



Job Number	Job Title	Job Type	Job Location	Job Status
12345	General Maintenance	Full Time	Atlanta, GA	Open
12346	Construction Worker	Part Time	Atlanta, GA	Open
12347	Warehouse Associate	Full Time	Atlanta, GA	Open
12348	Customer Service Representative	Part Time	Atlanta, GA	Open
12349	Administrative Assistant	Full Time	Atlanta, GA	Open
12350	Software Developer	Full Time	Atlanta, GA	Open
12351	Product Manager	Full Time	Atlanta, GA	Open
12352	Marketing Specialist	Part Time	Atlanta, GA	Open
12353	Business Development Representative	Full Time	Atlanta, GA	Open
12354	Sales Representative	Full Time	Atlanta, GA	Open
12355	Human Resources	Full Time	Atlanta, GA	Open
12356	Finance Analyst	Full Time	Atlanta, GA	Open
12357	Operations Manager	Full Time	Atlanta, GA	Open
12358	Project Manager	Full Time	Atlanta, GA	Open
12359	Quality Assurance	Part Time	Atlanta, GA	Open
12360	Supply Chain Manager	Full Time	Atlanta, GA	Open
12361	Systems Administrator	Full Time	Atlanta, GA	Open
12362	Business Development	Full Time	Atlanta, GA	Open
12363	Customer Success	Full Time	Atlanta, GA	Open
12364	Product Development	Full Time	Atlanta, GA	Open
12365	Project Coordinator	Full Time	Atlanta, GA	Open
12366	Business Operations	Full Time	Atlanta, GA	Open
12367	Marketing Operations	Full Time	Atlanta, GA	Open
12368	Customer Support	Full Time	Atlanta, GA	Open
12369	Business Development	Full Time	Atlanta, GA	Open
12370	Product Development	Full Time	Atlanta, GA	Open
12371	Business Development	Full Time	Atlanta, GA	Open
12372	Product Development	Full Time	Atlanta, GA	Open
12373	Business Development	Full Time	Atlanta, GA	Open
12374	Product Development	Full Time	Atlanta, GA	Open
12375	Business Development	Full Time	Atlanta, GA	Open
12376	Product Development	Full Time	Atlanta, GA	Open
12377	Business Development	Full Time	Atlanta, GA	Open
12378	Product Development	Full Time	Atlanta, GA	Open
12379	Business Development	Full Time	Atlanta, GA	Open
12380	Product Development	Full Time	Atlanta, GA	Open
12381	Business Development	Full Time	Atlanta, GA	Open
12382	Product Development	Full Time	Atlanta, GA	Open
12383	Business Development	Full Time	Atlanta, GA	Open
12384	Product Development	Full Time	Atlanta, GA	Open
12385	Business Development	Full Time	Atlanta, GA	Open
12386	Product Development	Full Time	Atlanta, GA	Open
12387	Business Development	Full Time	Atlanta, GA	Open
12388	Product Development	Full Time	Atlanta, GA	Open
12389	Business Development	Full Time	Atlanta, GA	Open
12390	Product Development	Full Time	Atlanta, GA	Open
12391	Business Development	Full Time	Atlanta, GA	Open
12392	Product Development	Full Time	Atlanta, GA	Open
12393	Business Development	Full Time	Atlanta, GA	Open
12394	Product Development	Full Time	Atlanta, GA	Open
12395	Business Development	Full Time	Atlanta, GA	Open
12396	Product Development	Full Time	Atlanta, GA	Open
12397	Business Development	Full Time	Atlanta, GA	Open
12398	Product Development	Full Time	Atlanta, GA	Open
12399	Business Development	Full Time	Atlanta, GA	Open

Kentucky Career Center
Local Workforce Development Areas

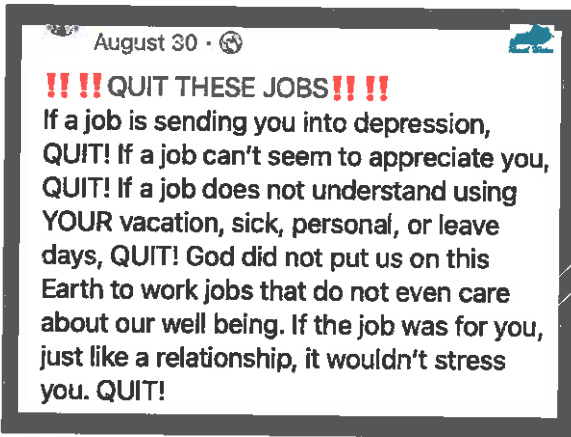
Area	Count
Area 1	12
Area 2	15
Area 3	18
Area 4	20
Area 5	22
Area 6	25
Area 7	28
Area 8	30
Area 9	32
Area 10	35
Area 11	38
Area 12	40
Area 13	42
Area 14	45
Area 15	48
Area 16	50
Area 17	52
Area 18	55
Area 19	58
Area 20	60

EXPECTATIONS OF A COMPETENT OPERATOR

1. Be properly trained
2. Inspect his equipment
3. Know proper usage of his equipment
4. Collect additional samples
5. Perform accurate testing
6. Report broken equipment
7. Add proper chemicals to PDS/MSDS's
8. Prevent Contamination of Paper Source
9. Insulate a non sensitive application
10. Establish operating budget
11. Prevent environmental waste problem
12. Keep management aware of system problems
13. Communicate with regulatory agencies to determine what is required
14. Stay current
15. Add value

What Is A Competent Operator's Worth To A Utility?







FOX BUSINESS Follow

A record 4.5M Americans quit their jobs in November as 'Great Resignation' persists

BY MEGAN HENNEY
JANUARY 4, 2022 · 2 MIN READ

More quit jobs than ever, but most turnover is in low-wage work.

When your job is pointless but you still need money

Remember, You aren't Just Offering a Meaningless Job Opportunity. You are Offering the Opportunity for a Fulfilling, Service Driven Career.



Are You Advertising it As Such?



The Occupational Information Network (O*Net) Helps Identify the Characteristics of an Ideal Candidate

OneOnline.org

From the Profile of Water & Wastewater Treatment & System Operators

Work Values

Support — Occupations that satisfy this work value offer supportive management that stands behind employees. Corresponding needs are Company Policies, Supervision: Human Relations and Supervisor: Technical.

Independence — Occupations that satisfy this work value offer employees to work on their own and make decisions. Corresponding needs are Creativity, Responsibility and Autonomy.

Achievement — Occupations that satisfy this work value are results oriented and offer employees to use their strongest skillset, giving them a feeling of accomplishment. Corresponding needs are Ability: Utilization and Advancement.

Work Styles

Integrity — Job involves being honest and ethical.

Dependability — Job requires being careful about detail and thorough in completing major tasks.

Attention to Detail — Job requires being careful about detail and thorough in completing major tasks.

Independence — Job requires developing work that is highly technical, scientific or creative.

Concern for Others — Job requires being sensitive to others' needs and feelings and being understanding and helpful on the job.

Initiative — Job requires a willingness to take on responsibilities and challenges.

Cooperativeness — Job requires being pleasant with others on the job and displaying a good-natured, cooperative attitude.

Leadership — Job requires a willingness to lead, take charge, and influence or persuade others.

Autonomy/Independence — Job requires being open to change (positive or negative) and to addressing difficult issues and problems.

Analysis/Innovation — Job requires thinking creatively about solutions and using logic to address difficult issues and problems.

Self Control — Job requires maintaining discipline.

Stress Tolerance — Job requires accepting criticism and dealing calmly and effectively with high-stress situations.

Multi-orientation — Job requires establishing and maintaining multiple goals and juggling effort toward achieving them.

Persistence — Job requires persistence in the face of obstacles.

Interpersonal — Job requires constantly interacting with others to develop, clarify, and solve work-related problems.

Work Orientation — Job requires getting to work, with others rather than alone, and being personally connected with others on the job.



O-NET OnLine

Tractor and Motor Vehicle Operator

Standard	Annual Salary	Hourly Rate	Weekly Rate	Monthly Rate	Yearly Rate	Weekly Rate	Monthly Rate	Yearly Rate
Tractor and Motor Vehicle Operator (73-201.00)	\$35,000	\$16.70	\$70.42	\$281.68	\$3,380.16	\$70.42	\$281.68	\$3,380.16
Tractor and Motor Vehicle Operator (73-201.01)	\$35,000	\$16.70	\$70.42	\$281.68	\$3,380.16	\$70.42	\$281.68	\$3,380.16
Tractor and Motor Vehicle Operator (73-201.02)	\$35,000	\$16.70	\$70.42	\$281.68	\$3,380.16	\$70.42	\$281.68	\$3,380.16
Tractor and Motor Vehicle Operator (73-201.03)	\$35,000	\$16.70	\$70.42	\$281.68	\$3,380.16	\$70.42	\$281.68	\$3,380.16
Tractor and Motor Vehicle Operator (73-201.04)	\$35,000	\$16.70	\$70.42	\$281.68	\$3,380.16	\$70.42	\$281.68	\$3,380.16



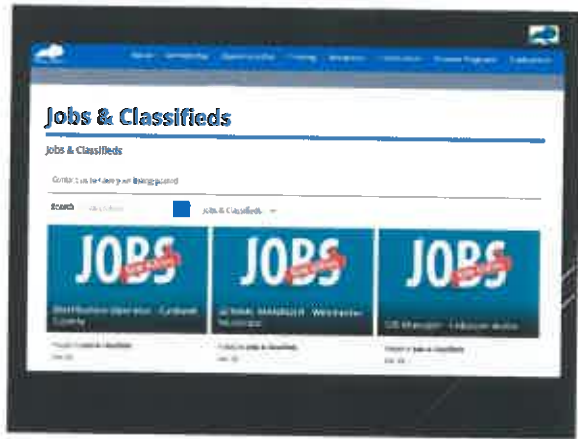


From KRWA's 2021 Compensation & Benefit Survey:

	ALL Full-Time Positions (Annually)	ALL Full-Time Positions (Hourly)
Laborer	31,829	15.3
Meter Reader	31,465	15.13
DW Distribution	39,346	18.92
DW Treatment	41,362	19.89
WW Collection	35,766	17.2
WW Treatment	37,233	17.9









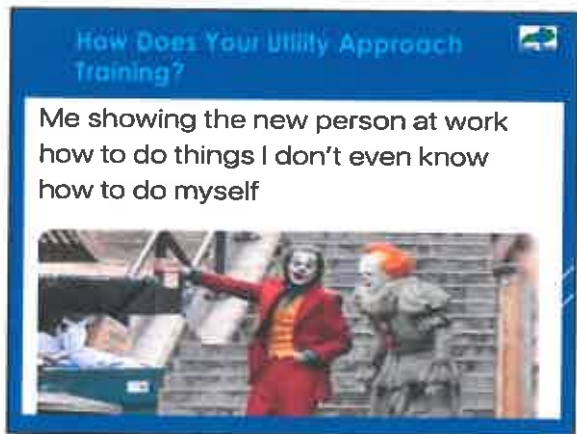


Name	Email	Phone	Other
Adrian	Adrian.Brown@kyccenter.com	606.582.2100	
Allyssa	Allyssa.Brown@kyccenter.com	606.582.2100	
Angela	Angela.Brown@kyccenter.com	606.582.2100	
Christina	Christina.Brown@kyccenter.com	606.582.2100	
David	David.Brown@kyccenter.com	606.582.2100	
Debra	Debra.Brown@kyccenter.com	606.582.2100	
Diana	Diana.Brown@kyccenter.com	606.582.2100	
Doreen	Doreen.Brown@kyccenter.com	606.582.2100	
Edna	Edna.Brown@kyccenter.com	606.582.2100	
Fred	Fred.Brown@kyccenter.com	606.582.2100	
Gary	Gary.Brown@kyccenter.com	606.582.2100	
Helen	Helen.Brown@kyccenter.com	606.582.2100	
Irene	Irene.Brown@kyccenter.com	606.582.2100	
Jane	Jane.Brown@kyccenter.com	606.582.2100	
Judy	Judy.Brown@kyccenter.com	606.582.2100	
Karen	Karen.Brown@kyccenter.com	606.582.2100	
Larry	Larry.Brown@kyccenter.com	606.582.2100	
Mary	Mary.Brown@kyccenter.com	606.582.2100	
Nancy	Nancy.Brown@kyccenter.com	606.582.2100	
Patricia	Patricia.Brown@kyccenter.com	606.582.2100	
Robert	Robert.Brown@kyccenter.com	606.582.2100	
Sandra	Sandra.Brown@kyccenter.com	606.582.2100	
Thomas	Thomas.Brown@kyccenter.com	606.582.2100	
Virginia	Virginia.Brown@kyccenter.com	606.582.2100	
Walter	Walter.Brown@kyccenter.com	606.582.2100	
Xavier	Xavier.Brown@kyccenter.com	606.582.2100	
Yvonne	Yvonne.Brown@kyccenter.com	606.582.2100	
Zoe	Zoe.Brown@kyccenter.com	606.582.2100	









We generally learn from the jobs...

... by creating a system of Registered Apprenticeship Programs.

... by creating a system of Registered Apprenticeship Programs.

The Rural Water Apprenticeship Network

Created National Guidelines Standards for State Affiliates to modify and adopt locally creating a system of Registered Apprenticeship Programs

National Rural Water Association

State Associations develop and register their programs in each state becoming a Registered Apprenticeship Program Sponsor that addresses all relevant aspects of the program

The System signs an "Employer agreement" in order to "participate" in RWAN's Apprenticeship Program. They pay apprentice wages above across to RW and provide a qualified mentor to the apprentice

WORK PROCESS SCHEDULE

OCCUPATION TITLE: Water System Operation Specialist
 (Waterworks Treatment - Plant Operator; Alternate Title: Water Treatment Specialist)
 O*NET SOC CODE: 91-8022
 ALEPUS CODE: 91802

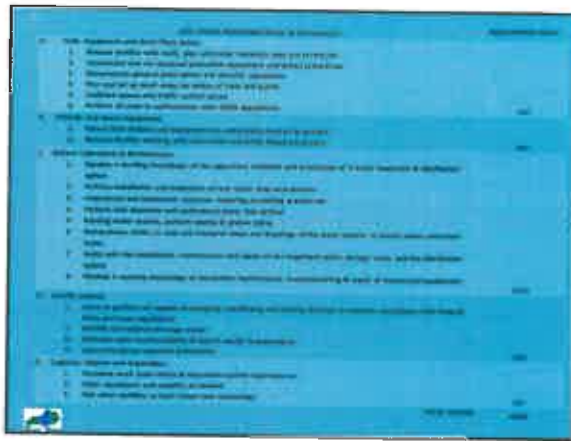
This schedule is attached to and is part of these Standards for the above identified occupation.

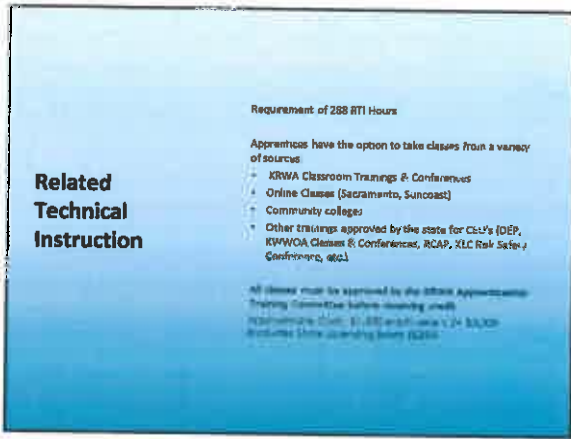
1. TYPE OF OCCUPATION
 Time-based Competency-based Hybrid

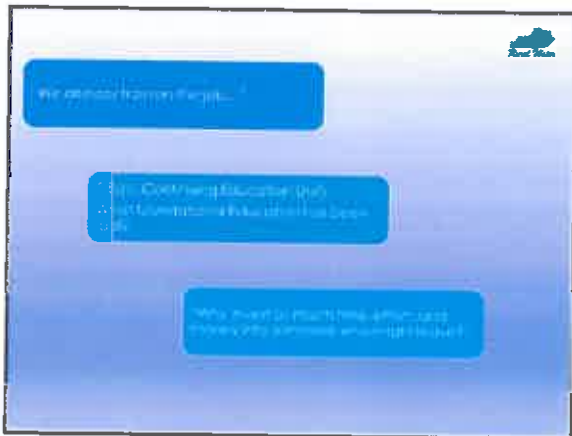
2. TERM OF APPRENTICESHIP
 The term of the occupation is two (2) years with an OJL attainment of approximately 4,000 hours, supplemented by a recommended 250 hours of related instruction.

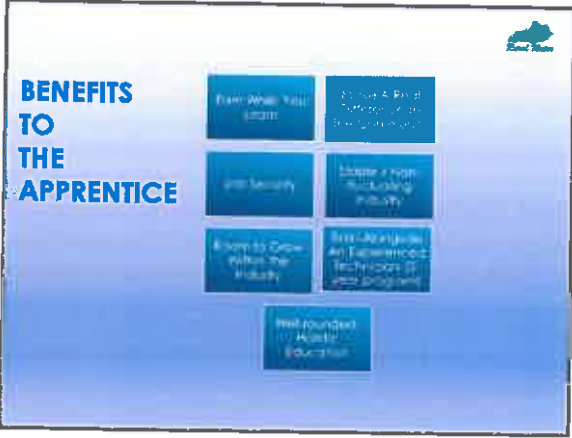
3. RATIO OF APPRENTICES TO JOURNEYPERSONS
 The apprentice to journey worker ratio is: one (1) Apprentice to one (1) Journey Worker on the job.

4. APPRENTICE WAGE SCHEDULES
 Apprentices shall be paid a progressively increasing schedule of wages as outlined by each participating employer separately in Appendix E.



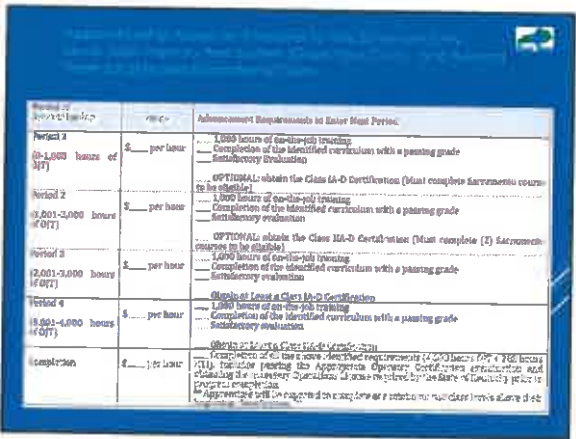




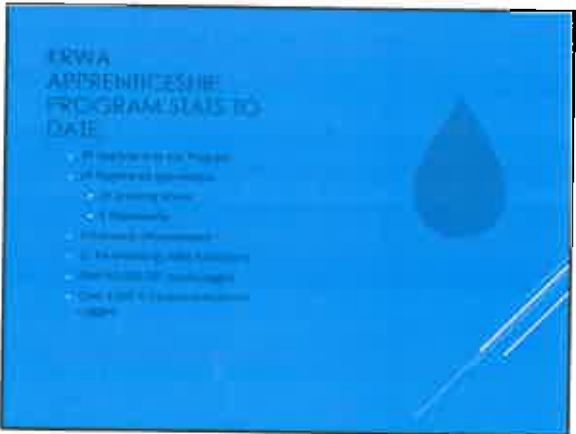


BENEFITS TO THE APPRENTICE

- Earn While You Learn
- Receive a Paid Tuition Waiver
- Job Security
- Receive a High-Skill, In-Demand Industry
- Receive Credit within the Industry
- Receive Additional Training and Technical Education Programs
- Well-Rounded, Quality Education



Period of Apprenticeship	Rate	Advancement Requirements to Enter Next Period
Period 1 (0-1,000 hours of OJT)	\$_____ per hour	<ul style="list-style-type: none"> 1,000 hours of on-the-job training Completion of the identified curriculum with a passing grade satisfactory evaluation
Period 2 (1,001-2,000 hours of OJT)	\$_____ per hour	<ul style="list-style-type: none"> OPTIONAL: obtain the Class A-D Certification (Must complete Sacramento course to be eligible) 1,000 hours of on-the-job training Completion of the identified curriculum with a passing grade satisfactory evaluation
Period 3 (2,001-3,000 hours of OJT)	\$_____ per hour	<ul style="list-style-type: none"> OPTIONAL: obtain the Class III-D Certification (Must complete (3) Sacramento courses to be eligible) 1,000 hours of on-the-job training Completion of the identified curriculum with a passing grade satisfactory evaluation
Period 4 (3,001-4,000 hours of OJT)	\$_____ per hour	<ul style="list-style-type: none"> Obtain at Least a Class II-D Certification 1,000 hours of on-the-job training Completion of the identified curriculum with a passing grade satisfactory evaluation
Completion	\$_____ per hour	<ul style="list-style-type: none"> Obtain at Least a Class I-D Certification Completion of at least a new identified requirement (1,000 hours of OJT plus 100 hours of classroom) passing the Apprenticeship Operating Certification Examination and obtaining the necessary number of hours of training plus a passing grade



ERWA APPRENTICESHIP PROGRAM STATS TO DATE

- 27 Apprentices in the Program
- 24 Apprentices in the Program
- 24 Apprentices in the Program
- 24 Apprentices in the Program
- 24 Apprentices in the Program
- 24 Apprentices in the Program
- 24 Apprentices in the Program
- 24 Apprentices in the Program
- 24 Apprentices in the Program
- 24 Apprentices in the Program









QUESTIONS?

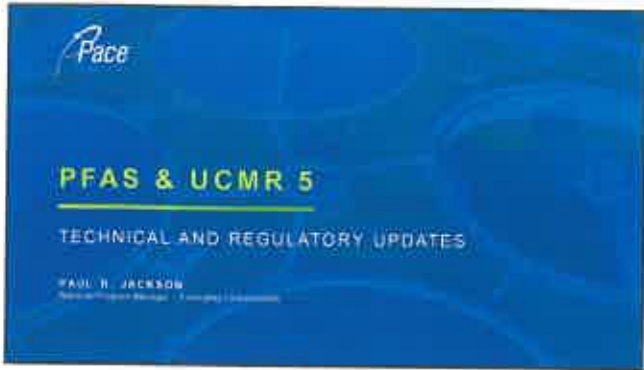
Heather Stevenson
Workforce Development Coordinator
C: 606-219-8515
E: h.stevenson@rwa.org

Session 9: Asset Management Dashboards

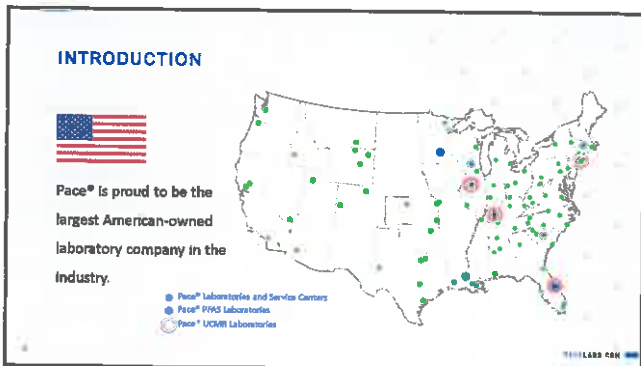
Presenters: Dustin Horn and Rusty Anderson, Kentucky Rural Water Association

This session will not use a PowerPoint but will be a live demonstration of the asset management tool and the dashboards that have been created to make using the tool simple for users.

Geographic Information Systems (GIS) is technology that allows various types of data to be displayed and analyzed spatially. This session will be a showcase of tools that are being developed by Kentucky Rural Water to help utilities improve asset management through GIS technology. Highlights of this session will include showing the power of GPS locating assets within a water or wastewater system, visualizing analytics through operational and dynamic dashboards, and creating tools that help office staff and field staff become more efficient in daily operations.







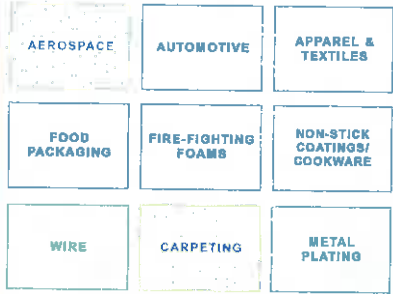
DO YOU KNOW?

PFAS (per- and polyfluoroalkyl substances) often referred to as **forever chemicals** due their chemical structure and persistence. Some PFAS such as PFOA and PFOS have been phased out, however, contamination remains.

WHAT ARE PFAS?

A large diverse group of man-made chemicals that have been used for decades in industries and hundreds of industrial applications and consumer products.

They can be:
- Bioaccumulative
- Persistent
- Have documented health impacts



CLASSES OF PFAS



PERFLUOROALKYL

- All hydrogen on the carbons are replaced by fluorine
- Strongest chemical bond in nature
- Difficult to treat
- PFCAs and PFSAs



POLYFLUOROALKYL

- Non-fluorine atom (usually H or O) attached to at least one but not all, carbon atoms in the tail
- Creates a "weak link" susceptible to biotic or abiotic degradation
- More susceptible to treatment
- Fluorotelomers
- AKA precursors

THE PFAS PUZZLE

- ▶ Lack of federal regulation
- ▶ Non-uniformity of state regulations or test methods
- ▶ Lack of environmental test methods
- ▶ Variety of compound lists
- ▶ Thousands of PFAS compounds
- ▶ Low DLE vs contaminated matrices
- ▶ Ultra restrictive field sampling guidelines

PFAS OVERVIEW

- 1 SOURCES & RECEIVERS
- 2 REGULATORY UPDATE
- 3 UCMR 5 UPDATE

THE PFAS LIFECYCLE

Overview of the full lifecycle of PFAS, from production to disposal, highlighting the challenges of PFAS management and the need for comprehensive regulation.

PFAS do not degrade naturally, therefore can persist in the environment and in humans.

SOURCES OF PFAS

PFAS PRODUCTION FACILITIES

Due to the solubility and persistence of many PFAS, environmental release mechanisms associated with these facilities include:

Air emission and dispersion

Spills

Disposal of manufacturing wastes and wastewater

Potential impacts to air, soil, surface water, stormwater, and groundwater are present not only at release areas but potentially over the surrounding area



10

SOURCES OF PFAS

INDUSTRIAL COMPANIES THAT USE PFAS IN PRODUCTS

Aqueous film-forming foam (AFFF)

Textiles and leather: factory and consumer applied coating to repel water, oil, and stains

Paper products: surface coatings to repel grease and moisture

Metal plating and etching: corrosion prevention, wear reduction, surfactant, fume suppression

Wire manufacturing: coating and insulation

Pesticides, cleaning products, polishes, photo processing



11

RECEIVERS OF PFAS

Solid Waste and Wastewater facilities are not sources of PFAS, but do receive PFAS-containing materials from others.

SOLID WASTE FACILITIES

PFAS production facilities waste disposal

Secondary manufacturing waste-water disposal

Waste oil and waste fuels

Commercial/Industrial (C/I) cleaning agents

Paints

Ground leachate from landfills

WASTEWATER TREATMENT

Consumer and industrial use of PFAS-containing materials, including disposal of waste

Wastewater treatment plants and wastewater treatment plants (WWTPL)

Wastewater Treatment Plants (WWTPL)

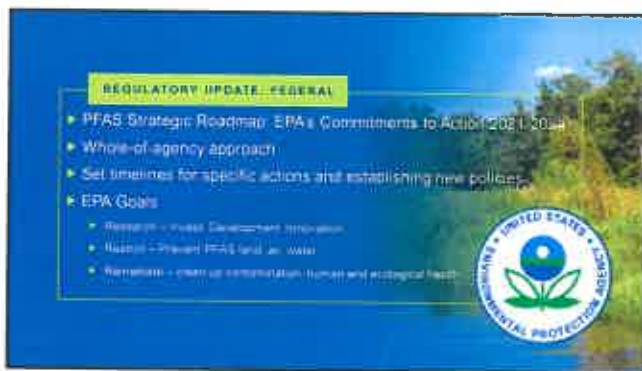
WATER DISTRIBUTION

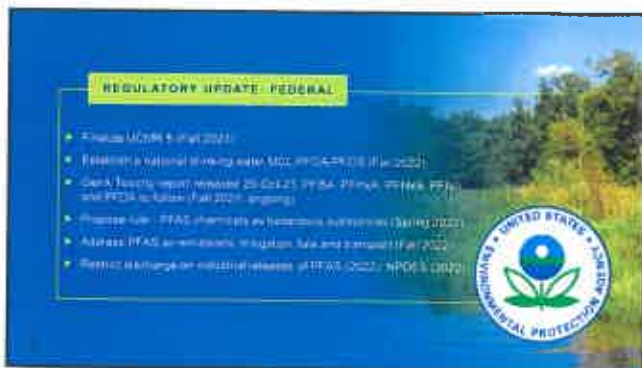
Conventional treated wastewater method do not remove PFAS

Conventional treated wastewater can contain PFAS concentrations

PFAS can be found in drinking water, food, and food packaging








REGULATORY UPDATE: FEDERAL

Likely roll-out to the national water systems:

- Quarterly sampling for five 13 metals for systems that have not sampled for PFAS in each-serve Plant To the Distribution System (EPTDS)
- Systems with no exemptions will be scheduled to sample thereafter on a triennial basis along with GDCs.
- UCMR 3 data will not be allowed for initial sampling period.



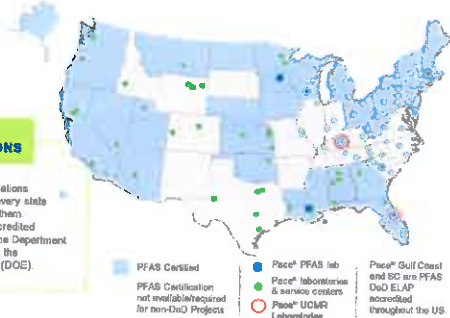
REGULATORY UPDATE: STATE

So far, 25 states have established standards/guidance for PFAS in drinking water, groundwater, surface water, wastewater and/or soil.




PFAS CERTIFICATIONS

Pace maintains certifications and accreditations in every state that offers or requires them. We're also certified/accredited by TNI RELAP, ISO, the Department of Defense (DoD), and the Department of Energy (DOE).




UCMR 5 - BACKGROUND



UCMR - The Unregulated Contaminant Monitoring Rule of the SDWA

- Every 5 years EPA uses the Unregulated Contaminant Monitoring Rule (UCMR) to collect data on up to 30 contaminants that are suspected to be present in drinking water and do not have health-based standards set under the Safe Drinking Water Act
- UCMR is not a compliance monitoring program, the data is studied to consider adding contaminants to the regulated list with enforceable limits
- Two PFAS are examples of this – PFOA and PFOS


UCMR 5 - BACKGROUND



Changes from UCMR 4 to UCMR 5

- Addition of all systems that serve 3,300 – 10,000 consumers – compelled by AWIA 2018
- EPA is intent on paying for testing for all systems that serve 3,300 – 10,000 consumers in its "small systems" contract with 800 randomly selected smaller systems, "subject to the availability of appropriations"
- Addition of systems more than doubles the number required to participate to approximately 10,300

UCMR 5 - BACKGROUND



Changes from UCMR 4 to UCMR 5

- No sampling of source water
- No bi-weekly sampling for surface water systems (Microcystins)
- No sampling at Distribution System (DS) locations

UCMR 5 – TESTING & SAMPLING



UCMR 5 contaminants and sampling

- 20 PFAS compounds by EPA 537.1 and EPA 533 – each sample will be required to include 1 Field Reagent Blank per method
- Lithium by EPA 200.7
- Sampling at the Entry Point To the Distribution System (EPTDS): ER, PCE, only

UCMR 5 – SAMPLING SCHEDULE



- EPA will assign a 12 month sampling schedule for each system between January 2023 – December 2025
- Groundwater Systems – sample each Entry Point to the Distribution System (EPTDS) – twice during a 12 consecutive month period
- Surface water and Groundwater Under Direct Influence (GWUDI) systems – sample quarterly during a 12 consecutive month period

UCMR 5 – BUDGETARY INFORMATION



- EPA estimates all testing costs per sample to be \$850
- Contact us for detailed budgetary costs

**UCMR 5 -
GROUNDWATER
REPRESENTATIVE
MONITORING
PLAN**



Option for groundwater systems to reduce monitoring

- 1. Applications from ground water systems now being accepted
- 2. PWSs with multiple ground water EPTDSs can sample at representative sampling locations EPA approval
- 3. Previously-approved plans may be used
- 4. Submit proposals for new GWRMPs to: UCMR_Sampling_Coordinator@epa.gov

**UCMR 5 -
REPRESENTATIVE
CONNECTIONS**



Water systems that purchase water with multiple connections from the same wholesaler may select one representative connection from that wholesaler

- » Do not need EPA approval
- » Upload your representative connection information to SDWARS

UCMR 5 - SDWARS



Safe Drinking Water Accession and Review System (SDWARS) used by PWSs and EPA-approved UCMR 5 laboratories to report results

- 1. Internet-based electronic reporting system that utilizes a secure access portal, the Central Data Exchange (CDX), to access SDWARS 5
- 2. SDWARS 5 user instructions and trainings for labs, PWSs, and States will be available after the final rule is published Fall 2021

OUR OFFERINGS FOR THE NATION'S WATER SYSTEMS...

UCMR DE EPA APPROVED

- Thousands of samples run for previous rounds of UCMR
- Already prepared for UCMR 3

PFAS EXPERIENCE AND CAPACITY

• Over 100 labs and the nation's top PFAS experts are testing at all facilities

SLC FULL-SERVICE TESTING

All regulated and unregulated parameters

SLC SAMPLING & SAMPLE COURIER SERVICES

TAKE-AWAYS

- PFAS are now marching down the path to become regulated in public water – consult budgeting now
- UCMR 3 – 35 PFAS and Liliann at this time, sampling required at each Entry Point to the Distribution System
- Not all labs are created equal – regulated parameters and unregulated parameters like PFAS and UCMR
- Pace is your source for the most current information and truly full-service lab testing



THANK YOU

Additional resources:

- [PFAS.com](https://www.pace-labs.com)
- [PACELABS.COM](https://www.pacelabs.com) | Search: PFAS

Paul H. Jackson
National Program Manager
Emerging Contaminants
• Paul.Jackson@pacelabs.com
• 813.711.1585

Kevin Coates, Ph.D.
Program Manager, Emerging
Contaminants
• Kevin.Coates@pacelabs.com
• 801.225.4792

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Regulatory Updates

Arianna Lageman
January 5, 2022



DOW-DWB, Compliance Contacts

- Alicia Jacobs – Branch Manager, Alicia.Jacobs@ky.gov
- Ethan Givan – Compliance Supervisor, Ethan.Givan@ky.gov
- Julia Harrod – Chemicals, Secondary, RADs, Lead/Copper
Julia.Harrod@ky.gov
- Rodney Ripberger – RTCR, GWR, Inventory Rodney.Ripberger@ky.gov
- Tekoyia (TK) Brown – MOR, Inventory, DBPs, LT2
Tekoyia.Brown@ky.gov
- Cortni Edwards – CCR/PN Cortni.Edwards@ky.gov

DOW-DWB, Technical Assistance

- Joe Uliasz – Frankfort Central Office, Supervisor
- Gabe Tanner – Frankfort and Louisville
- **Matt Lipps** – Florence and Morehead
- David Messer – London and Hazard
- CJ Bailey – Columbia and Bowling Green
- Jackie Logsdon – Madisonville and Paducah

[Kentucky State Water Resources](#)

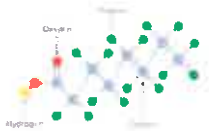
Reminder from DOW

- Please use the Kentucky Online Gateway for ALL compliance document submittals.

[Kentucky State Water Resources](#)

What are PFAS?

Perfluoroalkyl and Polyfluoroalkyl Substances



- Durable chemicals: oil, water, temperature, chemical and fire resistance
- Insulating properties

[Kentucky State Water Resources](#)

What are they used for?

- Wide variety of manufacturing applications
- Fire fighting foam (AFFF)
- Carpet protectant
- Non-stick cookware
- Waterproof clothing
- Surgical gowns
- Cell phones (any electronic device with a semiconductor)
- Commercial aircraft
- Low-emission vehicles
- Some make up, sunscreen, shampoos, shaving creams
- Food packaging (like fast food wrappers)

Source: Rural Water Association

UCMR5

- Any system > 3,300 population automatically must participate in UCMR5
 - Smaller systems may have to participate and EPA chooses who does based on population size and water source
 - EPA will still pay the tab for systems smaller than 10,000 (provided the federal funding is available)

Source: Rural Water Association

Draft Timeline of UCMR 5 Activities

2022	2023	2024	2025	2026
Preconstruction Implementation <ul style="list-style-type: none"> • Construction of LRP Approval • PDES UCMR5 application/initials due/issuance • PAs, BMPs, SRS, LRP approval submitted • Discharge/initials 	Monitoring <ul style="list-style-type: none"> • Implementations activities • Apply PAs to self-compliance • Implement small system monitoring • Post data quarterly to NCRD 	Reporting and analysis of data <ul style="list-style-type: none"> • All PAs serving 3,300 or more people • Representative sample of small PAs serving fewer than 3,300 people 	Final monitoring data <ul style="list-style-type: none"> • Complete monitoring, as needed • Complete data reporting • Finalize MCOB • Compliance assessment/ self-audit, as needed 	

July 2019

U.S. Environmental Protection Agency

Page 24 of 27

Source: Rural Water Association

Regulatory Action

PFAS Roadmap announced:

- Set MCLs for DW under SDWA
- Designate PFAS as “hazardous” under CERCLA (Superfund)
- More research to include PFAS emissions limits under Clean Air Act
- Simultaneously announced that PFAS will be labeled “hazardous” under RCRA as well.

Superfund, RCRA, PFOA, PFAS

Research

Division of Water Studies

- Evaluation of Kentucky Community Drinking Water for Per- & Poly-Fluoroalkyl Substances; November 18, 2019
- Evaluating Kentucky Source Waters for Per- and Poly-Fluoroalkyl Substances; August 4, 2021
- In progress: Study to test for PFAS levels in WW discharge and solids

Superfund, RCRA, PFOA, PFAS

Litigation

- NRWA filed a class action lawsuit against 3M, Tyco Fire Products, National Foam, Buckeye Fire Protection, Chemguard, DuPont, and Chemours
 - Suit alleges that these companies “manufactured, marketed and sold their aqueous film forming foam (AFFF) products for decades despite knowing the significant threat they posed to the environment and human health” – Napoli Shkolnik PLLC

<https://nrwa.org/issues/pfas/>

Superfund, RCRA, PFOA, PFAS

CCR Rule Revisions

- CCR regulations are being updated to “improve communication” with customers
- CWSs serving greater than 10,000 persons will be required to issue CCRs twice per year.
- A workgroup is making recommendations to the National Drinking Water Advisory Council

Cybersecurity

- The U.S. EPA has floated draft legislation to give EPA new regulatory authority for cybersecurity risk assessments, cybersecurity risk reduction plans, schedules of adoption countermeasures, reviews of the current risk and resilience assessments and emergency response plans, etc.

Lead and Copper Rule Revisions

- LCRR published and finalized December 17, 2021. The LCRR will go into effect to “support near-term development of actions to reduce lead in drinking water.”

BUT

- With the caveat that there would be a Lead and Copper Rule Improvements (LCRI) drafted and finalized prior to the LCRR compliance deadline of October 16, 2024.

LCRR and LCRI

- Line Inventory due by October 16, 2024:
 - Lead
 - Galvanized
 - Other
- LCRI aim to clarify:
 - Compliance Tap Sampling
 - Action vs Trigger Levels
 - Requirement to replace ALL lead service lines
 - Prioritization for Historically Underserved Communities

Southern Rural Water Association

LCRR and LCRI

- Biden-Harris Lead Pipe and Paint Action Plan
 - Remove all lead pipe in the next decade
 - Earmarks money for lead line, faucet, fixture replacement through the Build Back Better Act and American Rescue Plan Act
- KY's Total: \$112,643,00
 - DWSRF: \$29,587,000
 - LSL Rep: \$46,593,000
 - DW EC: \$12,425,000

Southern Rural Water Association

https://www.epa.gov/sites/default/files/2020-12/documents/reference_guide_for_pwss_12.21.20.pdf

CURRENT LEAD

Action Level (AL) and Trigger Level (TL)

- 90th percentile (P90) level above lead AL of 15 µg/l or copper AL of 1 mg/l requires additional action

- 90th percentile (P90) level above lead AL of 15 µg/l or copper AL of 1 mg/l requires more actions than the previous rule
- Triggers lead trigger lev of 15 µg/l and 10 × P90 = 15 µg/l that triggers additional planning, monitoring, and treatment requirements

Lead and Copper Tap Monitoring

Sample Site Selection

- Practices collection of samples from sites with sources of lead in contact with drinking water
- Highest priority goes to ones served by copper pipes with lead solder installed after 1982 but before the state has on lead pipes and as LSLs
- Systems must collect 90% of samples from LSLs if available

Sample Site Selection

- Higher priority for collection of samples with a greater focus on LSLs
- Practices collecting samples from sites served by LSLs. All samples must be collected from sites served by LSLs at an address with installation date
- Improved tap sample site selection testing criteria

Collection Procedure

- Requires collection of the first-liter sample after water has not stagnated for a minimum of 6 hours

Collection Procedure

- Requires collection of the fifth-liter sample in homes with LSLs after water has not stagnated for a minimum of 6 hours and maintains first-liter sampling protocol in homes without LSLs
- Adds requirement that samples must be collected in a safe, unobstructed location

Southern Rural Water Association

CURRENT CODE	FINAL REVISION CODE
<p>Monitoring frequency</p> <ul style="list-style-type: none"> Sample size adjusted for both lead and copper Systems must collect standard number of samples based on population semi-annually unless they qualify for reduced monitoring Systems can qualify for annual or fractional monitoring at reduced number of sites. Schedule based on number of connections & years meeting the following criteria: <ul style="list-style-type: none"> Services < 50,000 people and: lead or copper A1 Services any population size meets state specified optional water quality parameters (P90 QP3) and: lead A1 Fractional monitoring also applies to any system with lead and copper WQP percentile levels < 0.005 mg/l and: 0.05 mg/l requests ch. for 2 consecutive 6-month monitoring periods 5-year monitoring waiver available to systems serving < 1,000 	<p>Monitoring frequency</p> <ul style="list-style-type: none"> Some samples may be modified for each lead when lead monitoring is conducted more frequently than copper Copper follows the same criteria as the current rule Lead monitoring schedule is based on P90 level of all systems as follows: <ul style="list-style-type: none"> P90 > 10 ppb: Semi-annually at the standard number of sites. P90 > 10 to 10 ppb: Annually at the standard number of sites. P90 < 10 ppb: <ul style="list-style-type: none"> Annually at the standard number of sites and fractionally at reduced number of sites using same criteria as previous rule except copper WQP percentile level is not considered 1 year 0 years based on current rule requirements for a 0-year monitoring waiver

CURRENT CODE	FINAL REVISION CODE
<p>4.1.2</p> <ul style="list-style-type: none"> Systems serving < 500 people may request to install treatment by August 1, 2017 with limited exceptions Systems serving > 50,000 that exceed lead and/or copper A1 are subject to C12 program unless: <ul style="list-style-type: none"> C12 implementation study is required by primary agency C12 installation that was disallowed (C1) steps it no longer exceed both A1 or for two consecutive 6-month monitoring periods Systems may opt-in (C1) to meet one primary agency designated C12 QP3 that follow optional C12 There is no requirement for secondary C12 systems C12 Option: Includes all clean and pH adjustment actions for both adjustment and phosphate or sulfate-based systems subject Regulated WQP: <ul style="list-style-type: none"> Use C12, pH adjustment, carbon combination, temperature, orthophosphate (if phosphate-based system) as well as other sub-aerial solution as used With C12, pH adjustment, and based on type of C12 either orthophosphate, silica or carbon WQP Monitoring: <ul style="list-style-type: none"> Systems serving < 50,000 people must conduct regular WQP monitoring at one point and within the distribution system Systems serving > 50,000 people conduct monitoring only on these periods: lead or copper A1 	<p>4.1.2</p> <ul style="list-style-type: none"> Systems C12 implementation for systems with 10-100,000 < 1000 Systems C12: must conduct C12 study if requested by primary agency <ul style="list-style-type: none"> Systems < 10,000 must follow the steps for implementation C12 as specified on the rule Systems with P90 level < 0.005 mg/l Systems must complete C12 installation regardless of their subcategory P90 level Systems < 10,000 must re-optimize C12 WQP monitoring: 50,000 people and non-treatment water system (with WQP) must select an approved other than C12 or address lead or other issues identified C12 Option: Includes all clean and pH adjustment actions as well as phosphate and sulfate based systems for orthophosphate Regulated WQP: <ul style="list-style-type: none"> Systems WQP related to each water treatment or adjustment: conductivity and temperature WQP Monitoring: <ul style="list-style-type: none"> Systems serving < 50,000 people must conduct regular WQP monitoring at one point and within the distribution system

CURRENT CODE	FINAL REVISION CODE
<p>Systems processes to sample at reduced number of sites in distribution system less frequent for all systems meeting their P90 QP3</p> <p>Sanitary Survey Review:</p> <ul style="list-style-type: none"> Requirement must be provided during sanitary surveys. No requirement to assess C12 or WQPs Lead and/or pH: <ul style="list-style-type: none"> No repeated follow-up samples or additional actions if an individual sample exceeds 15 ppb/l 	<p>Sanitary Survey Review:</p> <ul style="list-style-type: none"> Systems serving < 50,000 people must conduct WQP monitoring at one point and within the distribution system Systems serving > 50,000 people must meet P90 QP3 Systems serving > 50,000 people must be reviewed during sanitary surveys. No repeated follow-up samples or additional actions if an individual sample exceeds 15 ppb/l Lead and/or pH: <ul style="list-style-type: none"> C12 tap sample at the same tap sample site within 30 days For BSE, collect tap line on sample volume For HSE, no tap present, collect 1 liter flow draw after stagnation for system with C12 Conduct WQP monitoring at least the site 15 ppb/l Perform needed corrective action Do not conduct follow-up monitoring after 2 attempts Provide information to local public health officials

I-51 R	I-51 R
<ul style="list-style-type: none"> • Systems with I-51's with P-00 15 mg/l after I-51 installation must annually replace 75% of number of I-51's in the distribution system when the lead action level is first exceeded • Systems must replace the I-51 portion they own and refer to replace the private portion at the owner's expense • Lead I-51 R, partial I-51 R, and I-51's with lead sample results $\geq 15 \mu\text{g/l}$ are only allowed until the 75% replace rate • Systems can document I-51 R after 2 consecutive 6-month monitoring periods - lead AI 	<ul style="list-style-type: none"> • Public supplies replacement programs based on P-00 level of 6.0 or screening - filter upgrade • In P-00 15 mg/l, show only replace 75% of I-51's per year based upon a 2 year rolling average (mandatory replacement let at lead) • 4 consecutive 6-month monitoring periods • In P-00 10 to 15 mg/l, implement an I-51 R program to add replacement goals in consultation with the private agency but 2 consecutive 6-month monitoring periods • Lead C.U.S. and N.I.M.W.s that select I-51 R in their complaint, refer to meet supply I-51 R within 15 years at P-00 15 mg/l for Lead System Feasibility • Annual I-51 R rate is based on number of I-51's and governed (updating replacement when the system first exceeds the action level plus the current number of lead status and service history • Info: half I-51 R (both customer owned and system-owned portion) <ul style="list-style-type: none"> • only lead and mandatory rate or good-lead rate • All systems replace their portion of an I-51 if notified by customer or private sale replacement within 85 days of notification of the private replacement. If the system cannot replace the system's portion within 65 days, it must notify the state and replace the system's portion within 130 days • Replacing each I-51 R system must <ul style="list-style-type: none"> • Provide particle filter cartridges to each customer for 6-month after replacement. Provide particle filters a cartridges within 24 hours for full and partial I-51 R • Effect a lead tap sample at locations set of be replaced (in within 1 hr 6-months after replacement) • Report replacement of public owned service lines that are at or above document of an I-51

I-51-Related Outreach:	I-51-Related Outreach:
<ul style="list-style-type: none"> • When water system plans to replace the portion it owns, it must offer to replace a customer-owned portion at owner's expense • If system replaces its portion only, provide notification as affected customers within 45 days prior to replacement as possible elevated short-term lead levels and measures to minimize exposure • In bulk offer to collect lead tap sample within 72 hours of application • Provide lead results within 7 business days after receiving results 	<ul style="list-style-type: none"> • Inform customer's annually that they are served by I-51 or lead status information once a year • No system subject to good-lead program must conduct targeted outreach that encourages customers with I-51's to participate in the I-51 R program • Conduct an additional outreach activity if they fail to meet their goal • Systems subject to mandatory I-51 R include information on I-51 R program in public education (PE) materials that are provided in response to P-00 - AI
<p>No provisions for systems to elect an alternative treatment approach. But see specific requirements for C-1 and I-51 R</p>	<p>Small System Feasibility:</p> <ul style="list-style-type: none"> • All non-C.W.S. systems $> 10,000$ people and all NEM W.S.s with P-00 10 mg/l to select their approach to address lead with private agency approval • Systems can choose C-1 I-51 R, point-of-use and maintenance of point-of-use devices, or replace all lead-bearing plumbing materials

I-51-Related Outreach:	I-51-Related Outreach:
<ul style="list-style-type: none"> • All I-51's must provide with data submitted on the annual water quality compliance report (C-1) • Systems with P-00 - AI must provide PE to customers about lead usage or health effects on customer's request, lead exposure and additional information sources • Systems must provide lead exposure source to make adjustments at point-of-use within 30 days of learning results • Water quality reports that P-00 15 mg/l materials translated to other languages 	<ul style="list-style-type: none"> • I-51's must provide translated health effects language in all PE materials and the C-1 R • Water quality reports that P-00 15 mg/l materials translated to other languages • All I-51's are required to include information on how to access the I-51 tap centers and how to access the results of all tap sampling in the C-1 R • Review the translated health effects language to ensure accuracy and clarity • In P-00 - AI: <ul style="list-style-type: none"> • Inform PE materials apply • Inform must notify customers of P-00 - AI within 24 hours • In addition, I-51's must <ul style="list-style-type: none"> • Inform lead and other shared agencies for customers doing to our website and that could disrupt I-51's • Provide information to local and state health agencies • Provide lead exposure notice to consumers where notified tap sample in 15 mg/l or more is probable but not more than 7 days • See the I-51-Related Outreach a link on page 47
<ul style="list-style-type: none"> • Systems on a reduced tap sampling schedule must obtain private agency's approval before changing their source or treatment • Private source water monitoring is required for systems with P-00 - AI and on-line water treatment 	<ul style="list-style-type: none"> • Systems on any tap sampling schedule must obtain private agency's approval before changing their source or treatment. These systems must also conduct tap monitoring frequently • Private Agencies can have a customer water meter monitoring to do: <ul style="list-style-type: none"> • Inform lead of each condition water to also monitoring for a private P-00 - AI • Private Agency has determined that water is also treatment is not required and

CRUCIAL	USM REVISIONS
<ul style="list-style-type: none"> Does not include separate testing and evaluation program for UWS at schools and child care facilities. Schools and child care that are classified as SDF UWS must sample for lead and copper. <p>Primary Agencies must report information to EPA that includes but is not limited to:</p> <ul style="list-style-type: none"> All P00 levels for systems serving 3,500 people and all levels 15 µg/l for smaller systems. Systems that are required to initiate LSH and the date replacement must begin. Systems for which optional corrosion control treatment (OCC) has been designated. 	<p>System has not added any new water sources.</p> <ul style="list-style-type: none"> UWS must conduct sampling at 20% of elementary schools and 20% of child care facilities per year and conduct sampling at secondary schools on request for 1 testing cycle (5 years) and conduct sampling on request of all schools and child care facilities thereafter. Sample results and PE must be provided to each sampled school/child care primary agency and local or state health department. UWS facilities built or replaced all plumbing after January 1, 2014. <p>USM current requirements to include:</p> <ul style="list-style-type: none"> All P00 values for all system sizes. The current number of LSHs and lead status on new service lines for every water system. LSH status of all systems including primary agency specified (BQP).

Questions?

Arianna Lageman
a.lageman@krwa.org

Upcoming Changes to NSF Drinking Water System Components Program (NSF-600) No Need to be Afraid

Steven Roetter, PE
Business Development Manager – Water
The Sherwin-Williams Company



Advantages of UHS Epoxy

- NSF 61/600 Extractables Changes
- AWWA D102-17 Systems
- Return to Service Time
- VOC Content
- Edge Retention – MIL-PRF 23236
- OAP Inspection
- Application Equipment, Details & Challenges

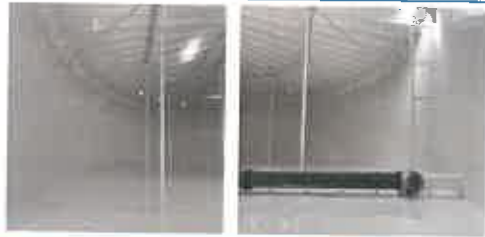
Proposed NSF 61/600 Changes

Component	Current Concentration (TAL-CPA)	New Proposed Limit (TAL-CPAC)	Implementation Date (if available)
Perfluorophenols (PFOP) & Perfluorophenolsulfonic acid (PFPS)	20.3	0.075 007	Product must comply by 1/1/2023
Triphenylphosphine Oxide	2.53	50.3	Product must comply by 1/1/2023
Total Nylons	10 000/1000	8/8	Product must comply by 1/1/2023
Toluene	100/100	6/6	Product must comply by 1/1/2023
Benzene	700/70	10/4	Product must comply by 1/1/2023

AWWA D102-17 Linings Systems

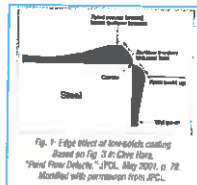
- AWWA D102- ICS#1 – 2 Coat Epoxy – 8 Mills DFT
- AWWA D102- ICS#2 – 3 Coat Epoxy – 12 Mills DFT
- AWWA D102- ICS#3 – 1 Coat UHS Epoxy – 20 Mills DFT
- AWWA D102- ICS#4 – 1 Coat UHS Elastomeric Polyurethane – 25 mils DFT
- AWWA D102 - ICS#5 – 3 Coat Zinc/Epoxy/Epoxy- 10 Mills DFT
- AWWA D102 – ICS#6 – 2 Coat Zinc/Epoxy – 12.5 Mills DFT

AWWA D102-17 ICS #3 UHS Epoxy



MIL-PRF 23236 Edge Retention

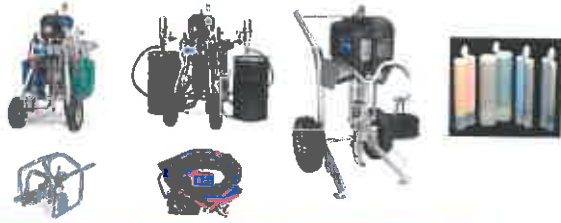
- Edge Retention Essential on Leading Edges & Angles
- Coating & Linings Typically Shrink Back During Cure.
- Early On-Set Corrosion Happens on Leading Edges
- MIL-PRF 23236 Requires a Lining Maintain a Minimum of 70% DFT at 90° Angles.
- Testing Developed By The US Navy



Life Cycle Costing of PW Lining Systems

System	Total DP (ft/AG)	Total Square Feet	Labor Cost	Material Cost	Total Cost	Service Life	Average Cost
CS 41	8	25,000	\$1.28	0.63	\$44,250	12	\$4,825
			\$20,000	\$16,250			
CS 42	12	25,000	1.50	0.85	\$59,800	25	\$6,986
			\$8,250	\$21,250			
CS 45	10.5	25,000	\$1.54	\$0.82	\$59,000	15	\$3,890
			\$38,500.00	\$20,500.00			
CS 43	20	25,000	\$1.93	0.80	\$68,000	18	\$5,778
			\$47,750	\$20,250			

Application Equipment & Details



Application Equipment & Details



Advantages of UHS Epoxy in Potable Water

Thank You

Questions?
