



**EPA Clean Water Act
National Compliance Initiative Series**

***Do's and Don'ts in Operating an NPDES
Laboratory: Common Mistakes and Ways to
Improve Results***

Presented Live:
February 24, 2021

US EPA Office of Compliance Technical Assistance Webinar Series

Introduction: Peter Bahor, US EPA Office of Compliance
(bahor.peter@epa.gov)

- Webinar series supports the national EPA and state initiative to reduce noncompliance among CWA-NPDES permitted facilities. Focus is on helping wastewater system operators return their facilities to compliance, and those interested in fine-tuning their systems.
- The webinar will be recorded for future viewing.
- Attendees receive a follow-up email 24 hours after the conclusion of the webinar including a link to download a certificate of attendance. Check your inbox or spam folder for this email from GoToWebinar. Discuss eligibility of continuing education credits with your specific certification authority.
- You will be in “listen only mode.”
- Use the Q&A box to ask questions and to suggest other training ideas.
- Speakers do not necessarily reflect EPA positions or policy.
- We strive for continuous improvement. Please complete the post webinar survey.



DO'S AND DON'TS IN OPERATING AN NPDES LABORATORY: COMMON MISTAKES AND WAYS TO IMPROVE RESULTS

FEBRUARY 24, 2021

MAGDA DALLEMAGNE, EPA R6 LABORATORY AUDIT INSPECTOR

SPECIAL THANKS TO ...

- QUESTIONS AND BACKGROUND SUPPORT FROM EPA REGION 6 DALLAS, TX
 - COLLIN MARTIN, MARTIN.COLLIN@EPA.GOV
 - TONY LOSTON, LOSTON.ANTHONY@EPA.GOV
 - JUAN IBARRA, IBARRA.JUAN@EPA.GOV
 - JACK ARIAS, ARIAS.JACK@EPA.GOV
- WEBINAR SUPPORT AND MANAGEMENT FROM EPA HEAD QUARTS FROM WASHINGTON, DC
 - LAURA PARADISE, PARADISE.LAURA@EPA.GOV
 - PETER BAHOR, BAHOR.PETER@EPA.GOV



**THREE (3) INTERMITTENT
POLLING QUESTIONS**



OVERVIEW

1. INTRODUCTION, EXPLANATION OF GOALS FOR PRESENTATION
2. BRIEFLY DISCUSS HAND OUTS
3. COMMON MISTAKES FOUND DURING INSPECTIONS
4. WAYS TO IMPROVE YOUR LABORATORY
5. QUESTIONS, OPEN DISCUSSION



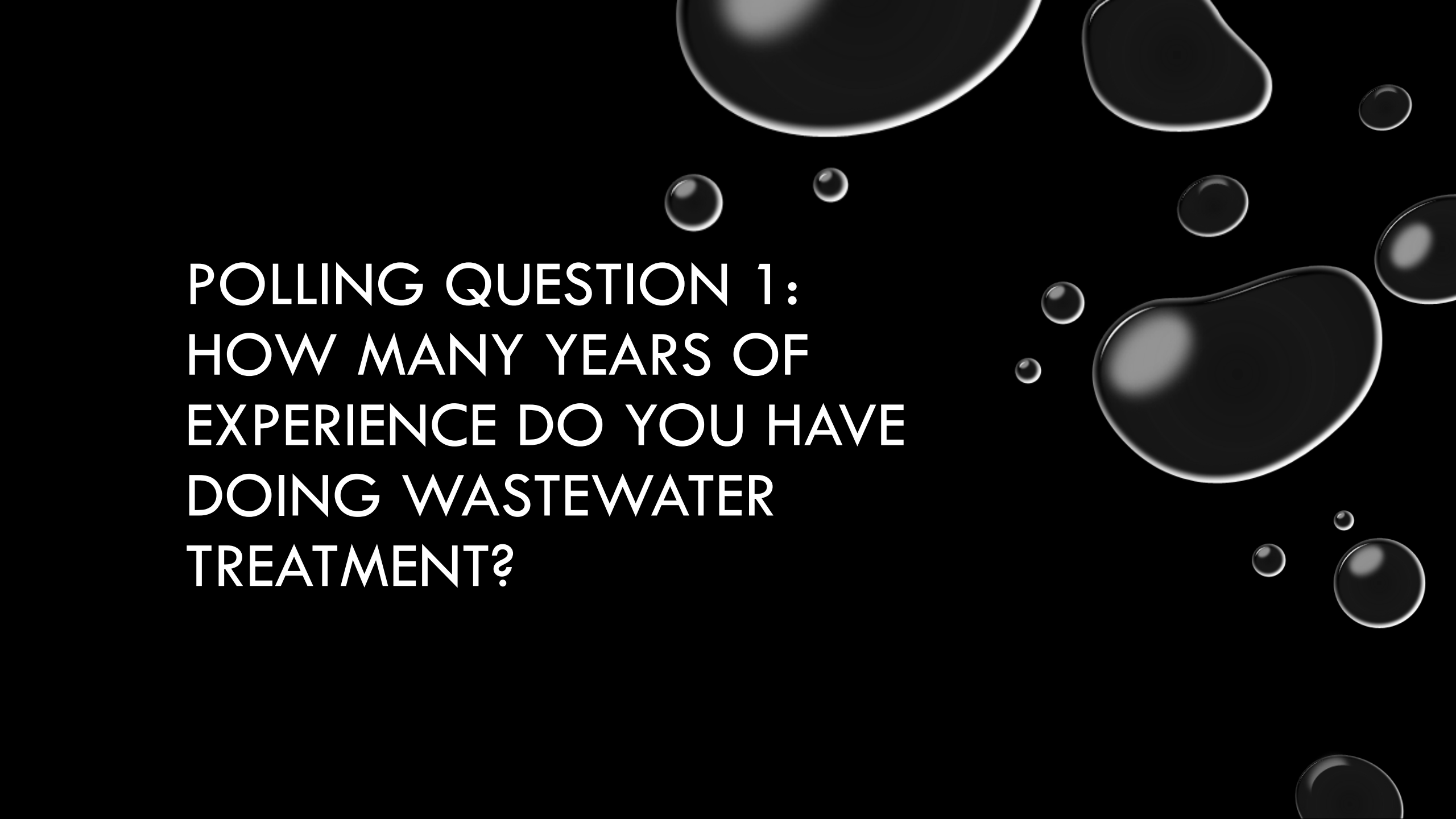
INTRODUCTION AND GOALS

OVERVIEW

1. INTRODUCTION, EXPLANATION OF GOALS FOR PRESENTATION
2. **BRIEFLY DISCUSS HAND OUTS**
3. COMMON MISTAKES FOUND DURING INSPECTIONS
4. WAYS TO IMPROVE YOUR LABORATORY
5. QUESTIONS, OPEN DISCUSSION

HANDOUTS

- PRESENTATION, PDF
- SELECT EXCERPTS FROM
 - *STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, 23RD EDITION*
 - EPA APPROVED METHODS
 - 40 CFR 136
 - NPDES PERMIT



POLLING QUESTION 1:
HOW MANY YEARS OF
EXPERIENCE DO YOU HAVE
DOING WASTEWATER
TREATMENT?

OVERVIEW

1. INTRODUCTION, EXPLANATION OF GOALS FOR PRESENTATION
2. BRIEFLY DISCUSS HAND OUTS
3. **COMMON MISTAKES FOUND DURING INSPECTIONS**
4. WAYS TO IMPROVE YOUR LABORATORY
5. QUESTIONS, OPEN DISCUSSION

COMMON MISTAKES FOUND ON INSPECTION

- PROCEDURES
 - PH
 - TOTAL SUSPENDED SOLIDS
- CHEMICALS, SOLUTIONS, REAGENTS
 - EXPIRATIONS
 - LABELING
- DOCUMENTATION
 - TEMPERATURE & CALIBRATION LOGS
 - STANDARD OPERATING PROCEDURES
 - BENCH SHEETS

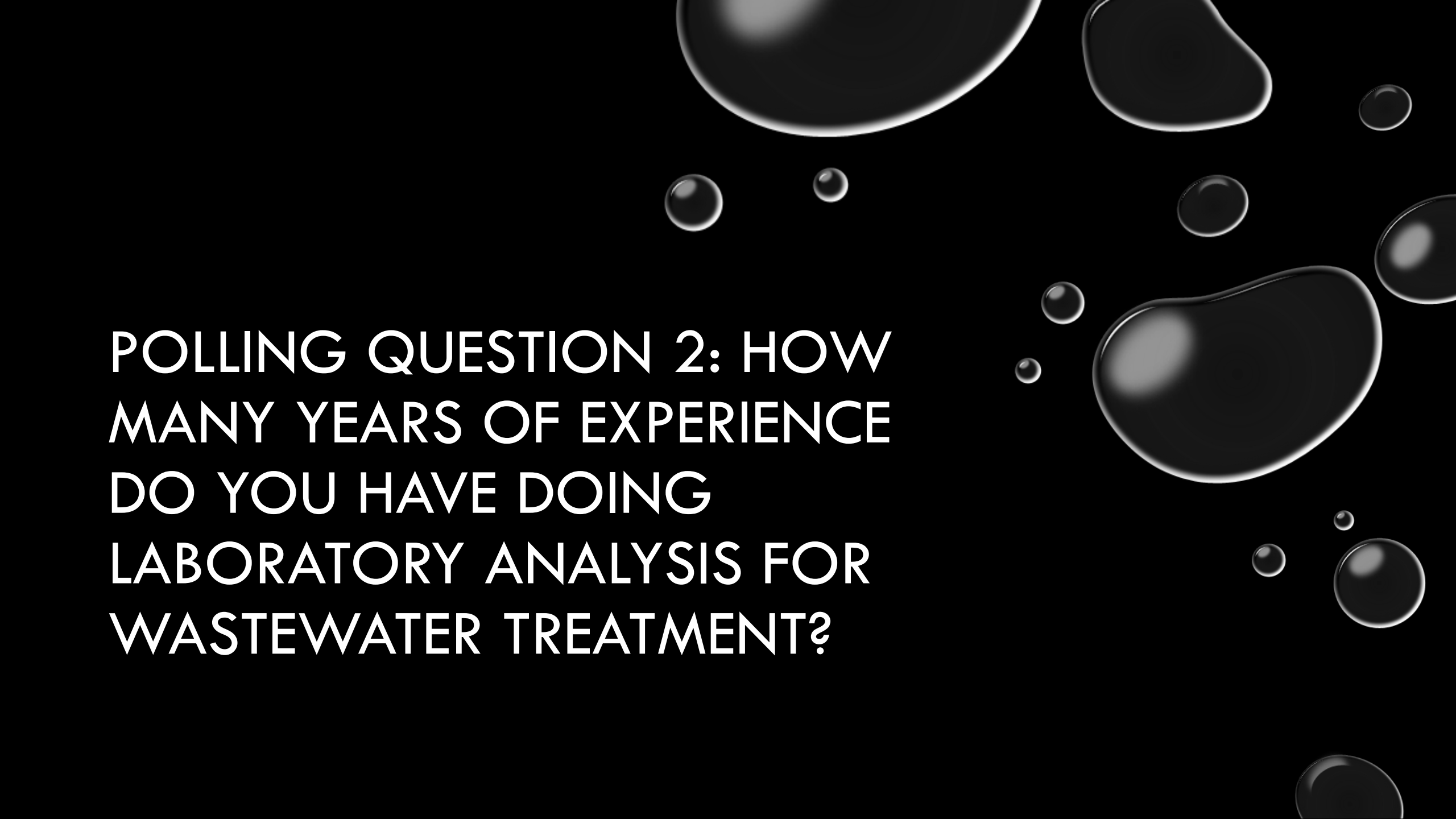
PH METER & ANALYSIS

- USE KCL FOR PROBE STORAGE, NOT BUFFER
- AUTO OR MANUAL TEMPERATURE ADJUSTMENT
- CALIBRATION
 - ONCE PER DAY OR EVERY 12 HOURS OF OPERATION
 - TURNED ON OR OFF
 - RECORD DATE, TIME, SLOPE, PER METHOD
 - RECORD SHIFT DATA FOR QA/QC PURPOSES





PH CALIBRATION EXAMPLE, PDF



**POLLING QUESTION 2: HOW
MANY YEARS OF EXPERIENCE
DO YOU HAVE DOING
LABORATORY ANALYSIS FOR
WASTEWATER TREATMENT?**

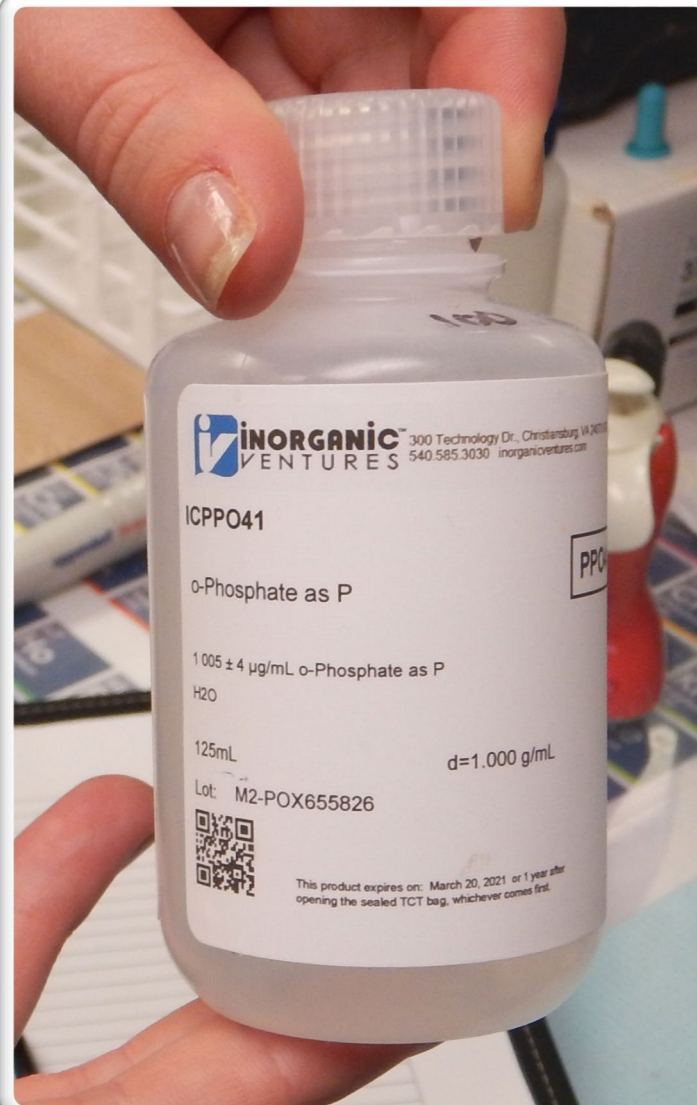
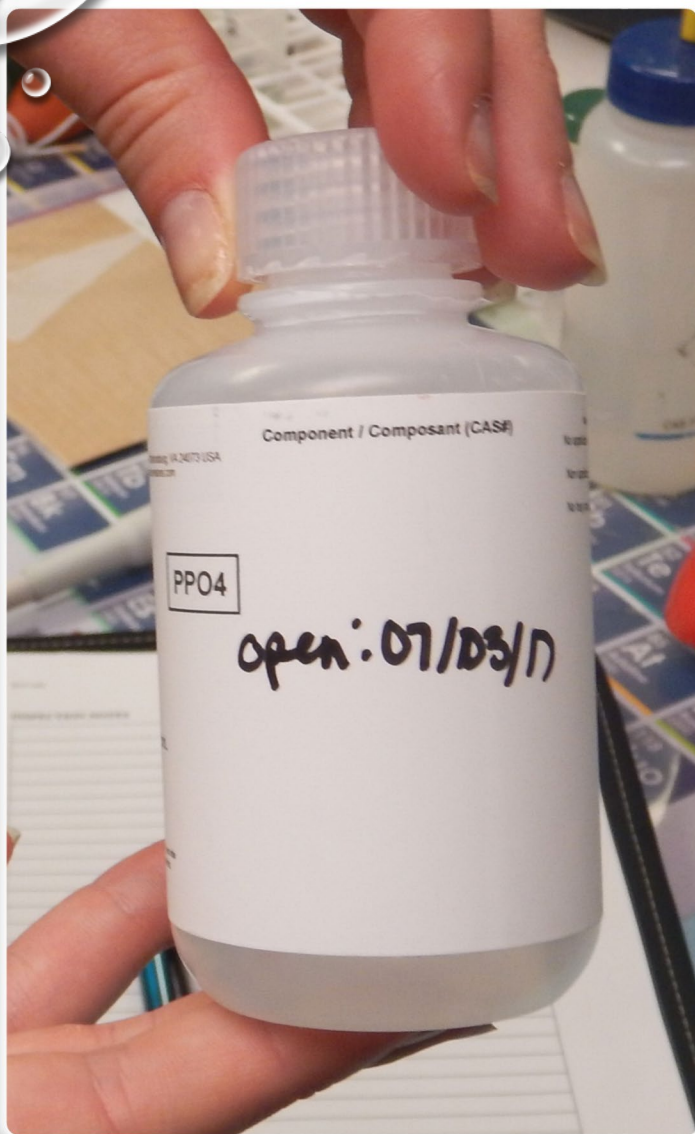
TOTAL SUSPENDED SOLIDS

- SHAKE & POUR VS STIR & PIPET
 - SHAKE & POUR IN *STANDARD METHODS* NOT EPA APPROVED
 - EPA APPROVAL FOR ALTERNATE METHOD
 - 40 CFR PART 136 TABLE 1B, NOTE 2
- FILTER, DRY & WEIGH TWICE
 - PREPPED VS FILTRATE
- TEMPERATURE & TIME MUST BE RECORDED WHEN PLACED INTO AND REMOVED FROM OVEN





TSS EXAMPLE, PDF



CHEMICALS, SOLUTIONS, REAGENTS

- STORAGE
 - TEMPERATURE CONTROLLED LOCATION
- EXPIRATION DATE(S)
 - ONE YEAR AFTER OPENING **OR** MANUFACTURER'S EX.
- OPEN DATE(S)
 - SEE: OPEN DATE, NO WRITTEN EXP. DATE

125mL

d=1.000 g/mL

Lot: M2-POX655826



This product expires on: March 20, 2021 or 1 year after opening the sealed TCT bag, whichever comes first.



**POLLING QUESTION 3: DO
YOU OR YOUR COLLEGES
HAVE STATE CERTIFICATIONS
FOR WASTEWATER OR
LABORATORY TREATMENT?**

THERMOMETERS AND TEMPERATURE-CONTROLLED ANALYSIS

- THERMOMETERS TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST) OR EQUIVALENT CERTIFICATION
- TEMPERATURE LOG FOR TEMPERATURE-CONTROLLED INSTRUMENTS AND EQUIPMENT
 - GENERAL LOG OF TEMPERATURE AT BEGINNING AND END OF DAY, FOR CONTINUITY
- BENCH SHEETS MUST LOG TEMPERATURE AND TIME AT THE BEGINNING AND END OF EACH TEMPERATURE DEPENDENT ANALYSIS

The background is a vertical gradient from light purple at the top to dark blue at the bottom. Scattered across the background are several realistic water droplets of various sizes, some with highlights and shadows, giving them a 3D appearance.

TEMPERATURE LOG EXAMPLE, PDF

STANDARD OPERATING PROCEDURE MAINTENANCE

- FULL, COMPLETE CITATION OF AN EPA APPROVED METHOD
 - EX: STANDARD METHODS 5210 –B 23ED
- CLEAR AND DIRECT INSTRUCTIONS PER THE REFERENCED METHOD
- ENSURE PRACTICED METHOD IS THE SAME AS WRITTEN IN SOP
 - “HAND ME DOWN” KNOWLEDGE CAN ALTER PRACTICED METHODS

BENCH SHEET REQUIREMENTS

- PER THE PERMIT, BENCH SHEETS MUST CONTAIN THE FOLLOWING
 - THE DATE, EXACT PLACE, AND TIME OF SAMPLING OR MEASUREMENTS;
 - THE INDIVIDUAL(S) WHO PERFORMED THE SAMPLING OR MEASUREMENTS;
 - THE DATE(S) AND TIME(S) ANALYSES WERE PERFORMED;
 - THE INDIVIDUAL(S) WHO PERFORMED THE ANALYSES;
 - THE ANALYTICAL TECHNIQUES OR METHODS USED; AND
 - THE RESULTS OF SUCH ANALYSES.
- ADDITIONAL INFORMATION PER THE METHOD



OVERVIEW

1. INTRODUCTION, EXPLANATION OF GOALS FOR PRESENTATION
2. BRIEFLY DISCUSS HAND OUTS
3. DETAILED OVERVIEW OF COMMON MISTAKES FOUND DURING INSPECTIONS
4. **WAYS TO IMPROVE YOUR LABORATORY**
5. QUESTIONS, OPEN DISCUSSION

IMPROVEMENTS

- ANNUAL INTERNAL REVIEW OR “AUDIT”
 - STEP BACK, SEE THROUGH NEW EYES
 - ASK: WALK ME THROUGH LIKE A NEW EMPLOYEE
 - REVIEW CURRENT DOCUMENTS AGAINST EPA METHODS
 - UPDATE SOP & BENCH SHEETS REGULARLY
- THIRD PARTY REVIEW

The background is a light gray gradient with several realistic water droplets of various sizes scattered across it. The droplets have highlights and shadows, giving them a three-dimensional appearance. The word "QUESTIONS?" is centered in the middle of the image in a large, bold, black, sans-serif font.

QUESTIONS?