# Changes to the Laboratory Certification Rules

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# Introduction

- Interim Authorization
- Manuals and the Ohio Administrative Code (OAC)
- Membrane Filter Sunset Date
- Out of State Lab Approval
- One Liner Items

# Interim Authorization

- Currently, only plant control tests
- Proposed addition, MMO-MUG (OAC 3745-89-09)

# Interim Authorization for MMO-MUG

- Parallel testing
  - Seven samples a day, totaling at least twenty-one samples
  - Required quality control included in seven sample set
  - Trainer must be a certified analyst for MMO-MUG (SM 9223)
- Parallel results (Certified Trainer)
  - no false negatives and no more than one false positive in a set.

# Manuals Incorporated into Rules

- The requirements for maintaining laboratory certification include the following:
  - Conformance by the laboratory to the "Ohio EPA Laboratory Manual for the Microbiological Analyses of Public Drinking Water 2014" and the "Ohio EPA Laboratory Manual for the Chemical Analyses of Public Drinking Water 2014". (OAC 3745-89-05)

# Sunset Date for Membrane Filtration

- Until March 31, 2016: fecal coliform analysis, for total coliform-positive results may be used, using EC medium. (OAC 3745-81-27)
- After March 31, 2016, *E. coli* analysis must be performed.
  - Using either a nutrient EC-MUG or NA-MUG
  - Follow preparation instructions from Standard Methods sections 9222 G.1c(2) or 9222 G.1c(1).

# Out of State Laboratory Approval (3745-89-02)

- Granted to out of state laboratories when parameter capacity issues exist in Ohio
- Updated requirements

# Out of State Laboratory Approval (3745-89-02)

- Asbestos
- Dioxin
- Cryptosporidium
- Radiochemistry

# Out of State Laboratory Approval (3745-89-02)

- A copy of the certificate by the accrediting body
- The evaluations of the two most recent PT sample studies
- The evaluations of PT samples resulting in evaluation of “Not Acceptable”
- Reports from the most recent survey by the accrediting body issuing the certification

# One Liner Items

# Analytical Techniques (3745-81-27)

- 22nd edition of Standard Methods added
- Addition of the following methods: Cryptosporidium (EPA 1623.1), ChlordioX Plus and VOCs/THMs/Vinyl Chloride (EPA 524.4)
- Laboratories shall be certified for each method (and any associated contaminant) used for compliance monitoring analyses: Colilert/Colisure/Quanti-Tray
- Total coliform and *E. coli* results need only be determined as presence or absence, density not required.
- Sufficient sodium thiosulfate must be added to the sample bottle before sterilization

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# Procedure for laboratory approval (3745-89-03)

- Identification of laboratory plan requirements
- Clarification of requirements for a Quality Assurance Plan

# Interim authorization for new contaminants and new methods (3745-89-10)

- Simplified the microbiological requirement
  - Pass one proficiency test, from a NELAP approved provider
- No longer required to provide the following:
  - Three sets of duplicate samples, tested at least one month a quarter for three consecutive quarters.
  - Parallel testing between Ohio EPA unapproved method and Ohio EPA approved method

# Questions?

# Quality Assurance/Quality Control

A Brief Discussion

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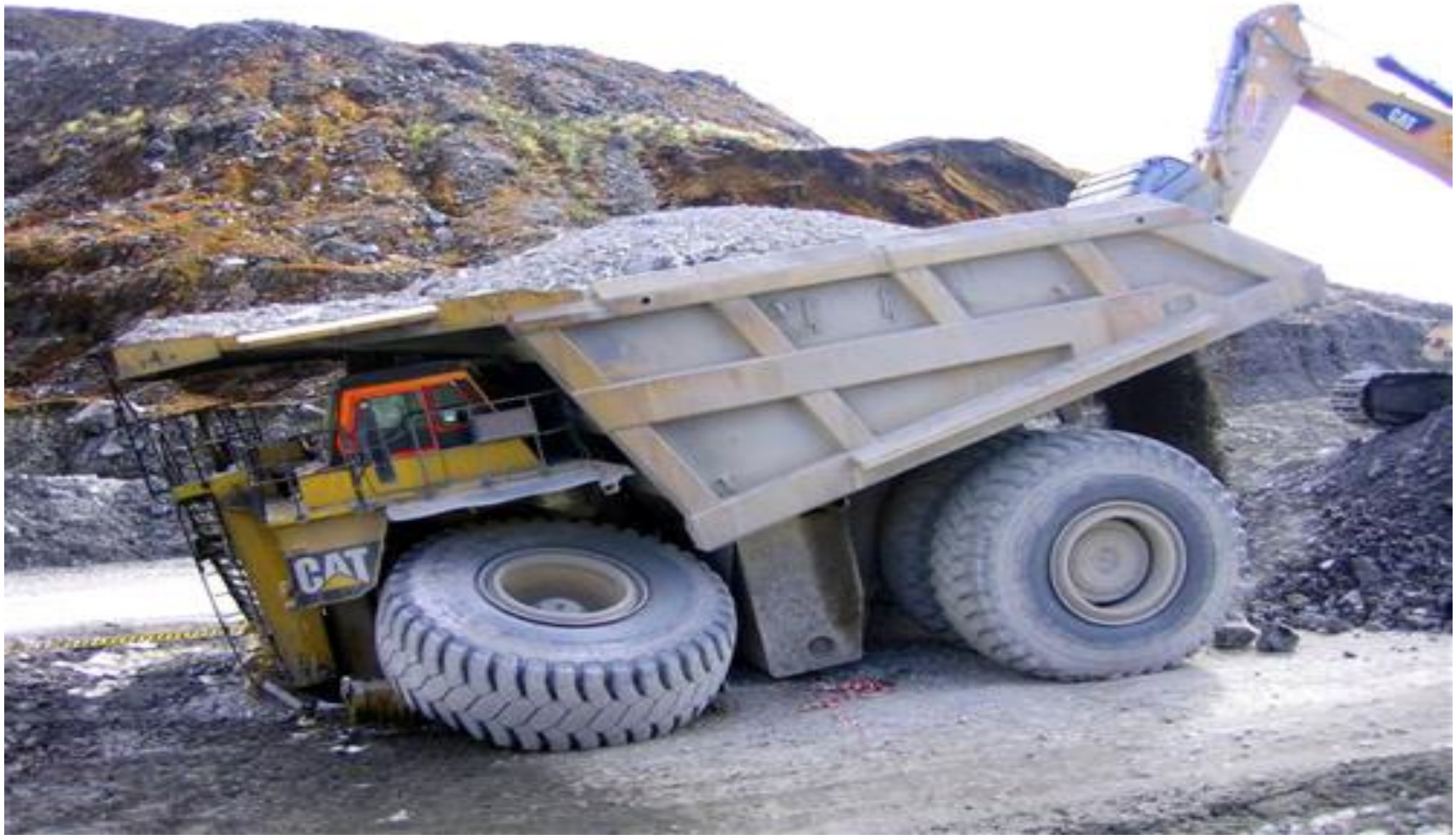
# Quality Assurance/Quality Control

- Quality Assurance (QA):  Program designed to ensure a product or service meets minimum acceptable standards.

# Quality Assurance/Quality Control

- Quality Assurance (QA):  Program designed to ensure a product or service meets minimum acceptable standards.
- Quality Control (QC):  The procedures that make up the QA program.

# Is Product QA/QC Important?

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# Is Procedural QA/QC Important?

This picture may or may not have anything to do with QA/QC, but a man wearing a bucket on his head is just funny

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# What Does A Laboratory Produce?

Data:  Analytical Results

# Quality Assurance/Quality Control In The Laboratory

- Quality Assurance (QA): The Laboratory QA program is designed to ensure analytical results are accurate, reproducible and precise.
- Quality Control (QC): The PROCEDURES that ensure analytical results are accurate, reproducible and precise.

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# QA: PROGRAM

- Standard Operating Procedures
  - Instructions for analytical method
- Data Review
  - Minimum QC requirements met?
  - Have samples been analyzed within holding time?
  - Data records (Dates, Analyst Initials, Calibration Records, ETC)

# QC: PROCEDURES

- Acceptance Limits
  - pH Meter Slope (95% - 105%)
  - Titrant Standardizations
- Calibration Verification
  - Calibration Acceptance
  - Continuing Calibration Verification (CCV)
- Accuracy Verification Samples
  - Performance Test (PT) Samples

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# What Does QA Look Like In A Lab?

## QA: pH Analysis

- Standard Operating Procedure (SOP)
- The pH meter is calibrated once every 8 hour shift.
- The pH meter is calibrated before a sample is analyzed.
- Information is recorded with each calibration/analysis.

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# What Does QC Look Like In A Lab?

## QC: pH Analysis

- The pH meter is calibrated with pH buffers 7, 10 and the resulting slope must be between 95% - 100%.
- After successful calibration, a pH buffer 4 is analyzed and the result must be between 3.9 - 4.1.
- Analyze sample(s).
- Record: Date of calibration, buffers used to calibrate, resulting slope, buffer 4.0 result, sample results, analyst initials and any corrective measures for QC failures.

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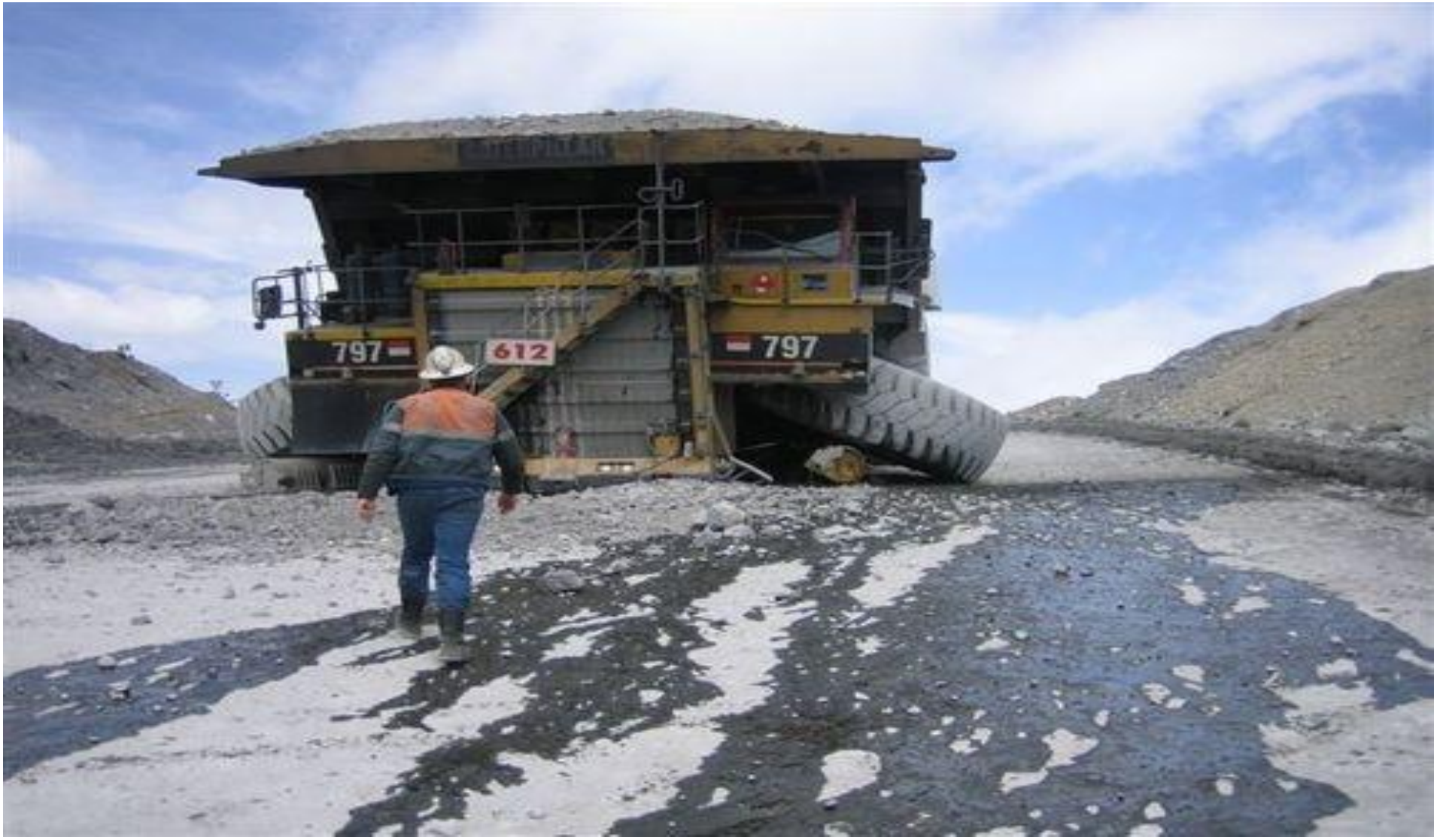
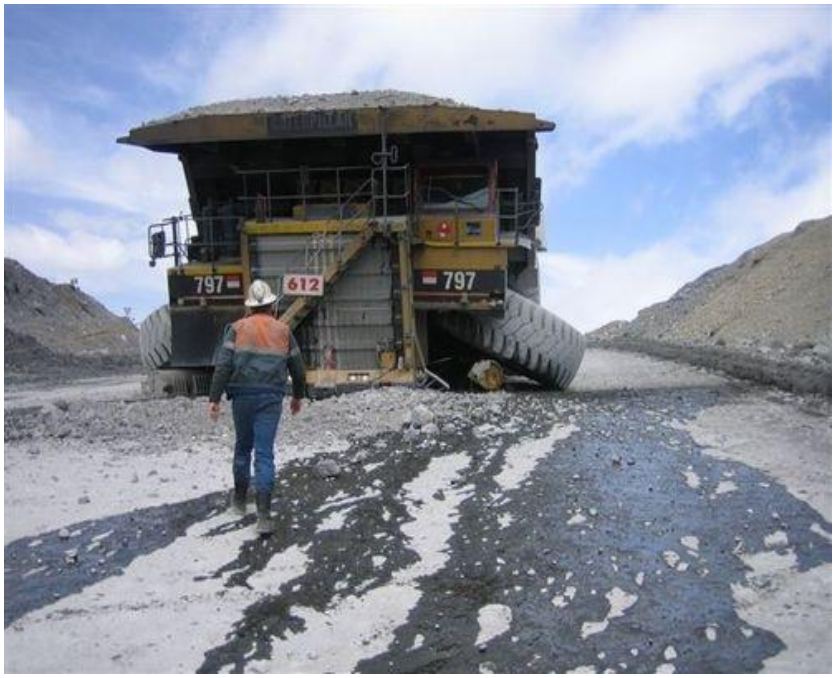
# Is QA/QC Important In The Lab?

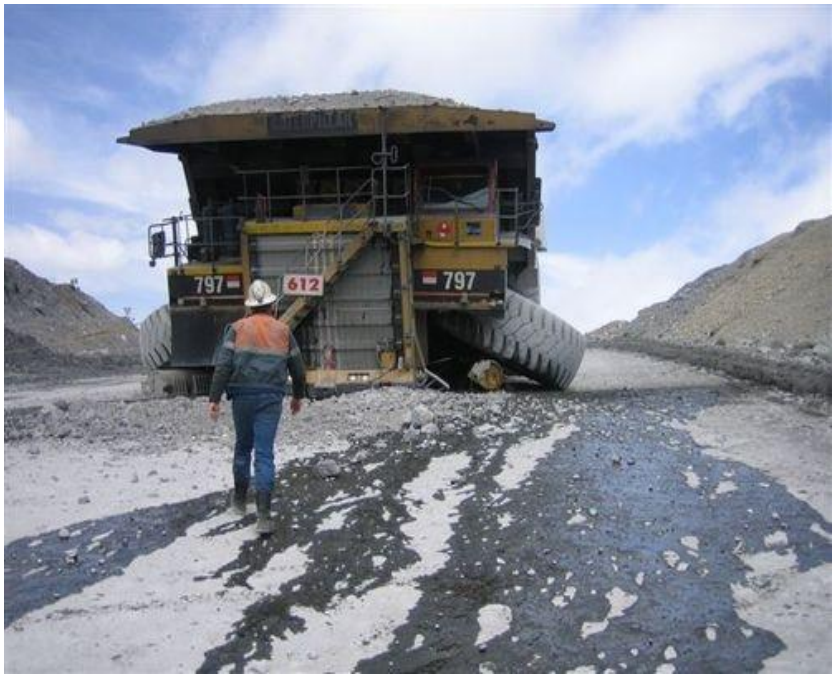


# How Are These Different?




pH Slope 93%

# They're Not. Both Must Be Corrected Before Work Can Continue.




= pH Slope 93%

# QA/QC: Different Angle

## pH Analysis

- What You Know: (QA/QC)
- Slope from pH 7 and 10 Buffers = 99% (Acceptance Limits 95% – 100%)
- pH Buffer 4 = 4.02 (Acceptance Limits 3.9 – 4.1)

- What You Don't Know: (Water Sample)
- Water Sample pH = 7.9

If the stuff you know is what you expect, then you're confident the stuff you don't know is correct.

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# Questions?