

Lab Analysis an Overview

Presented By:

ELAC

(CT Environmental Laboratory Advisory Committee)

Don Carew, Chairman

A Visit to the Laboratory

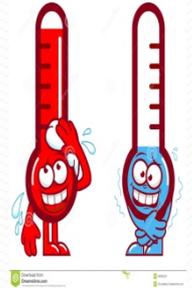


Sample Receiving

- Fill Out and Present Chain of Custody with your Sample.



- Vitals are Taken: Temperature and Preservation



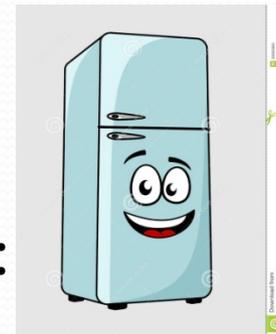
- Sample is Given a unique Identifier :



- Sample is Logged into LIMS



- Sample is Placed in Refrigerated Storage:



CHAIN OF CUSTODY FOR LABORATORY ANALYSIS

Client Information

Name:

Phone:

Address:

Payment Type: Cash

Town/State/Zip

Check

Sample Information

Location:

Sample Point:

Bathroom Tap

Town/State/Zip

Is there a treatment

Water Supplied By:

Drilled Well Spring Dug Well Pond

If yes, sample locati

Reason for sampling: Sale of a Home Voluntary

Health District: Mic

New well

Torrington Che

Sampler Name: _____

Sample Date: _____

Sample Holding Times

- Coliform/Ecoli: 6Hrs ,
- Physical Parameters: ASAP no more than 24 Hrs,
- Nitrates and Nitrites: 48 Hrs,
- Hardness and Trace Metals : 6 months(exception Hg 28 days)
- VOC's :14 days (preserved)
- Radon : 4 days

Physical Chemistry

- pH



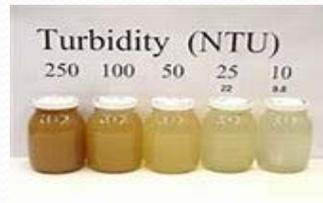
- Color



- Odor



- Turbidity



- Chlorine



PH Analysis



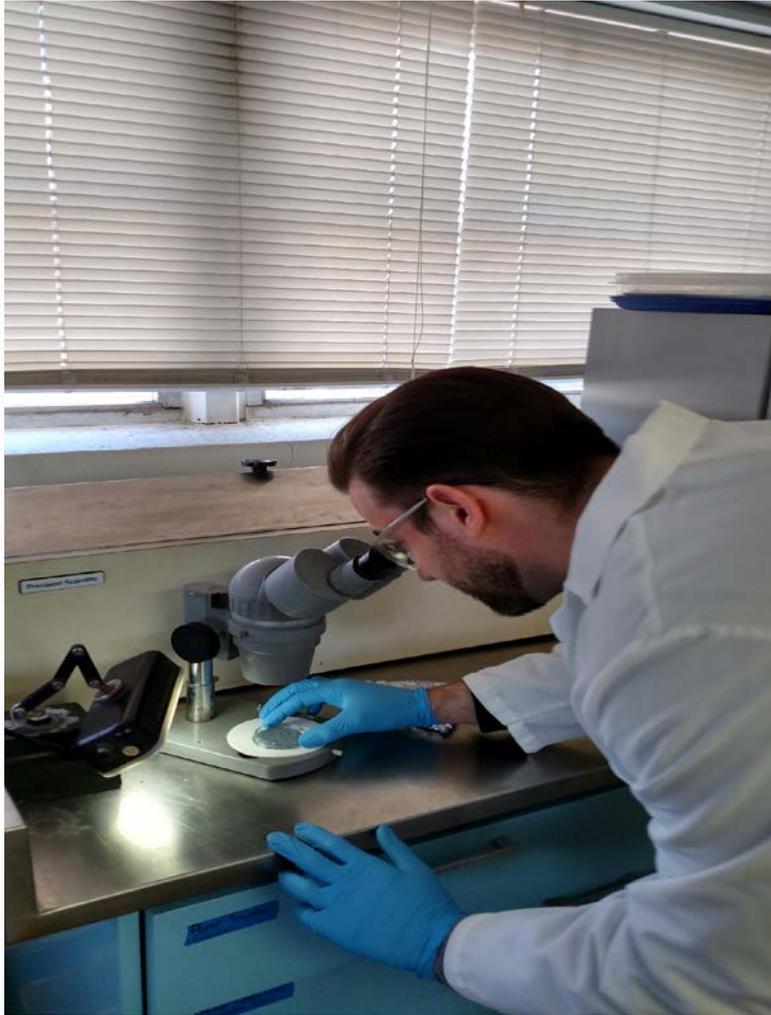
Bacteria: Coliform & EColi

- Presence/Absence: Enzyme test. 24 hour incubation.
= / > comparitor: positive for Coliform. UV
Fluorescence : positive for Ecoli
- Membrane Filtration. Colony Growth on M-Endo. 24
hour Incubation + 24 hour Confirmation of growth
(Coliform LTB/BG, Ecoli EC+mug)

Coliform Testing P/A



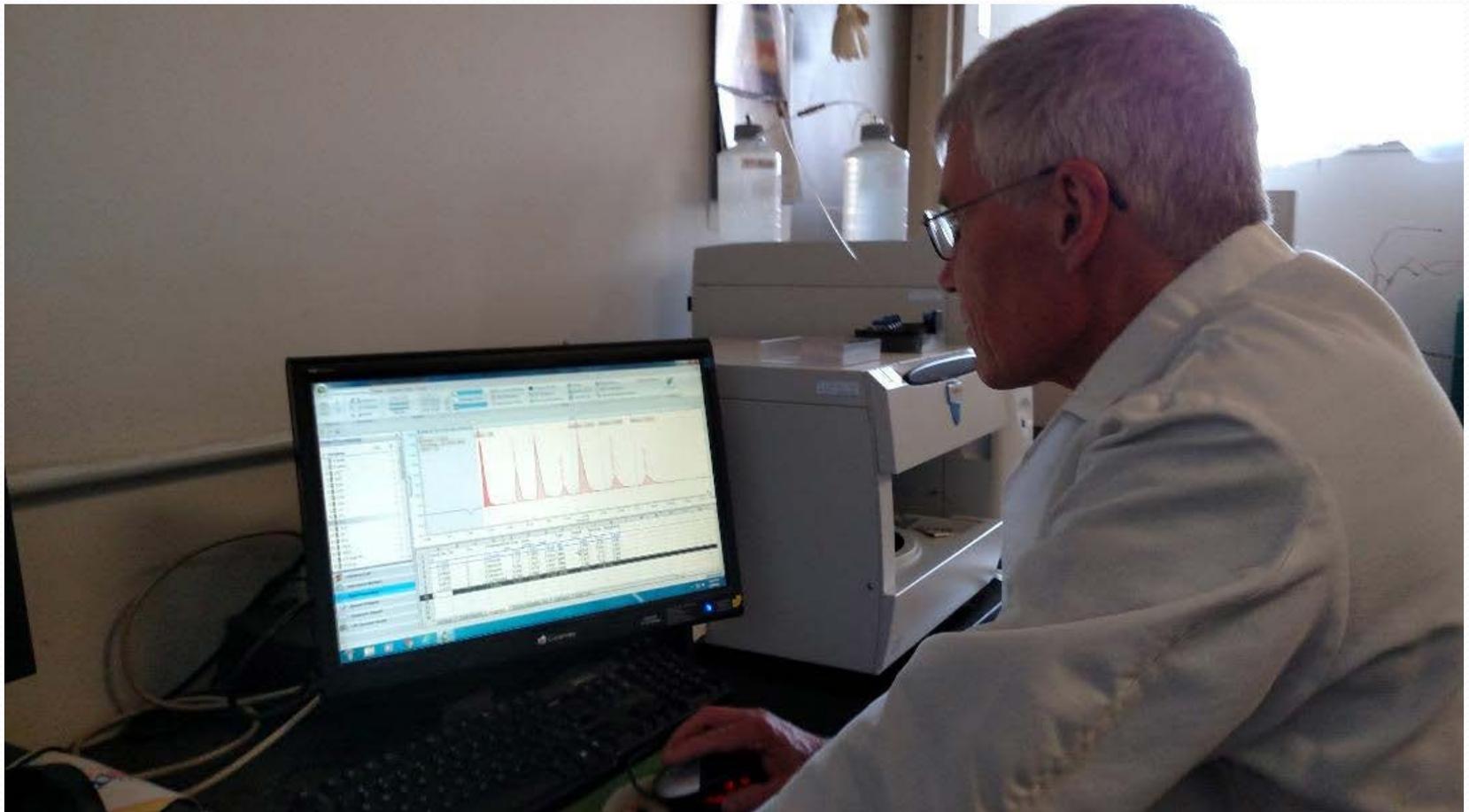
Coliform Testing: Membrane Filtration



Nitrate, Nitrite, Chloride, Sulfate by Ion Chromatography

- Ion Chromatography: Method EPA 300, EPA300.1
- Samples are filtered through 0.2um filter and prepared for auto injection into a High Pressure Liquid Chromatograph equipped with cation suppression, an analytical column, and an electrolytic conductivity detector.
- Sample concentration and anion identification accomplished by retention time and magnitude of peaks detected by the data system.

Ion Chromatography



Trace Metals Analysis

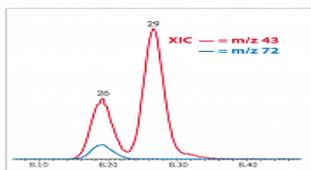
- ICP/OES: ppm, ppb detection limits
- ICP/MS: ppm, ppb, ppt detection limits
- AA: ppm detection limits

ICP/OES and ICP/MS Instrumentation

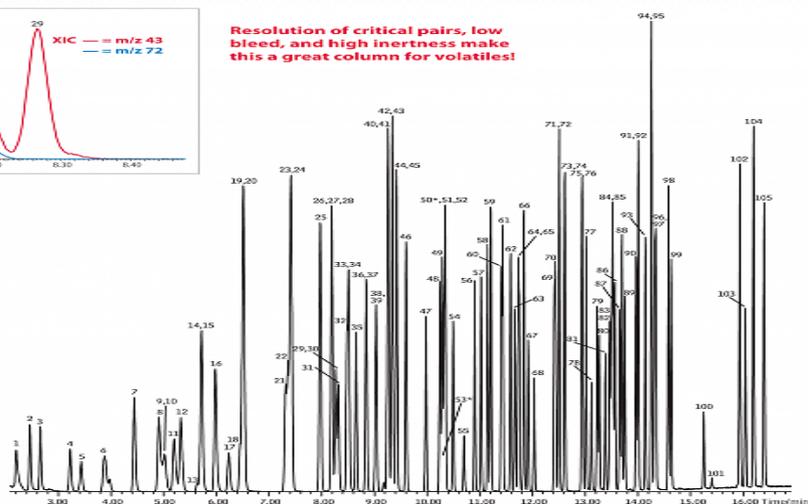


Volatile Organic Compounds (VOC's)

- Analysis Performed by Gas Chromatograph combined with a Mass Spectrometer (GC/MS).
- Samples are concentrated via Purge and Trap and autosampler.
- The concentrated sample is thermally desorbed into the GC/MS where each component is separated, identified and quantitated.



Resolution of critical pairs, low bleed, and high inertness make this a great column for volatiles!



VOC's : Loading the Autosampler

