



# RADIOCHEMISTRY

EMSL

EMSL's Radiological Department is a diversified laboratory which provides a full set of radiochemical analysis. The division includes analysis of radon in air and water as well as capabilities to detect alpha, beta, and gamma radiation in a wide variety of environmental samples. The radiochemistry laboratory can analyze various matrices which include, but are not limited to, food, water, soil, vegetation, wipes, and other unique sample matrices. The laboratory possesses a liberal radioactive materials license and can fulfill any customer need on radiation detection and analysis.

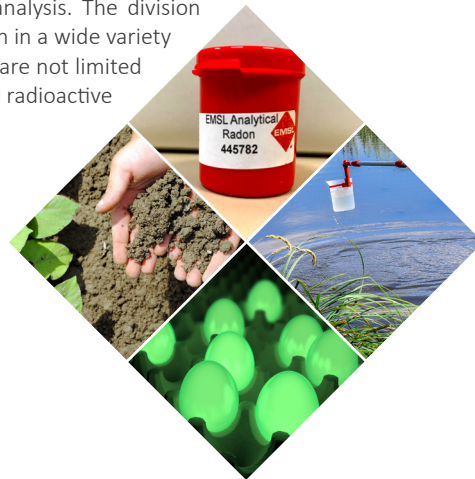
Key tests include\* (but are not limited to) the following:

## ANALYSIS CAN BE GROUPED INTO CATEGORIES BASED UPON THE TYPE OF POTENTIAL RADIATION:

- Gross Alpha
  - EPA 900.0
  - New Jersey Rapid Gross Alpha ECLS-R-GA.R8
- Gross Beta
  - EPA 900.0
- Gamma Emitters
  - EPA 901.1
- Gross Alpha, Gross Beta, and Gamma Emitters

## ANALYSIS CAN BE PERFORMED LOOKING FOR SPECIFIC ISOTOPES OR GROUPS OF ISOTOPES:

- Americium: Am-241
- Nickel: Ni-63 (ECD Wipes)
- Plutonium: Pu-238, Pu-239, Pu-240
- Radium: Ra-226
  - EPA 903.0
- Radium: Ra-228
  - EPA 904.0
- Radon in Water: Rn-222
  - EPA 913.0
  - SM 7500 Rn-B
- Strontium: Sr-89, Sr-90
  - EPA 905.0
- Technetium: Tc-99
- Thorium: Th-230, Th-232, Th-228
- Tritium: H-3
  - EPA 906.0
- Uranium: U-235, U-234, U-238 or Total
  - EPA 908.0
  - EPA 200.8



## ANALYSIS CAN ALSO BE PERFORMED BY LOOKING FOR COMMON PACKAGES OF ISOTOPES:

- FDA Standard (US)
  - Pu-238, Pu-239, Am-241
  - Ru-103/106, I-131, Cs-134/137
  - Sr-90
- CODEX Standard (European)
  - U-235, Pu-238, Pu-239, Pu-240, Am-241
  - Co-60, Ru-103, Ru-106, I-131, Cs-134, Cs-137, Ce-144, Ir-192
  - Sr-89, Sr-90, Tc-99
- Gamma Emitters
  - U-238 (Pa-234m), U-234, Th-232, Ra-226, Ra-228, Ac-228, Bi-214, Pb-214, Bi-212, Ti-208, K-40, Mn-54, Co-58, Co-60, Zn-65, Zr-95, Ru-103, Ru-106, Cd-109, I-131, Cs-134, Cs-137, Ba-140, La-140, Ce-144
    - EPA 901.1

## KEY ANALYTICAL INSTRUMENTS INCLUDE

- 16- Alpha Spectroscopy Detectors
- 4- Germanium Gamma Spectroscopy Detectors
- 8- Gas Flow Proportional Counters (40 Detectors)
- 4- Perkin Elmer Liquid Scintillation Counters