# New Mexico Oil Conservation Commission Pit Rule Hearing, January 9, 2013

- Clay Robinson, PhD
- Senior Soil Scientist, Stetson Engineers
- Former Professor of Soil Science, West Texas
   A&M University
- Certified Professional Soil Scientist
- Licensed Professional Geoscientist (Texas)

### **Certified Professional Soil Scientist**

- Core: soil genesis/morphology/classification; soil chemistry/mineralogy; soil fertility/ nutrient management; soil physics; soil biology/ecology; soils/land use management
- Supporting: agricultural sciences; biological/ ecological sciences; chemistry/mathematics/ physics/statistics, communications, geoscience; human health and land use; and water science.
- 2 exams: knowledge, professional practice
- Experience

# EPA 300.0 Determination of inorganic anions (including chlorides) by ion chromatography

mg/L mg/kg **Drinking water** Solids (after extraction) Surface water **Groundwater** Reagent water Wastewater Leachates



Oven-dry solids (soil)

Add 10:1 reagent water: mass dry soil

Filter. Collect filtrate for analysis

**Analysis: Ion Chromatography (IC)** 

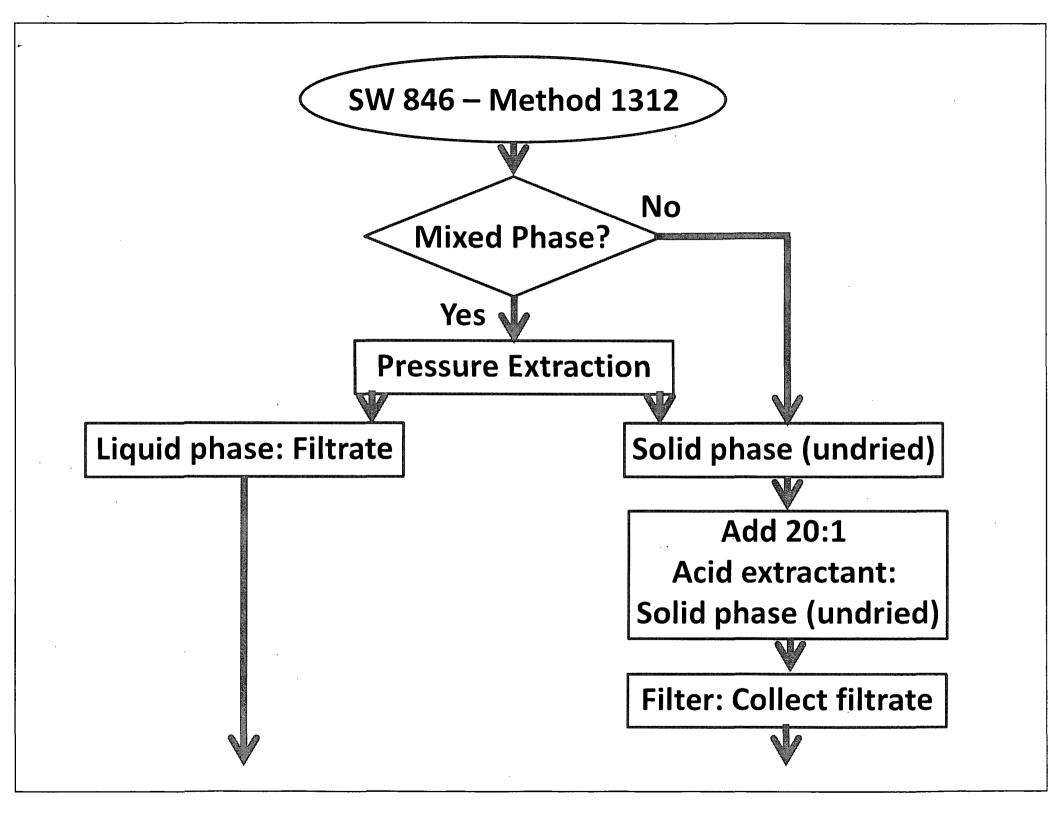
IC calibrated in mg/L

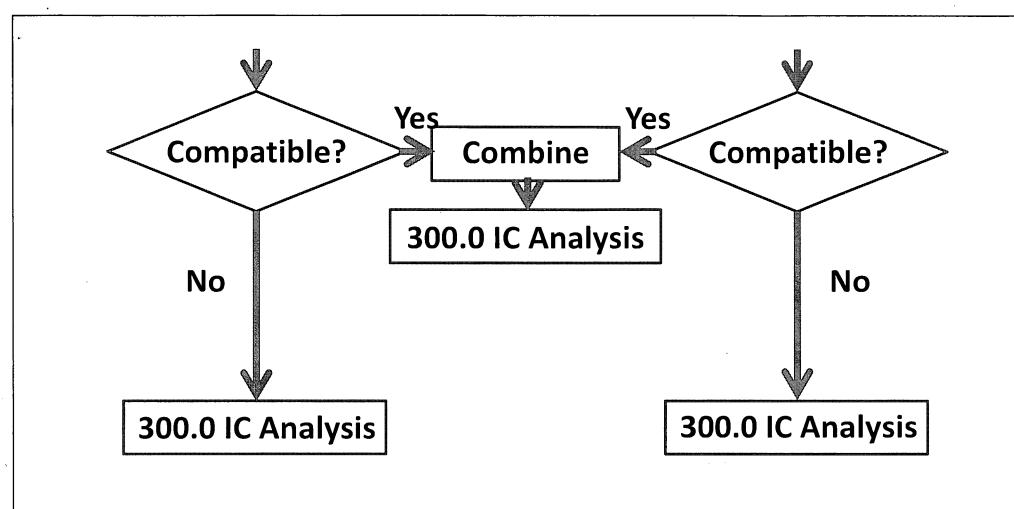
Convert mg/L to mg/kg using dry mass

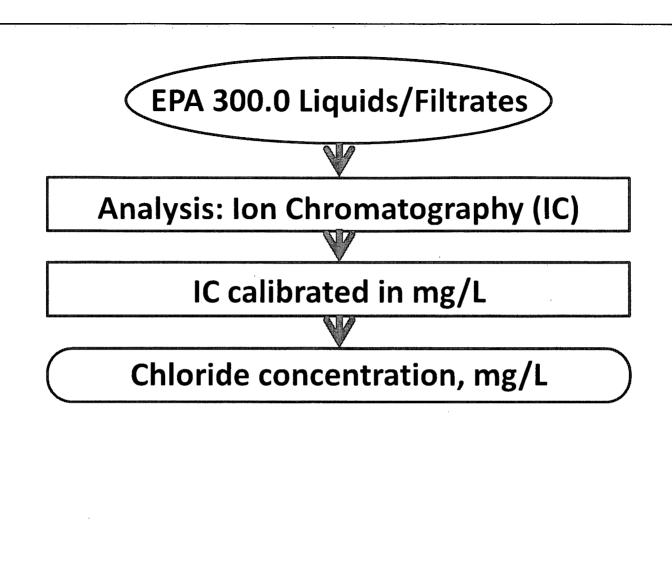
Chloride concentration, mg/kg soil

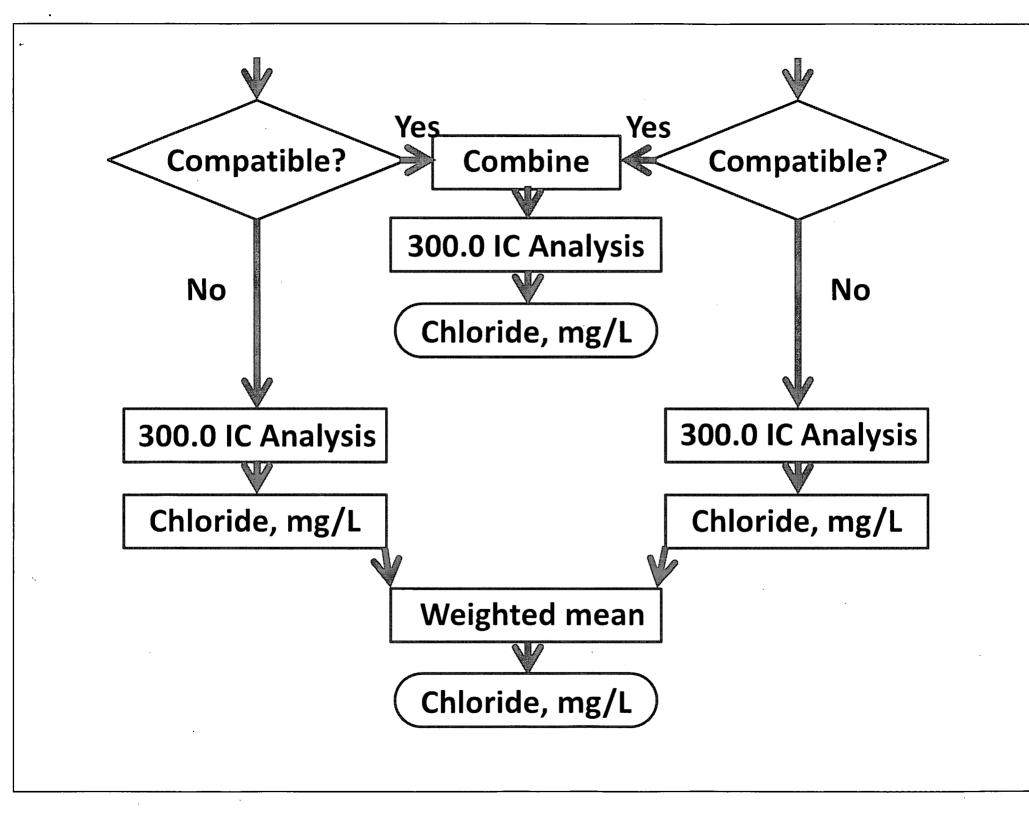
## EPA SW-846, Method 1312 Synthetic Precipitation Leaching Procedure

- Determine mobility of organic and inorganic analytes present in liquids, soils, and wastes
- Liquid- or mixed-phase wastes









### EPA 300.0 vs. SW-846, Method 1312

300.0, Soil

1312, Pit Contents

Dry solid material (11.7) – dried at 105° C to constant mass, 12 to 24 h

Known dry mass allows mg/L to mg/kg conversion.

Solids remain on filter after pressure filtration to 50 psi (7.1.1). Water remains in solids.

Method does not provide dry mass needed to convert mg/L to mg/kg

# Determination of inorganic anions by ion chromatography, including Chloride, in

300.0	300.1
Drinking water	Finished drinking water
Surface water	Surface water
Groundwater	Groundwater
Reagent water	Reagent water
Wastewater	
Leachates	
Solids (after extraction)	

#### EPA 300.0 vs. EPA 300.1

300.0 300.1

**General purpose** 

Solids (dry) extraction ratio specified, allows volume to mass conversion

Specific purpose:

detect lower concentrations

Not intended for solids, no extraction ratio specified



Soil/Materials beneath
Pits & Below-grade Tanks?

Yes V Table I

EPA 300.0 (Concentration) mg/kg

Wastes left in place in Temporary Pits and Burial Trenches

Table II

No

SW-846 Method 1312 Extraction + EPA 300.0 (Mobility) mg/L