



NEMC 2011

# A Brief History of Metals Speciation Method Development and Analysis in the Pacific Northwest

Michelle L. Briscoe  
Brooks Rand Labs  
Seattle, Washington

Presented August 17<sup>th</sup> at NEMC 2011 in Bellevue WA

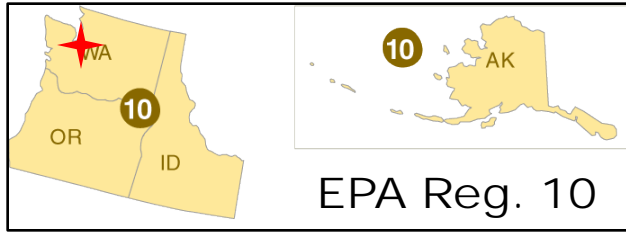


“Why are there so many specialty metals labs in the Seattle area, anyway?”

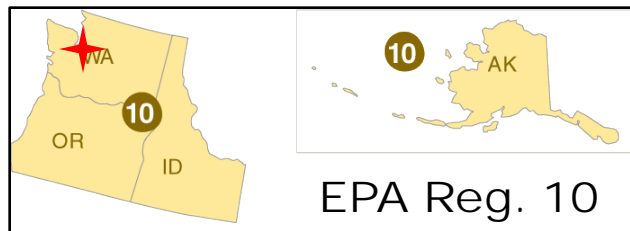
# Specialty Metals Labs in the Seattle Area



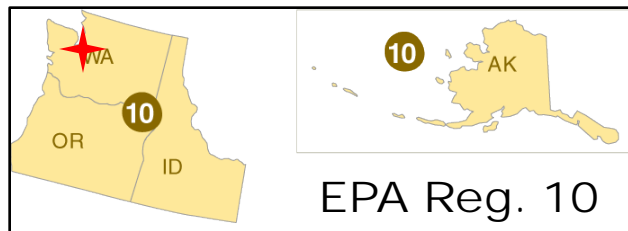
# Specialty Metals Labs in the Seattle Area



# Specialty Metals Labs in the Seattle Area

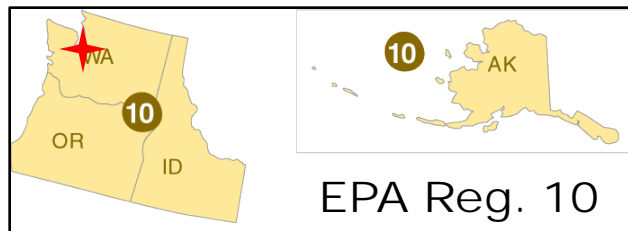


# Specialty Metals Labs in the Seattle Area





# Specialty Metals Labs in the Seattle Area

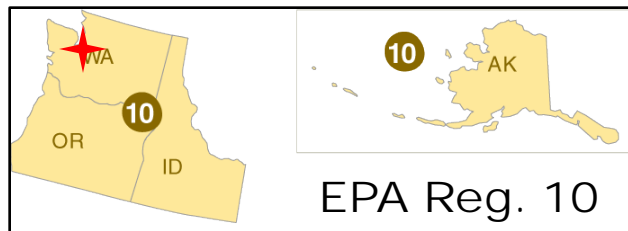


**Applied Speciation**

Analysis    Research    Consulting

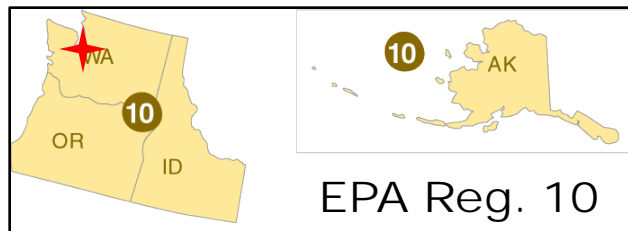


# Specialty Metals Labs in the Seattle Area





# Specialty Metals Labs in the Seattle Area



**WHY?**

**THERE'S A STORY...**

**BROOKS  
RAND  
LABS**



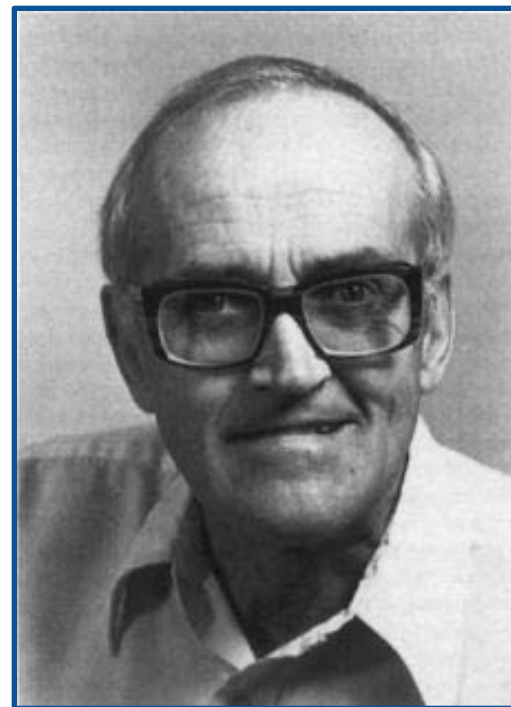
MEANINGFUL METALS DATA®



# Clair C. Patterson

## “The Pioneer”

- Calculated the age of the earth in 1948 →  $4.55 \pm 0.07$  billion years
- Founding member of CalTech's Geochemistry Program – 1952
- Fought **lead** pollution and lead-additive, auto, and fuel industries
- EPA – “Concept of Trace Metals Clean pioneered by Patterson”



1922-1995

# Bill Fitzgerald

## “The Father of Mercury Research”



- Learn clean technique from Patterson as a young researcher
- Applied clean technique to Hg research related to oceanography
- First developed LL Hg method
- Presented with Lifetime Achievement Award in Hg research at ICMGP 2011

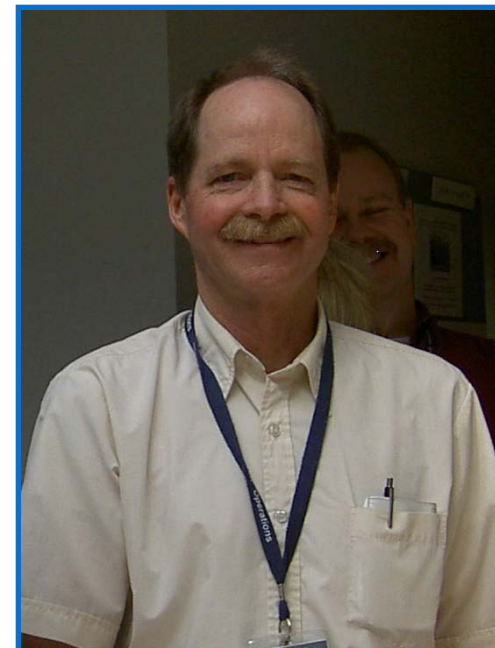




# Eric Crecelius

## “The Oceanographer”

- MS and PhD from UW – Oceanography
- Head of Marine Chemistry at Battelle – PNNL in Sequim, WA (since mid-70's)
- Developed As speciation methods for waters, soils, foods, and biomonitoring
- Studied trace metals in seawater (low concentrations)
- Hg analysis by gold-trapping (then novel) CVAAS



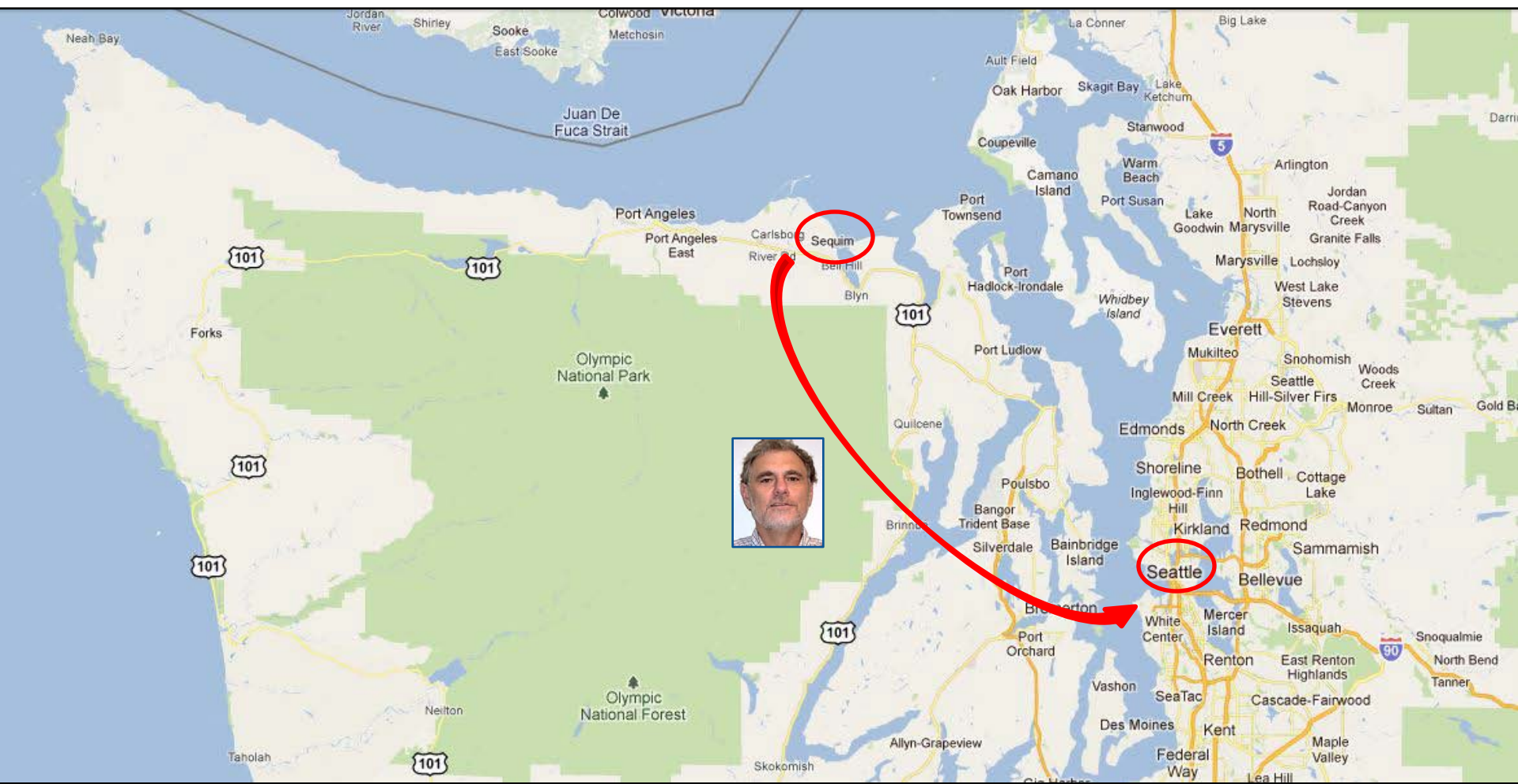


# Nicolas Bloom

## “The Hg Guru of Seattle”



- Lab Tech for Crecelius at Battelle – PNNL (1980)
- PhD program at UConn under Fitzgerald (1984)
- Back to Battelle (1985)
- Brooks Rand Ltd. (1988)





**BROOKSRAND**  
TRACE METALS ANALYSIS & PRODUCTS

## Brooks Rand Ltd.



- Owned by Richard Brooks (founded in 1982)
- Bloom is at Brooks Rand Ltd. in Seattle from 1988 – 1992
- Also at BRL during this time:



Richard Brooks



Liang



Prestbo



Davies



Danilchik



Horvat

**BROOKS  
RAND  
LABS**  
  
MEANINGFUL METALS DATA®





Founded in 1991 by Nicolas Bloom and Sharon Goldblatt  
Over time, nine employee-owners were added  
Bloom (along with many other owners at the time) left in 2004



The Many Faces of Frontier





**BROOKSRAND**  
TRACE METALS ANALYSIS & PRODUCTS

- Company purchased in 2002 by Colin Davies
- Changed name to Brooks Rand Labs

### Instrumentation



Davies

### Specialty Analytical Services



Briscoe

**BROOKS  
RAND  
LABS**  
  
MEANINGFUL METALS DATA®



**Studio Geochimica**

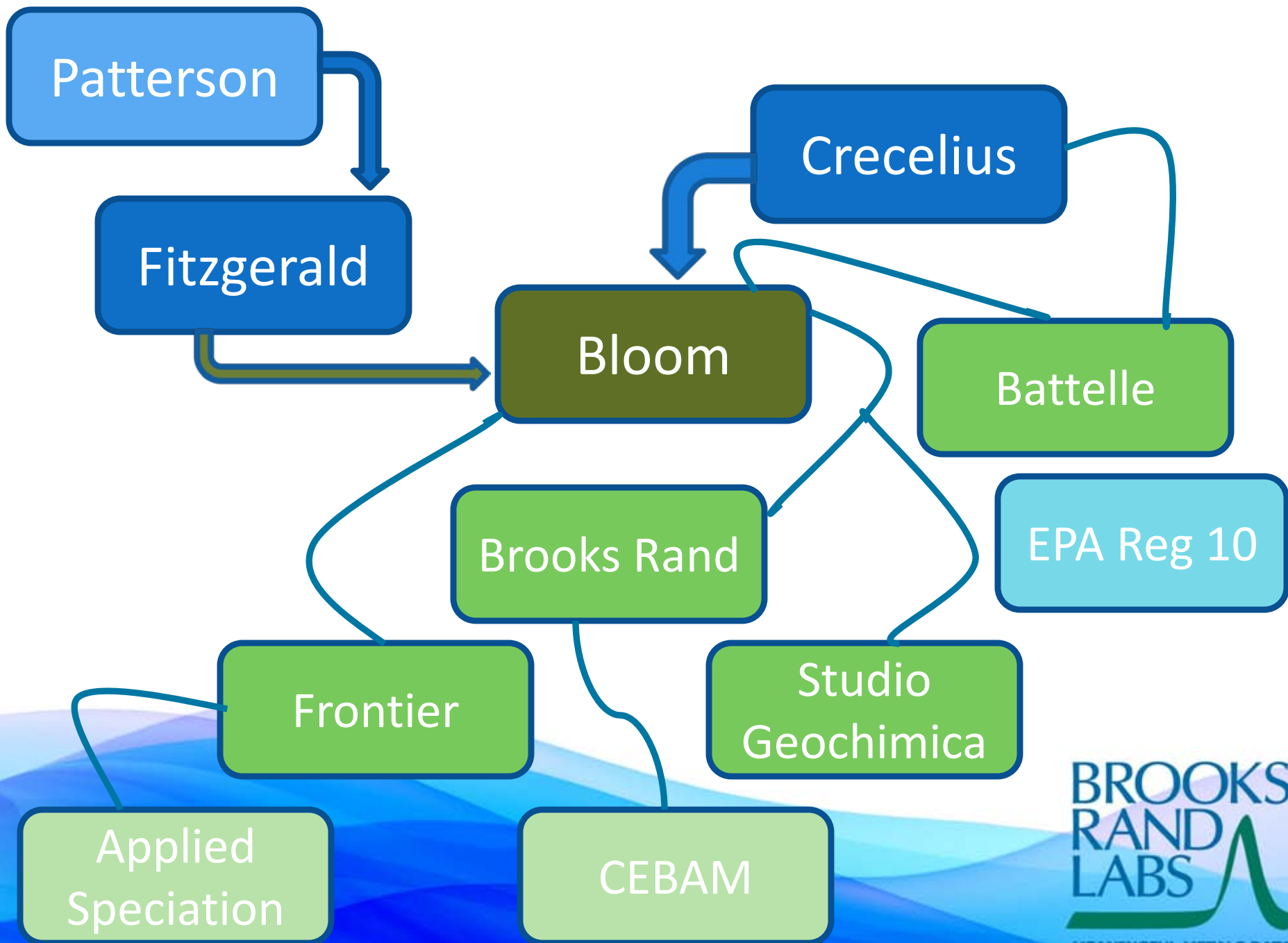
**2004 - 2007**

# Important Contributions to EPA 1600-Series Methods



- Method 1631B (1999) – Contribution of (only) Nicolas Bloom acknowledged
- Method 1630 (2001) – Written by Nicolas Bloom based on BRL/FGS SOPs
- Method 1632 – Based on procedures developed by Eric Crecelius
- Method 1638, 1640, & 1669 – Contributions made by both Bloom and Crecelius, amongst others

# Mentorship





# Acknowledgements...

Nicolas Bloom – URS Corp. (formerly of Columbia Analytical, Studio Geochimica, Frontier Geosciences, Brooks Rand Ltd., Battelle PNNL)

Colin Davies – Brooks Rand Labs (formerly of Brooks Rand Ltd.)

Paul Danilchik – Retired (formerly of Brooks Rand Labs and Brooks Rand Ltd.)

Brenda Lasorsa – Battelle PNNL

Rob Mason – University of Connecticut

Eric Prestbo – Tekran Instruments (formerly of Frontier Geosciences and Brooks Rand Ltd.)