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Title:	My early career path to Los Alamos National Lab
Author(s):	Neil, Chelsea Wren
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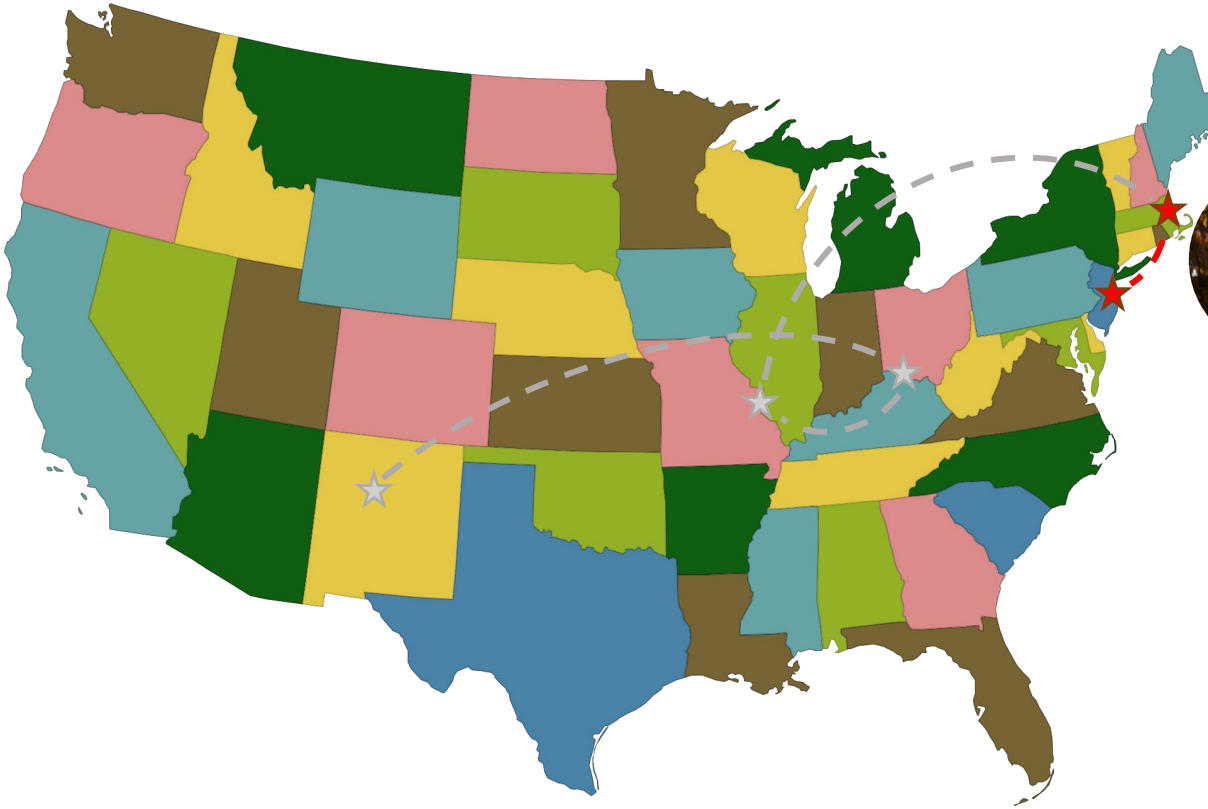
Issued:	2023-03-27

My early career path to Los Alamos National Lab

Dr. Chelsea Neil
Earth and Environmental Sciences Division, EES-16

March 31, 2023

The road so far…



Tufts University
Medford, MA
B.S., Chemical Engineering

Tufts University

- B.S. in Chemical Engineering
  - Department of Chemical and Biological Engineering
- Began research through the Tufts Summer Scholars program working with Dr. Chris Swan in the Civil and Environmental Engineering Department
- Led to a senior honors thesis on toxin leaching from coal fly ash

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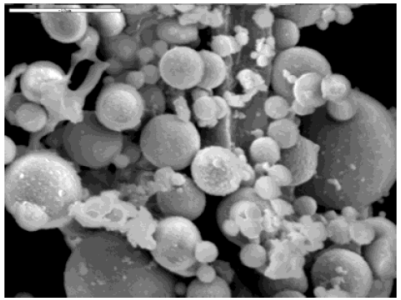
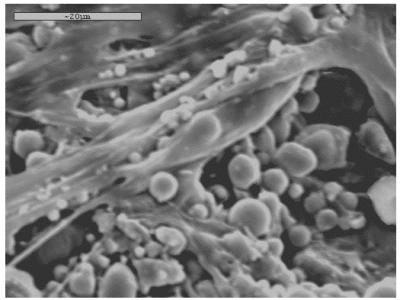


Free fly ash

Fly ash bound with waste plastic to form synthetic aggregates



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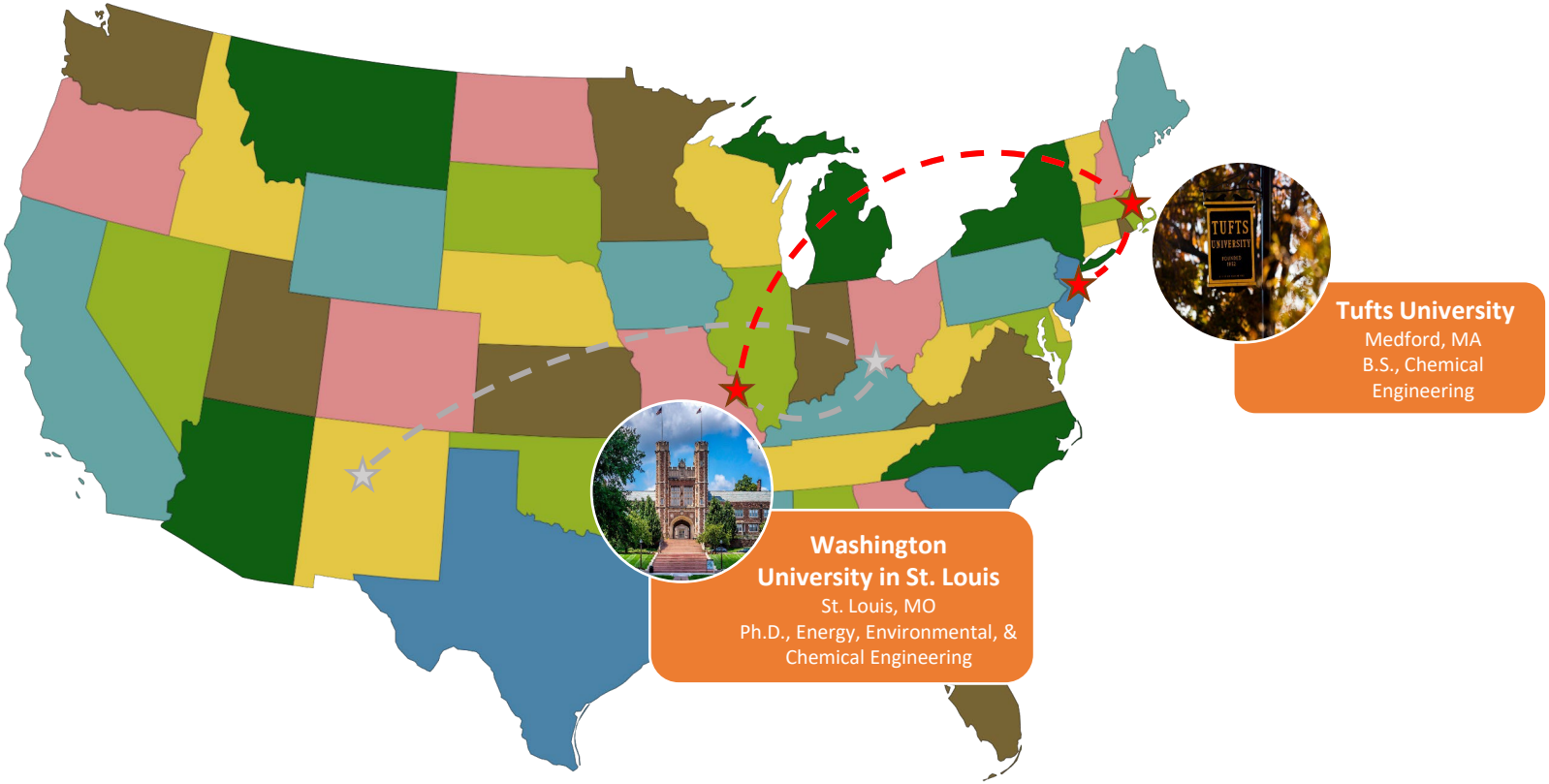
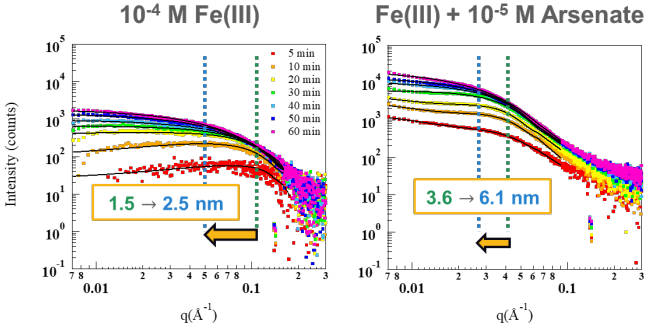
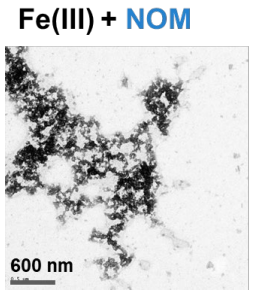


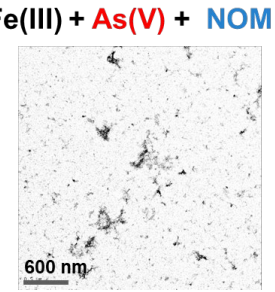
Washington University in St. Louis

Washington University in St. Louis
St. Louis, MO
Ph.D., Energy, Environmental, & Chemical Engineering

- Joined Environmental NanoChemistry Laboratory (ENCL)
  - Advisor Dr. Young-Shin Jun
- Dissertation: “Understanding the Nano- and Macro-scale Processes Impacting Arsenic Mobilization during Managed Aquifer Recharge”
- First experiences in geochemistry and using synchrotron X-ray techniques

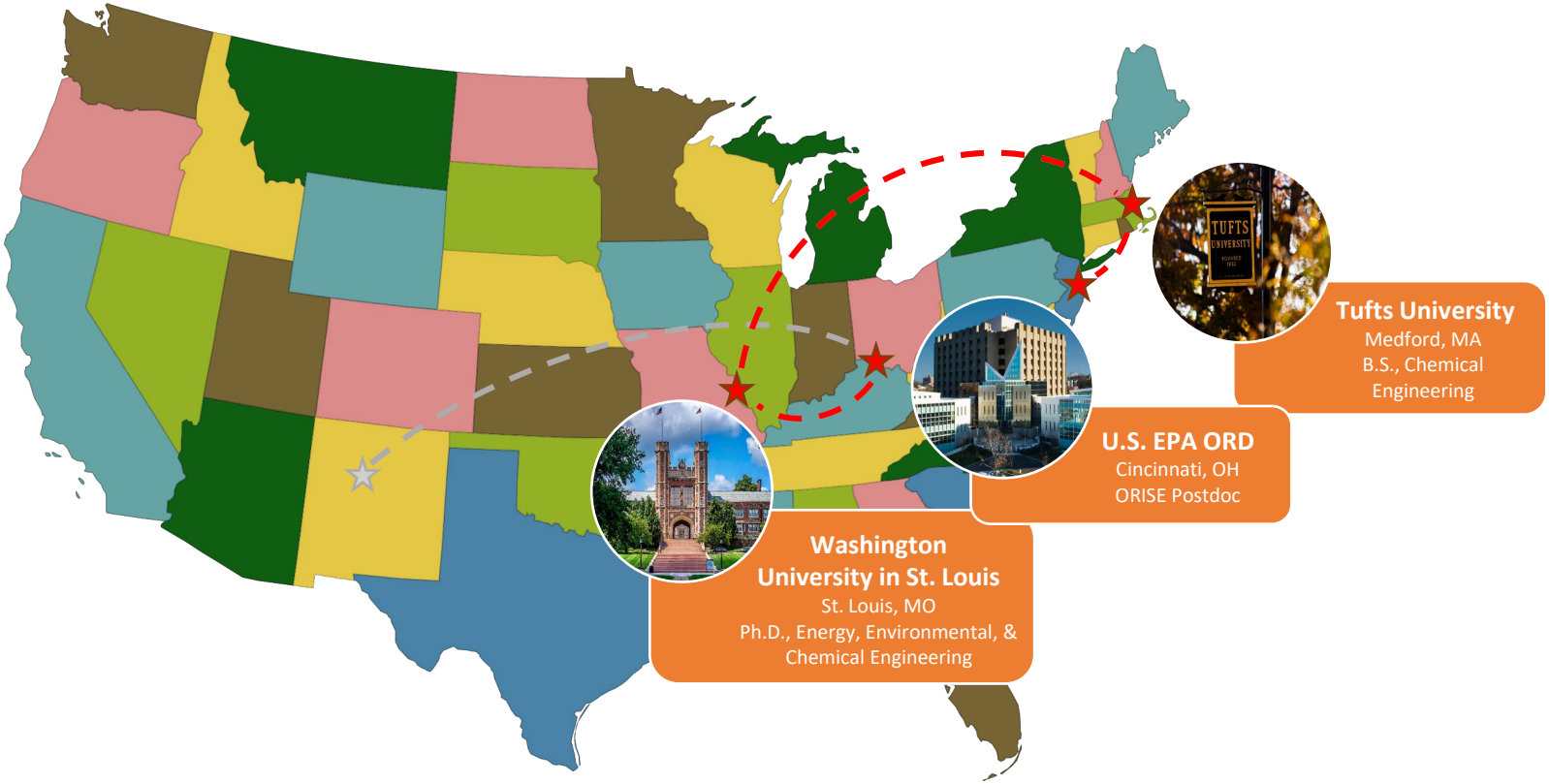






Incorporation of As in Fe hydroxide precipitates affects size and aggregation.

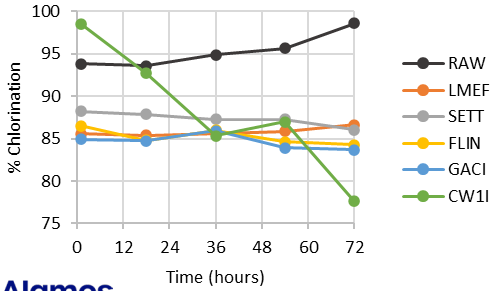
The road so far…



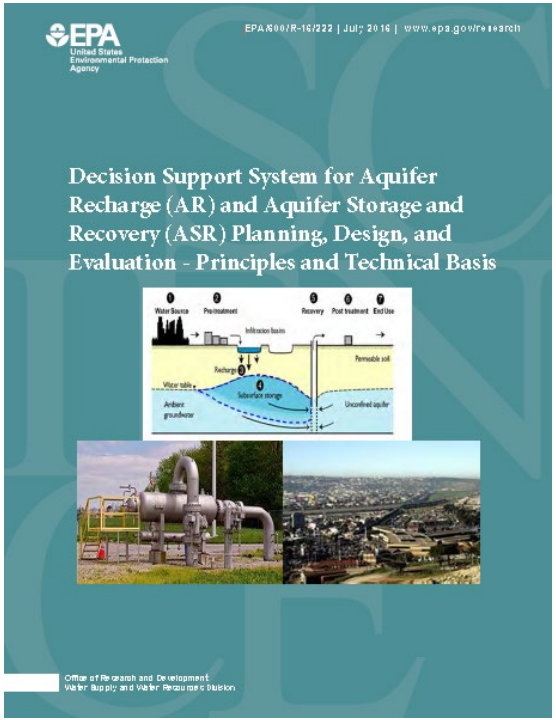
U.S. Environmental Protection Agency

U.S. EPA ORD
Cincinnati, OH
ORISE Postdoc

- Took ORISE postdoc position with Dr. Jeff Yang
- Worked primarily on two projects:
  - Developing a decision support system for aquifer recharge implementation
  - Studying disinfection byproduct formation during a storm event



More brominated DBPs from carbon remaining post GAC treatment (CW1I)



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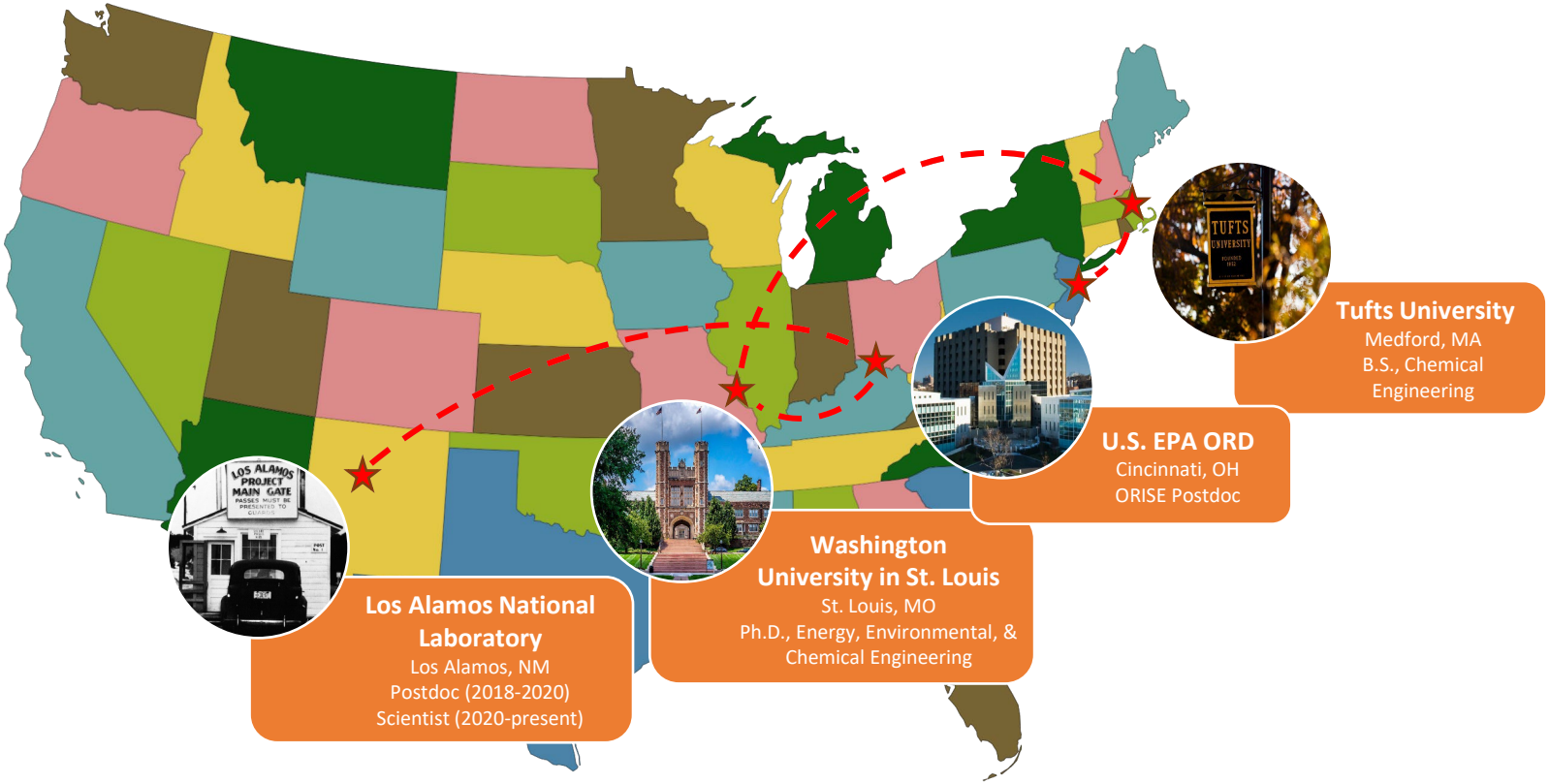
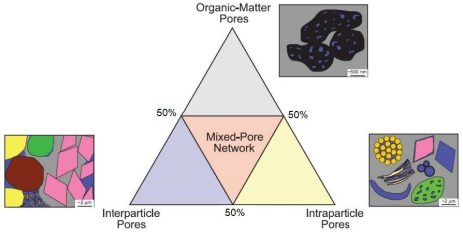


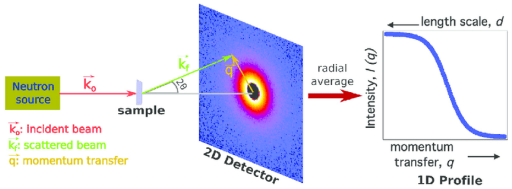
Los Alamos National Laboratory

- Joined the Earth and Environmental Sciences Division in 2018
  - Member of the Radionuclide Geochemistry team
- Research primarily falls under two LANL mission critical areas:
  - National Security – nuclear nonproliferation detection
  - Energy Security – supporting green energy utilization and carbon management

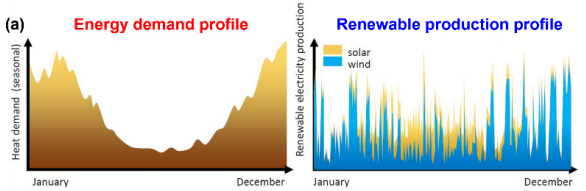
Radionuclide Geochemistry team

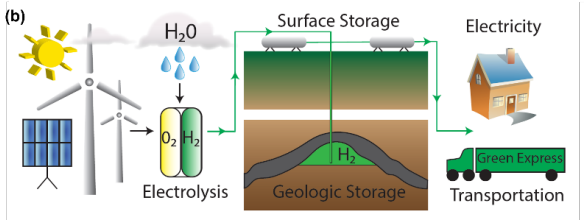
Selected Projects





Castellanos, M., et al.
Comput. Struct. Biotechnol. J. 15 (2017): 117-130.



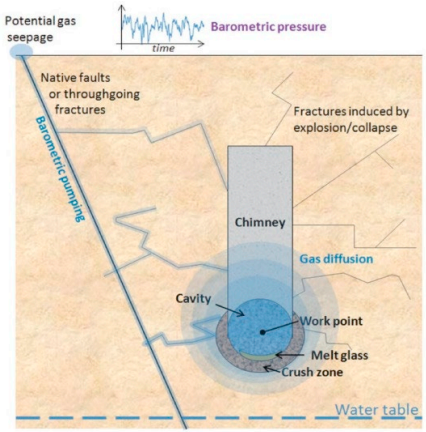


Fluid behavior in tight rocks

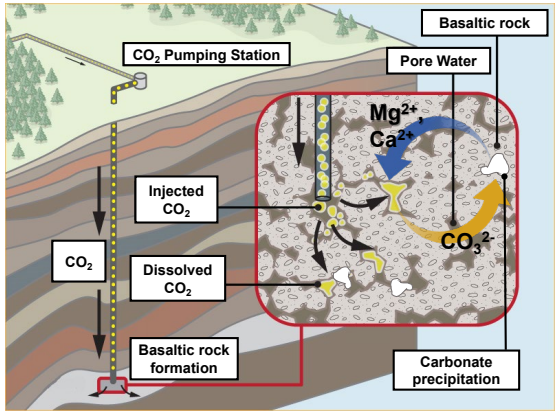
Geologic hydrogen storage feasibility

Signature transport from an underground nuclear explosion

Carbon mineralization by mafic/ ultramafic rocks



Bourret et al. *Journal of Environmental Radioactivity* 222, (2020)



https://www.fossiltransition.org/pages/carbon_storage_and_sequestration/30.php

Thank you!

Questions or comments?

Dr. Chelsea W. Neil

Email: cwneil@lanl.gov

Acknowledgements

Los Alamos NATIONAL LABORATORY

CSES Los Alamos

LDRD LABORATORY DIRECTED RESEARCH & DEVELOPMENT

U.S. DEPARTMENT OF ENERGY

NIST Center for Neutron Research

NNSA National Nuclear Security Administration

LYNM LANL • LLNL • PNNL • SNL • NNSA