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| **TITLE:** | Developing a Defensible DOE Method for CO2 Storage in Residual Oil Zones and Characterizing the Application of CO2 to Enhance Oil Recovery in Shale |
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| **DEPARTMENT:** | U.S. Department of Energy/National Energy Technology Laboratory (DOE/NETL) |
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| **NETL CONTACT:** | Angela Goodman; angela.goodman@netl.doe.gov |
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| **DUTY LOCATION:** | Pittsburgh, PA |
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| **LEVEL:** | Post-Graduate (PhD or MS) |
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| **POSITION**  **INFORMATION:** | 1-year appointment; full time (40 hours per week) with the possibility of extension |
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| **CLOSING DATE:** | June 30, 2018 |
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| **WHO MAY BE**  **CONSIDERED:** | United States Citizens, LPRs, & Foreign Nationals with appropriate approval which includes F-1 OPT with EAD (STEM extension not valid), J-1 Exchange Visitor, and LPR with EAD |

**SUMMARY:**

This posting seeks motivated post-graduates (M.S. or PhD) interested in performing research as part of a team at the National Energy Technology Laboratory (NETL). NETL is a multi-disciplinary, scientific and technical-oriented national laboratory.

In this research position, the candidate will collaborate with NETL’s Geological and Environmental Systems Division, Biogeochemistry & Water Team to: (1) develop a quantitative method to estimate how much CO2 can be stored in depleted Residual Oil Zone (ROZ) formations, and (2) characterize the use and effectiveness of CO2, surfactants, and/or organics as a recovery agent to mobilize hydrocarbons in tight shale systems. An ROZ prospective CO2 storage methodology can be used for high-level carbon storage policy making decisions at the national and regional scale. Using CO2 for Enhanced Oil Recovery (EOR) purposes in shales can increase production efficiency while concomitantly storing CO2.

The candidate will develop a robust methodology for estimating prospective CO2 storage resource in ROZs based on previous DOE CO2 storage methodologies. This research will include investigating the feasibility of CO2 storage in ROZs, applying statistical analysis, and identifying data gaps requiring further examination for improved assessments. Applicants will also characterize the physical, chemical, and mechanical alteration of shale exposed to CO2, surfactants, and organics during EOR operations and analyze the hydrocarbon extracted from the shale. Primary tools include core flood measurements, infrared spectroscopy, scanning electron microscopy, NMR, and chromatography. The candidate should be able to collaborate as part of an interdisciplinary team, including colleagues at NETL, site support contract staff, and university collaborators.

Applications will be considered from a wide variety of disciplines; however, the ideal candidate will:

* hold a M.S. or Ph.D. degree in geology, physical chemistry, geochemistry, petroleum engineering, or related field from an accredited institution.
* have experience in multi-fluid flow techniques, hydrocarbon characterization, infrared spectroscopy, scanning electron microscopy, NMR, statistical analysis, surface chemistry, and other laboratory analytical measurements.
* must have a demonstrated ability to perform laboratory experiments, data analysis, review the literature, and present/write results.
* possess strong scientific reading and writing skills and demonstrate the ability to collate and present information in a timely, professional manner.

**HOW TO APPLY:**

Applicants should apply through the Oak Ridge Institute for Science and Education (ORISE) program. The ORISE Program provides opportunities for undergraduate students, recent graduates, graduate students, postdoctoral researchers, and faculty researchers to apply classroom knowledge in a real-world setting to learn about NETL Research and Innovation Center’s (R&IC) core mission areas.

* Interested applicants should complete the online application at <http://www.orau.gov/netl/>.
* In the online application **list Angela Goodman as your requested mentor.** This will associate your application with this research opportunity. Please send a CV to [angela.goodman@netl.doe.gov](mailto:angela.goodman@netl.doe.gov).
* If you have additional questions please contact Patricia Adkins-Coliane, [Patricia.adkins-coliane@netl.doe.gov](mailto:Patricia.adkins-coliane@netl.doe.gov), who is the NETL Graduate Education Program Manager.