**Summary of REE and CM Data Available at State Geological Surveys**

**December 2022**

As part of Tetra Tech’s statement of work for Penn State University’s Department of Energy’s Carbon Ore, Rare Earth (REE) and Critical Minerals (CM) Initiative for U.S. Basins the task was to assemble REE and CM data from state Geologic Surveys. Tetra Tech complied available data from Geological Survey’s in Ohio, Pennsylvania, West Virginia and Maryland. None of the Survey’s have existing REE & CM databases at this time, but existing publications were located that had pertinent information available. A summary of what was obtained is outlined below:

**Ohio**

All Sources were found in the Ohio Geology Publications Catalog

<https://ohiodnr.gov/discover-and-learn/safety-conservation/about-ODNR/geologic-survey/publications-maps/publications-catalog>

Five articles were found that contained REE & CM data. Details of the 5 are summarized below:

* *Geological Note No. 4 - Coal Resources of a Portion of the PawPaw Creek Watershed, Monroe, Noble, and Washington Counties, published 1976, State of Ohio Department of Natural Resources Division of Geological Survey*

The article contains data on five samples, a full elemental analysis was run on the samples.

* *Information Circular No. 47 - Analyses of Ohio Coals, published 1978, State of Ohio Department of Natural Resources Division of Geological Survey*

The article contains data on 150 samples, a full elemental analysis was run on the samples

* *Information Circular No. 50 - Analyses of Ohio Coals 1977-1978, published 1981, State of Ohio Department of Natural Resources Division of Geological Survey*

The article contains data on 150 samples, a full elemental analysis was run on the samples

* *Information Circular No. 52 - Analyses of Ohio Coals 1979-1980, published 1986, State of Ohio Department of Natural Resources Division of Geological Survey*

The article contains data on 150 samples, a full elemental analysis was run on the samples

* *Information Circular No. 55 - Analyses of Ohio Coals 1982-1984, 1988, State of Ohio Department of Natural Resources Division of Geological Survey*

The article contains data on 150 samples, a full elemental analysis was run on the samples

* *Report of Investigations No. 103 – Trace Elements in Ohio Coals, published 1977 State of Ohio Department of Natural Resources Division of Geological Survey*

The article contains data on 80 samples, select elements were run.

**Pennsylvania**

All sources were found in the Pennsylvania Geology Publications and Data Page

<https://www.dcnr.pa.gov/Geology/PublicationsAndData/Pages/default.aspx>

* *Mineral Resource Report 74 – Analyses and Measured Sections of Pennsylvania Bituminous Coals Part III published 1977, Pennsylvania Geological Survey*

The article contains data on 125 samples, a full elemental analysis was run on the samples.

* *Information Circular 67 – Analyses and Potential Uses of Selected Shales and Clays Greene County, Pennsylvania, published 1969, Pennsylvania Geological Survey*

The article contains data on 7 samples, a full elemental analysis was run on the samples

* Topographic and Geologic Survey Bulletin 10 – Fire Clays of Pennsylvania, published 1928, Commonwealth of Pennsylvania Department of Forests and Waters

The article contains data on 75 samples, select oxides were run.

**West Virginia**

All publications must be purchased prior to viewing. Contact with the survey only yielded data on the average elemental occurrences throughout the state.

**Maryland**

Maryland did not have any published data regarding REE or CM. Contact with the survey did yield data from on ongoing project they have. Information of the project can be found at the link below.

[Blue Ridge Earth MRI (md.gov)](http://www.mgs.md.gov/geology/blue_ridge_earthmri.html)

The data contains 97 REE and CM samples, however the samples are not located within coal fields.