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Reservoirs GPFA-AB Zip File Contents

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Abstract: This submission to the Geothermal Data Repository (GDR) node of the National Geothermal Data System (NGDS) in support of Phase 1 Low Temperature Geothermal Play Fairway Analysis for the Appalachian Basin. The files included in this zip file contain all data pertinent to the methods and results of this task's output, which is a cohesive multi-state map of all known potential geothermal reservoirs in our region, ranked by their potential favorability. Favorability is quantified using Reservoir Productivity Index and Reservoir Flow Capacity, as explained in the Reservoirs Methodology Memo (included in zip file). Geographic Information System (GIS) ESRI shapefiles and original data are included as well.

Keywords: Appalachian Basin, West Virginia, New York, Pennsylvania, district heating, low-temperature geothermal, reservoir, productivity, favorability, memo, database, inputs, GIS, shapefile, Reservoir Productivity Index, RPI, Reservoir Flow Capacity, RFC.

Files included:

1. Reservoirs_Methodology_Memo.pdf: This memo is to comprehensively present the methods that have been used for the completion of this task's milestones. This memo refers to an accompanying document, Reservoirs_Data_Appendix.pdf, explained next.
2. Reservoirs_Data_Appendix.pdf: This appendix is intended to augment Reservoirs_Methodology_Memo.pdf, by providing additional details about the original databases and modified inputs for the Appalachian Basin Geothermal Play Fairway Analysis project. All research and literature that affected decisions for the reservoir data inputs are recorded here, including data for geologic formations in the Appalachian Basin.
3. GPFAAB_Reservoirs_RAWDATA.shp (and associated files including SHX, QPJ, PRJ, and DBF): These are the GIS shape files that contain all the raw data from the Midwest Regional Carbon Sequestration Partnership. These data were used for the states of Pennsylvania and West Virginia. Raw data for New York reservoirs can be found at https://esogis.nysm.nysed.gov.
4. GPFAAB_Reservoirs_Oct2016.shp (and associated files including SHX, QPJ, PRJ, and DBF): These are the GIS shape files that contain all the geographic data associated with the reservoirs task, in a format that can be uploaded into any GIS software. The final values of reservoir favorability are: Reservoir Productivity Index, water (RPIw), Reservoir Productivity Index, CO2 (RPIg), and Reservoir Flow Capacity (RFC). Uncertainty of each metric is in terms of the and uncertainty coefficient of variation (CV). Probabilistic results are reported for all three metrics, for example the P50 result for RPIg is held in column "RPIgP50". RPI is in units of kilogram per MegaPascal-second (kg/MPa-s), quantified using permeability, thickness of formation, and depth. RFC is in units of millidarcies-meter (mD-m), quantified using permeability and thickness. A higher RPI or RFC is more optimal. Coefficient of Variation (CV) is the

ratio of the standard deviation to the mean RPI for each reservoir. A lower CV is more optimal. Details on these metrics can be found in Reservoirs_Methodology_Memo.pdf.

5. GPFAAB_Reservoirs_Oct2016.csv: All reservoir attribute data in comma separated values format. These data are also contained in the shapefile above.
6. NY_PA_WV_countyboundaries.shp (and associated files including SHX, QPJ, PRJ, and DBF): These are the GIS shape files that contain all the geographic data associated with the project study area, in a format that can be uploaded into any GIS software. The files show the state and county boundaries of New York, Pennsylvania, and West Virginia.
7. FieldHeaderDescriptions.csv: This comma-separated file lists all the headers in the Reservoir shapefile metadata, along with a brief description of each header.

Citing Data

When referencing this data, please use the following information.

Title	Low Temperature Geothermal Play Fairway Analysis for the Appalachian Basin: Reservoir Quality Characterization
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Software Requirements

Geographic Information System software (i.e. ArcGIS, QGIS) is needed to view the shapefiles. QGIS is specifically needed to view the QGS project file. Any PDF viewer is needed to view the PDFs.

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Disclaimer:

Additional Questions?

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