

WSF 2017 Final Report # 4143

PROJECT: Mapping Aquifer Characteristics of the Lewis and Clark NRD using Aero Electromagnetics – WSF Application #4143 (awarded April 2016)

DATE: AUGUST 1, 2017
(FINAL REPORT)

See Application 4143 Section D #2 For Project Scope Summary and Timeline

PROJECT PROGRESS APRIL 2017 TO APRIL 2018:

The final LCNRD AEM Report from Aqua-geo Frameworks LLC (AGF) was delivered May 26, 2017, approximately three weeks ahead of schedule. The final report summarizes the survey results (approximately 192 linear miles of flight transects) and incorporates the AEM results with existing cross section and Conservation and Survey Division (CSD) test-hole data, GIS spatial data, and NDNR registered well data (select logs of registered wells will be used for general reference and comparisons). The report results are publically available from <http://enwra.org/aem2016.html> as:

- Full Report text as a pdf document
- Appendix 1 – Coleridge Block pdfs of two-dimensional (2-D) Resistivity Profiles and Aquifer Interpretations
- Appendix 1 – Reconnaissance Transect pdfs of two-dimensional (2-D) Resistivity Profiles and Aquifer Interpretation
- Appendix 2 – Coleridge Block pdfs of 3-D Fence Diagrams
- Appendix 2 - Reconnaissance Transect pdfs of 3-D Fence Diagrams
- Interactive Google Earth datasets and 58 associated interpreted profile images

Additionally, the full set of electronic deliverables (borehole data, raw and interpreted AEM datasets, GIS files etc.) are available from the LCNRD upon request.

ANTICIPATED ACTIVITIES FROM NOW UNTIL NEXT ANNUAL REPORT DUE APRIL 1, 2018:

N/A, this report will serve as the FINAL report for the Mapping Aquifer Characteristics of the Lewis and Clark NRD using Aero Electromagnetics – WSF Application #4143 (awarded April 2016) previously anticipated for submittal April 1, 2018.

ANTICIPATED CASH FLOW FOR REMAINDER OF THE PROJECT:

\$0 - The LCNRD (40%) and WSF (60%) have completed funding obligations (\$102,000 total project costs) under grant award #4143.

LIKELIHOOD THAT BENEFITS PROJECTED IN APPLICATION 4143 WILL BE REALIZED:

From the 4143 WSF Application: “The goal of this project has been to establish the base data required to define the geologic framework of the district. The next step of the process is to perform AEM survey data collection across the district at a large scale (3x3 mile grid), starting in the portion of the district where the most test hole data and existing work has been completed in order to best calibrate and get the most out of the resulting data.”

Based on the review and evaluation of the AGF report by the LCNRD and other anticipated planned analyses and evaluations, the project achieved the benefits to the LCNRD as described in the application and is anticipated to continue to do so. The data will be incorporated into the Nebraska GeoCloud (WSF award #4164) by the Conservation and Survey and U.S. Geological Survey (CSD and USGS). Hydrogeological Frameworks were provided for the Project area including existing boreholes, digitized interpreted geological contacts, resistivity/lithology relationships, estimation of aquifer volume and water in storage in the Coleridge Block, and identified potential recharge zones. The report (<http://enwra.org/aem2016.html>) also provided recommendations for future work to enhance groundwater management activities. The LCNRD is also working with CSD and ENWRA actively incorporating the AEM in County Atlas report work and local service objectives/inquiries.