

## WSF 2017 Final Status Report # 4142

**PROJECT:** Lower Platte North NRD Aquifer Framework Mapping –  
WSF Application #4142 (awarded April 2016)

**DATE:** SEPTEMBER 21 , 2017  
(DUE ON OR BEFORE APRIL 1,  
2018)

### See Application 4142 Section D #2 For Project Scope Summary and Timeline

#### PROJECT PROGRESS APRIL 2017 TO PROJECT END:

The final Lower Platte North Natural Resources District (LPNNRD) Airborne Electromagnetic Survey (AEM) report was delivered August 18, 2017 by Aqua-geo Frameworks LLC (AGF) approximately 12 days ahead of schedule. The final report summarizes the survey results (approximately 655 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 – SQS#1 pdfs of two-dimensional (2-D) Profiles with Aquifer Interpretation
- Appendix 1 – SQS#2 pdfs of two-dimensional (2-D) Profiles with Aquifer Interpretation
- Appendix 2 – SQS#1 pdfs of 3-D Fence Diagrams, Appendix 2 – SQS#1 pdfs of 3-D Voxel Surfaces
- Appendix 2 – SQS#2 pdfs of 3-D Fence Diagrams, Appendix 2 – SQS#2 pdfs of 3-D Voxel Surfaces
- Interactive Google Earth datasets and 96 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 LPNNRD upon request.

#### ANTICIPATED ACTIVITIES FROM NOW UNTIL APRIL 1, 2018:

N/A, this report will serve as the FINAL report for the Lower Platte North NRD Aquifer Framework Mapping –WSF Application #4142 (awarded April 2016) previously anticipated for submittal April 1, 2018.

#### ANTICIPATED CASH FLOW FOR REMAINDER OF THE PROJECT:

**\$0** - The LPNNRD (40%) and WSF (60%) have completed funding obligations (\$416,666 total project costs) under grant award #4142.

#### LIKELIHOOD THAT BENEFITS PROJECTED IN APPLICATION 4142 WILL BE REALIZED:

Based on the initial evaluation of the final report by the LPNNRD, and other anticipated planned analyses and evaluations, the project achieved the benefits to the LPNNRD 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).

From the 4142 WSF Application: “With the hydrogeologic framework updated through this Project LPNNRD will be better equipped to assess the overall susceptibility of the Project area groundwater resources to impacts from over pumping which leads to midsummer drawdowns in both SQS#2 and SQS#1. The updated hydrogeologic framework will directly inform the delineation of the groundwater resources to be included in the update of LPNNRD GMARR [Groundwater Management Area Rules & Regulations]. CSD may use the AEM data to update bedrock maps, transmissivity and specific yield maps, and maps of secondary aquifers.”

The final report provided hydrogeological frameworks for the Project SQS#1 and SQS#2 areas including existing boreholes, digitized interpreted geological contacts, resistivity/lithology relationships, estimation of aquifer volume, estimation of water in storage, and identified potential recharge zones and areas with the potential for managed aquifer recharge. The final interpretive images from the report allow development of science-based decisions for water management by illustrating the spatial relationships of aquifers. These images can help communication to the board and to the general public, the configuration of the aquifers and that those configurations can impact water quantity and quality. The report (<http://enwra.org/aem2016.html>) also provided recommendations for future work to enhance groundwater management activities.