WSF 2022 Annual Report

Grant Application No. 5249

Titled: MRNRD Hydrogeologic Mapping

Grant Amount: $785,764.80

Project Progress:

The past year we have made substantial progress on getting the AEM data ready to be input as a model file. UNL, along with the help of AGF, has taken the resistivity values output from the AEM survey and compared them with the CSD test holes to get the beginning of the aquifer properties. This was accomplished using machine learning to fit the resistivity values with the test holes. UNL is finding this to be an efficient method of turning AEM data into useable model files. MRNRD is in contact with the engineering firm who will be developing the model using this information. UNL still has some work to do before they are finished with the data processing, but we hope this will be finished by the end of the year to begin model development.

Project Activities for coming year:

The activities for the coming year will largely be the groundwater model development. MRNRD is currently in communication with the firm that will be developing the groundwater model. This is the major activity that will occur in the next year of the project. We have had to reconsider how the model will be developed. Instead of just doing a subbasin model as originally intended, we plan on flying the rest of the MRNRD district and using that to develop a whole NRD model. Currently there are no changes to the budget of this project, and we assume our WSF request will be the same as budgeted.

Reassessment of the Project Benefits:

The MRNRD has further assessed the value of this project and we have found the AEM data to be highly useful in our everyday needs. It will be even better when UNL has a completed map of the whole district. We find this information is very helpful in trying to guide producers in finding a location to drill a replacement well. It will also be very beneficial in the future to know the limits of the pumping from the aquifer. MRNRD is moving forward with the mapping and modeling of our entire district.

Summary:

The MRNRD is on track for completing this project on time and hasn't had any major changes in the process or timeline. We have gotten the ball rolling on the major components of this project and we look forward to seeing what sort of information it can provide. UNL CSD has

everything they need from the MRNRD/AGF and is in the currently almost completed with the full geologic assessment of the AEM data. We intend to have model development underway within the next couple of months.