



WSF 2023 Annual Report

Grant Application No. 5249

Titled: MRNRD Hydrogeologic Mapping

Grant Amount: \$785,764.80

Project Progress:

The past year we have begun progress on an entire district model. We are using JEO consulting group and Long Springs to develop the groundwater model. We have a plan to develop the model in two phases. The first phase will be to develop the 3-D hydrogeologic model and groundwater/recharge data without our AEM data. We will then calibrate it and develop the GUI. The next phase will be to add in our processed AEM data after it is completed and recalibrate the model. This is mainly due to the timing of processing the AEM data and accomplishing the goals of this grant in a timely fashion. It is a little more work this way, but we think it will be the most efficient way to develop this model. The bonus of this method will be that we will have two models. We can compare the different methods of groundwater model development and determine which is best and by how much.

Project Activities for coming year:

The activities for the coming year will largely be the groundwater model development. All the MRNRD data has been given to the engineering firm and they are working on developing a 3-D hydrogeologic model of the district. After this step will be the groundwater pumping and recharge data. Next step is to calibrate the model. We hope by the end of the year we will have the majority of this completed.

Reassessment of the Project Benefits:

The way that things worked out for this project we are going to be able to assess the value of AEM surveys on groundwater modeling. Based on the preliminary information we have found that having data in gaps where there was no information may make a big difference in our 3-D hydrogeologic models and ultimately model overall.

Summary:

The MRNRD basin model is under development, and we should have a good amount of this portion of the project completed by the end of the year. We look forward to seeing how AEM compares to traditional model development techniques and the additional impacts they have on making water management decisions.