

**MINUTES**  
**ENWRA Spring Technical Meeting**  
**Monday, June 17, 2019 10:00 am -12:00 pm**  
**Lower Elkhorn NRD Board Room**  
1508 Square Turn Blvd  
Norfolk, NE

**Attendees (22):**

Brian Bruckner (Lower Elkhorn NRD [LENRD]), Annette Sudbeck (Lewis and Clark Natural Resources District [LCNRD]), Myles Lammers (LCNRD), Paul Woodward (Papio-Missouri River NRD [P-MRNRD]), Dick Ehrman (Lower Platte South NRD [LPSNRD]), Dan Schulz (LPSNRD), Daryl Andersen (Lower Platte North NRD [LPNDRD]), Dallas Dorey (LENRD), Mike Sousek (LENRD), Sue Lackey (University of Nebraska-Lincoln, School of Natural Resources, Conservation and Survey Division [UNL CSD]), Mike Murphy (LENRD), Carrie Wiese (Nebraska Department of Natural Resources [NeDNR]), Joslynn VanDerslice (Upper Elkhorn Natural Resources District [UENRD]), Chris Hobza (US Geological Survey [USGS]), Steve Peterson (USGS), Jim Cannia (Aqua-Geo Frameworks, LLC [AGF]), Jared Abraham (AGF), Chuck Wingert (Nemaha Natural Resources District [NNRD]), Jesse Korus (UNL CSD), Philip Paitz (NeDNR), Katie Cameron (Eastern Nebraska Water Resources Assessment [ENWRA] Coordinator/UNL CSD), Dustin Wilcox (NRD/NeDNR liaison – call in)

**Financials:**

The May 23, 2019 pre-meeting ENWRA memo and June 17, 2019 meeting handout included a Fiscal Year (FY) 2019 table with both the original budgeted amounts and best projected FY end actual spending columns. The FY2019 table reflected ~\$330,000 in the account at the end FY 2019 **[UPDATE: Following the ENWRA meeting, the final FY2019 ENWRA invoice processing, bank interest deposit tally (previously unaccounted for), and double check with LPSNRD accounting: ENWRA’s account held \$342,278 for the start of fiscal year 2020.]** For FY2020, the equipment maintenance spending was increased to match the approximate amount spent in FY 2019 and then \$20,000 was added for replacing the Ashland well nest lost in the March 2019 flooding (there will be potential FEMA reimbursements through Papio-Missouri River NRD). There are 2 test hole credits totaling \$18,300 (LCNRD, P-MRNRD) and \$16,200 for AGF collaboration services on getting ENWRA AEM into one coordinate system on Nebraska GeoCloud (going through LPSNRD on ENWRA’s behalf at July 24, 2019 meeting). An \$80,000 placeholder for possible new project spending/grant applications was also included. **[UPDATE: ENWRA’s FY2020 budget went through the LPSNRD budgeting process on ENWRA’s behalf June 19, 2019 (draft#1 approved).]**

**Activity Updates:**

Airborne Electromagnetic (AEM) data, reports and flights:

Lower Elkhorn, Nemaha and Papio-Missouri River NRD 2018 Flight Reports have been delivered by AGF. The Lower Elkhorn and Nemaha reports have been posted online (Papio-Missouri River NRD report is pending final edits before going live). The Lower Platte North NRD report is expected in July 2019, Lewis and Clark at the end of August 2019 and Lower Plate South NRD in November 2019. The 2018 AEM chapter report deliverables reflect the new simplified data dots in Google Earth mentioned at ENWRA's January 2019 Legislative Conference Meeting.

Test Holes/Monitoring Well Installations

Two of the 5 deep Dakota holes in Lower Platte South NRD are done with CSD (a wireline core has been advanced beside one of the rotary holes), the Nemaha NRD started subcontract drilling and 10 of the 20 holes near flight lines are done. The Papio-Missouri River NRD Year-3 test holes with CSD are planned for September 2019. Both Lewis and Clark and Papio-Missouri River NRDs are planned for \$9,150 check payments from ENWRA prior to June 30, 2020.

**Nebraska Department of Natural Resources Update – Philip Paitz**

Lower Platte Missouri River Tributaries (LPMT) model activities:

DNR's numerical GW model for LPMT came out December 2018. There are 2 layers: principal aquifer and bedrock aquifer units. The LPMT has ½ mile by ½ mile grid cells, one steady state 26 transient annual and 336 transient monthly stress periods in 50 year simulation cycle with last 127 repeated to get 600. It is a water shed model with well, recharge, stream flow routing, river and evapotranspiration (ET) packages to simulate pumping and recharge. Geo data used were CSD logs, NeDNR well logs. Zonation (59 zones – 5 TB of data [59 down from 100]) to aid in analysis and look at different groupings & hydrologically connected areas (HCAs), HUC 10 grouped by tributary, some loose in LCNRD looked at digital elevation models [DEMs] and grouped them with nearby trib. NeDNR QAQC'ed to see where did it behave and where not? Where did it break down and where did it work well? The NeDNR is using the LPMT model to determine HCAs and it is being incorporated into SUSTAIN and the CIR calculator. NeDNR will hand off .csv files, SDF curves, and metatdata for zones at the end of summer and will work with NRDs back and forth on well cycling results before the HCAs get published out.

Lower Elkhorn NRD Wayne County Study – NeDNR and LENRD contracted with JEO, Long Spring Consulting (Mahesh) and WSP (group now with Leonard Rice Engineers, Inc. [LRE]) on a subregional area within the LPMT Model boundary around Wayne, Nebraska. The available AEM was used to update the geologic framework. The group tried to preserve the LPMT as much as possible but changed the Modflow USG (unstructured grids allowing for more appropriate discretization of the area) to 5 layers and used ¼ mile by ¼ mile local grid refinements. LRE group had to do some additional work with getting Niobrara formation differentiated from the aquifer bottom but the extra work got figured out, LRE group captured the complexity of the area, and it was beneficial learning for future approaches in the long run. The results came out 1.5 months

ago and the NeDNR indicated the east looked better and overall the results showed a small improvement to LPMT model, but the NeDNR will continue to evaluate if it was a true improvement. NeDNR is simulating pumping in 2-5 layers through the modifications for smaller cells, finer grid and will work through a handful of scenarios to see how it reacts. This project was a Round 1 to demonstrate the value of using geologic framework informed by the AEM and although there were challenges and internally the NRD could be skeptical on a few things (Sue Lackey of CSD provided preliminary input to LENRD), overall the process had value and they want to go to Round 2 to fine tune the geo layers to better represent reality in the cells and upscale to the whole District area evolving the process further.

### **Nebraska GeoCloud (NGC) – Dr. Jesse Korus**

#### Status Update:

The NGC work has been steady progress has been made on the NGC project with April 1, and 2, 2019 Know Geo workshop held in Lincoln and I-GIS presenting with attendees uploading to the NGC during the session. Jesse Korus gave a power point going over status and key features of the NGC work. I-GIS is still working on refinements to the 3D Viewer and we are holding the last of the contract payments until those are ready.

#### WSF Submittal:

A July 2019 ENWRA WSF Submittal was discussed. Please refer to the May 23, 2019 ENWRA memo regarding CSD's next step recommendation to prepare a unified base geologic model available as a product on the NGC to support future efforts. Discussions regarding NRDs and other stakeholders, scope details, costs, having a coordinator and steering committee (core tech team) in place to ensure the upkeep and usage of the NGC were all discussed with different NRDs having input (boards, politics, and science considerations all mentioned). **[Update:** between the June 17<sup>th</sup> meeting and July 15<sup>th</sup>, a draft Section D of the WSF was prepared and groundwork toward drafting the application was conducted; however, based on scope-to-cost considerations, workload uncertainties, and discussions between partners, this July proposal was tabled for a later potential submittal and/or more scope refining activities later this fiscal.] Additionally, ENWRA plans to meet in fall 2019 again for Long Rang Plan (LRP) updates and potentially an NGC coordinator and/or NGC steering group will be kicked off/in place by then aiding in the next step of action for ENWRA to handle its data management goals through the NGC (initial preparation of a workplan document in the meantime maybe?).

### **Upcoming Activity Discussions**

- NeDNR should have more to present on HCAs after working through model scenarios this summer. Philip indicated NeDNR would likely have no problems with child models and knows it is a coordinated effort (we all have same world of data for the region, if we can avoid dragons and pull consistent things across Districts together that would be good).

## June 17, 2019 ENWRA Technical Meeting Minutes

- NRDs have related projects going on: Papio-Missouri River NRD is going for more flights in the Fremont, Nebraska area and relative to paleachannel near Arlington. The Nemaha NRD is planning additional flights to be mobilized with the Papio flights, both NRDs are going for small project grant applications. The LENRD has the groundwater model work round 2 also as a grant application planned through the WSF. The Lower Platte North would like to use the AEM to define nitrate areas, potentially also using vadose results with groundwater results (**updated** after meeting).
- Long Range Plan (LRP) Update – form plan for fall 2019 (please keep September 2019 timeframe in mind)- specific projects or objectives NRDs want to include for ENWRA in the next 10 years
- Presentations (Update to Managers August 27<sup>th</sup> -28<sup>th</sup> Retreat, AEM presentation at NRD Legislative 2020 and other AEM presentations, ENWRA Updates to Boards - cycle back again starting with the Papio-Missouri River NRD)

### 12:00 Recap and Adjourn