Water Committee Meeting
Wednesday, December 1, 2021 6:00 PM
Lower Platte North NRD Office
P.O. Box 126
Wahoo, NE 68066

1. UNFINISHED BUSINESS

2. REGULATORY

   A. GROUND WATER MANAGEMENT AREA

      1. Duane Johnson Certified Irrigated Acre Transfer Request
         Duane Johnson is seeking Board direction on the potential of transferring a total of ~110 certified irrigated acres from ground owned by Kena Inc. and Annette Rogers Living Trust in S11-T14N-R9E in Saunders County, Yutan South Subarea. Of the ~110 acres, 40 acres would be developed in S16-T14N-R9E, Yutan South Subarea, and 70 acres would be developed in S25-T14N-7E, Swedeburg/Todd Valley Subarea. Attached are maps of the three sections in question, along with AEM flight lines showing the formations in Section 16 and Section 25.

         Duane explained to the Committee what he was proposing by transferring certified irrigation acres that would be part of a solar farm. He wanted direction from the Committee on what process needs to done. Committee and staff explained that the acres being transferred were in different ownerships, which presented a challenge as LPN Rules and Regulation does not address this or any banking process. Another issue was transferring acres from different aquifer regions. The site S25-T14N-7E could have some quality issues with salt in the water. Updating the rules could take from 6 months to 1 year. It was recommended that Duane consider a couple of variances for his 2 sites that he is considering. Duane asked if the NRD would be interested in monitoring well west of Itaca on one of the sites. Staff will review this option.
      2. Variance Scoring Sheet
         Items to consider:

         Continuous and Non-Continuous Tracts. Should there be more definitive breaks in determining these types of tracts?

         As producers have asked to look at Best Management Practices, should the LPN consider them in the scoring?

         Cover Crops - 2 points
         Soil Moisture Sensors - 2 points

Crop Rotation - 2 points (2 or 3 crop rotations make a difference?)
No-till - 2 points (what does no-till really mean?)
Variable rate of irrigation - 2 points
Variable rate nitrogen application - 2 points
Other??

If we move forward, should these practices already be in place and/or required for at least 3 years after approval? Documentation requirement?

Staff explained the process of adding best management practices to the score sheet. It was recommended to give more points for soil moisture sensors, variable rate irrigation and cover crops. Staff will continue to evaluate the scoring process.

3. Well Permit Program

4. Cost Share Programs

   a. Irrigation Well Sample Kits
      339 kits went to producers in 2021; all have now been returned.

5. Bellwood Phase 2 Area

6. 2021 is the nineteenth year for this Phase 2 Area.
7. dd

		11.	14.	17.	20.
	9.				
		12.	15.	18.	21.
8.					
	10.				
		13.	16.	19.	22.

2	24.	25.	26.	27.	28.
2	30.	31.	32.	33.	34.
3	36.	37.	38.	39.	40.
4	42.	43.	44.	45.	46.
4	48.	49.	50.	51.	52.

5	54.	55.	56.	57.	58.
5	60.	61.	62.	63.	64.
6	66.	67.	68.	69.	70.
7	72.	73.	74.	75.	76.

7	78.	79.	80.	81.	82.
8	84.	85.	86.	87.	88.
8	90.	91.	92.	93.	94.
9	96.	97.	98.	99.	100
1	102	103	104	105	106

1	108	109	110	111	112
1	114	115	116	117	118
1	120	121	122	123	124
1	126	127	128	129	130

131. All producer sample results have been mailed.

132. Richland - Schuyler Phase 3 Area

133. 2021 is the sixth year of this Phase 3 Area. This Phase 3 area went into effect September 1, 2015. The 55 sections of this area first went into a Phase 2 Area in 2004. The ten sections that were in Phase 2 are now in Phase 3. As such, the 2020 and 2021 numbers (at bottom of table) are for 65 sections.

134. Year	135. Nitrate-nitrogen Range	136. Percent 137. Nitrate-nitrogen 138. 0 to 8.0 ppm	139. Percent 140. Nitrate-nitrogen 141. 8.01 to 10.00 ppm
148. 2004	149. 0 to 47 ppm	150. 30% (42 of 139)	151. 10% (14 of 139)
154. 2005	155. 0 to 120 ppm	156. 31.3% (74 of 236)	157. 10.2% (24 of 236)
160. 2006	161. 0 to 53 ppm	162. 28% (50 of 181)	163. 14% (26 of 181)
166. 2007	167. 0 to 99 ppm	168. 32% (75 of 231)	169. 10% (22 of 231)
172. 2008	173. 0 to 46 ppm	174. 28% (53 of 190)	175. 12% (23 of 190)
178. 2009	179. 0 to 57 ppm	180. 33% (72 of 216)	181. 6% (13 of 216)
184. 2010	185. 0 to 57.5 ppm	186. 31% (70 of 229)	187. 7% (15 of 229)
190. 2011	191. 0 to 65.8 ppm	192. 28% (67 of 241)	193. 9% (21 of 241)
196. 2012	197. 0 to 52.6 ppm	198. 29% (70 of 241)	199. 9% (21 of 241)
202. 2013	203. 0 to 94.0 ppm	204. 25% (63 of 252)	205. 9% (23 of 252)
208. 2014	209. 0 to 101.0 ppm	210. 27% (68 of 251)	211. 9% (22 of 251)
214. 2015	215. 0 to 53.3 ppm	216. 23% (55 of 238)	217. 12% (29 of 238)
220. 2016	221. 0 to 50.5 ppm	222. 25% (58 of 228)	223. 10% (22 of 228)
226. 2017	227. 0 to 53.4 ppm	228. 25% (60 of 238)	229. 6% (14 of 238)
232. 2018	233. 0 to 56.9 ppm	234. 26.5% (50 of 189)	235. 6.3% (12 of 189)
238. 2019	239. 0 to 39.4 ppm	240. 25% (53 of 209)	241. 11% (22 of 209)
244. 2020	245. 0 to 50.8 ppm	246. 26% (69 of 261)	247. 6% (15 of 261)
250. 2021	251. 0 to 43.0	252. 26% (67 of 262)	253. 8% (22 of 162)

All producer samples kits have been mailed.

256. Nitrate Results Information

Staff met with Platte Center's Village Clerk and Water Operator to discuss the nitrate results within the area. Staff will be attending a Fire Department Meeting on Monday, December 6 at 8 pm to discuss the potential for a "Test Your Well Night" in conjunction with a Soup Supper. The plan is to work with the Columbus Lakeview FFA chapter to assist in this event.

The staff have looked at nitrate results from the SWN wells and it appears that some of the wells could be under the influence of livestock waste. What should be the approach when this could be the case?

It was recommended by the Committee to research the livestock facility's history.

Information is attached on the water sampling results of SWN wells within Shell Creek.

257. Lower Platte River Basin Water Management Plan Coalition (LPRBC)

Attached are three options proposed for the next 5 year allotment. The Coalition Management Committee recommends the 25-year proposal. The group discussed the pros and cons of the 3 proposals and decided to present the 25-year option to the NRD Boards. The 25-year option has 2,759 Acre Feet (AF) of new water allotment and 1,182 carry-over from the previous 5 years for the LPN. This will allow 3,941 AF of water allotment for the next 5 years. The 1,182 AF of carry over does not include the 200 AF of approved variances on new and expanded irrigation for 2021.

Staff explained the concerns about how industrial wells were being tracked when a municipal well was supplying the water. If an industry applies for a high capacity well permit, that would be counted towards the allotment. If an industry has an existing municipal well supplying the water, there is no accounting of the water but the same amount of water is being taken out of the groundwater or surface water source.

3. GROUND WATER PROGRAMS

A. DECOMMISSIONED WELL PROGRAM

1. Well Estimates

2. # new wells has been reviewed and approved for decommissioning since the last Committee meeting.

3. Well Owner	4. Type of Well	5. Cost Share Estimate	6. County
7.	8.	9.	10.
11.	12.	13.	14.
15.	16.	17.	18.

19. Plugged Wells

20. # wells have been plugged, reviewed, and ready for cost share payment approval this month.

21. Well Owner	22. Type of Well	23. Cost Share Estimate	24. C
25. Hemmer Land LLC	26. Irrigation	27. $790.88	28. P
29.	30.	31.	32
33.	34.	35.	36

B. LOWER PLATTE NORTH NRD GROUND WATER STUDIES

1. Phase Area Update
   Staff have been meeting with producers to assist with online reporting and discuss options for best management practices.

C. NEW MONITORING WELLS

Attachment is updated Quote from In-Situ for cables for 3 dedicated monitoring wells.

- G-133243 (inactive well - has small shelter and METOS pole/unit in place) - cable length 270' (David/Dean Grotelueschen)
- G-133949<2R> (second well replacement completed in 2020; has small shelter) - cable length 270' (David/Dean Grotelueschen)
- Bruce Schmit well is ½ mile from Highway 81 in Butler County. Small shelter and METOS pole/unit in place at G-035639R - cable length 310' (well ~ 1/8 mile west of UP-01)

4. SURFACE WATER PROGRAMS

A. USGS STREAM FLOW GAUGING SITES
Attached is the USGS Continuous Surface water quality monitoring agreement and information.

It was explained to the Committee that USGS is interested in continuing this gage for an additional 3 years. This gage has been in place for 6 years to collect water

quality samples from the Platte River. USGS will be attending a future meeting to discuss this agreement.

5. OTHER

Will's Monthly Report is attached for review.

Eric reported to the Committee on the Wanahoo Stilling Basin.

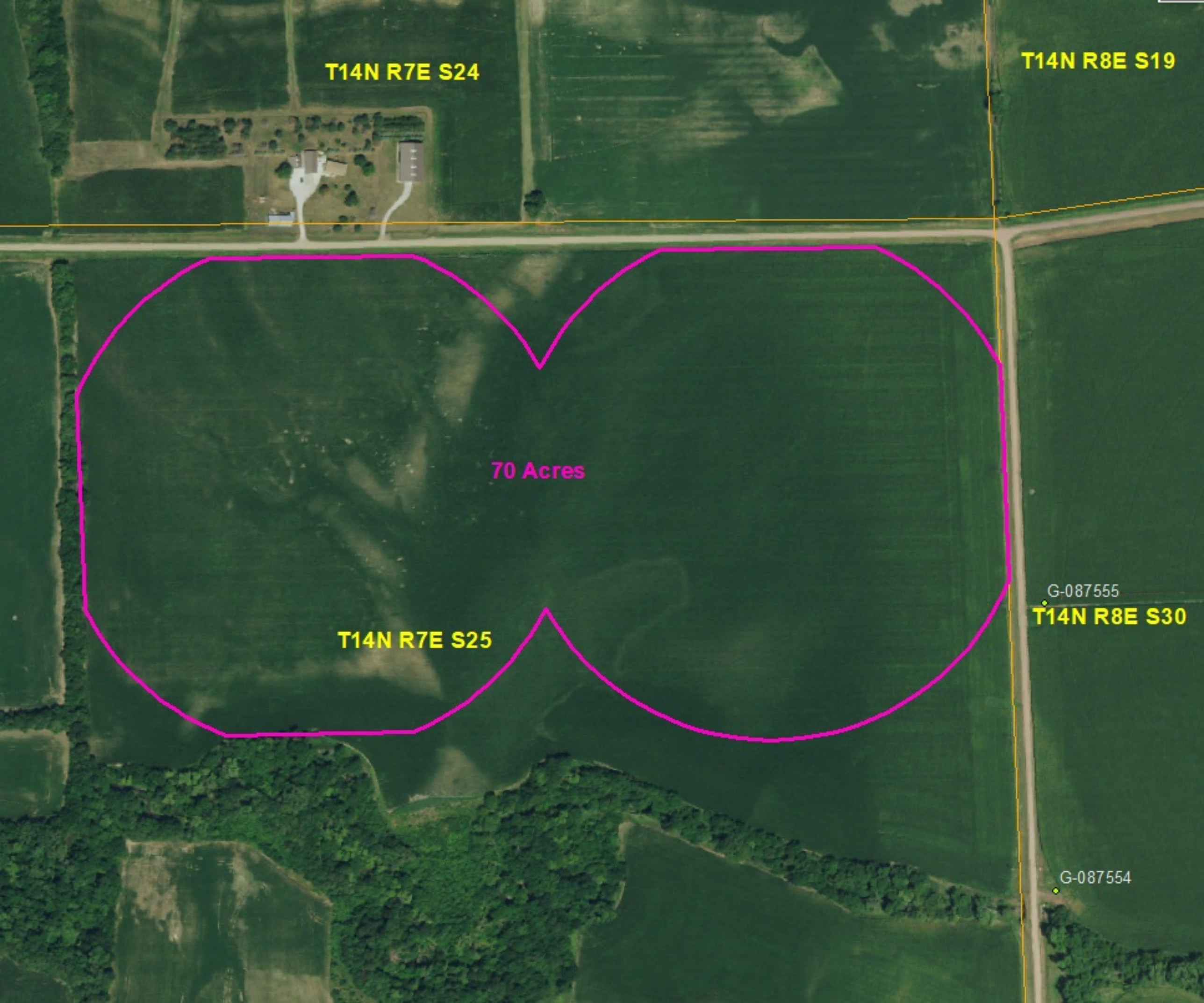
GMDA conference is January 18-20 in San Antonio, TX. Joe Birkel is interested in attending, with staff members Daryl and Bret planning to attend.

It was requested to consider moving the Water Committee from Wednesday to Tuesday evening.

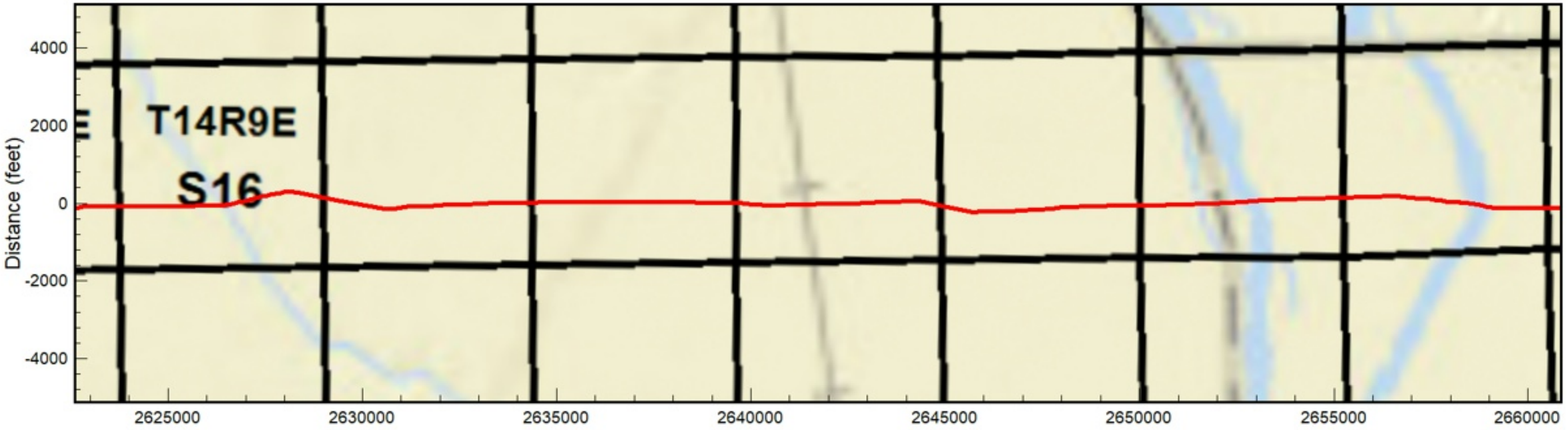
A. COMMENTS FROM THE PUBLIC


G-130797
T14
G-175926
T14N R9E S11
175.16 Acres
G-136000
T14N R9E S14
T1

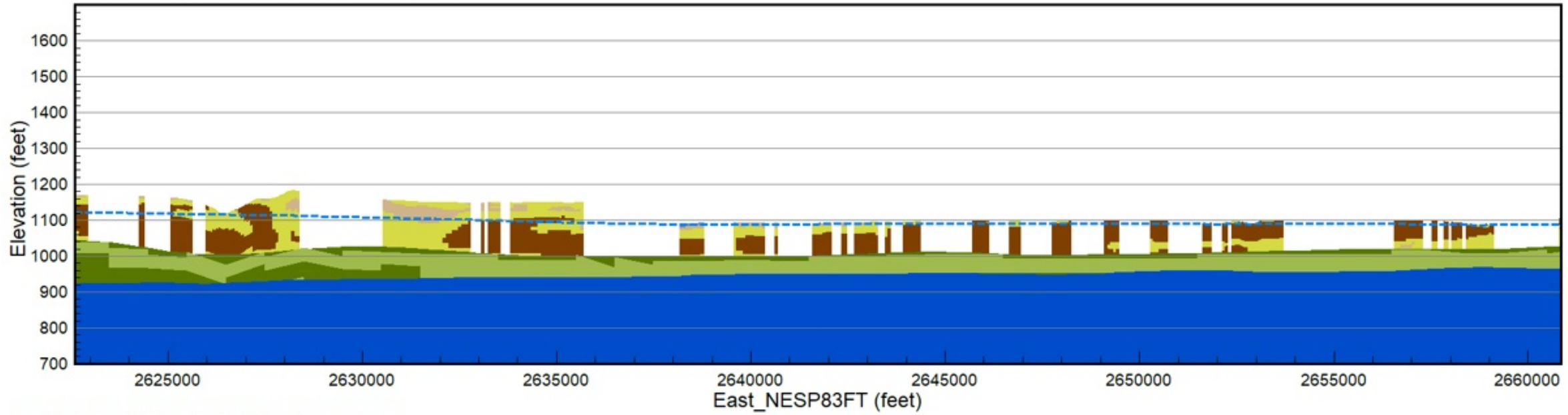

48 Acres
T14N R9E S16
T14N R9E S15
T14N R9E S21
T14N R9E S22


T14N R7E S24
T14N R8E S19
70 Acres
T14N R7E S25
G-087555
T14N R8E S30
G-087554

Flight Path Map Line L506700



AEM Interpretation Line L506700



Quaternary/Ogallala Aquifer Material Legend

Non Aquifer (<12 ohm-m)	Marginal Aquifer (12-20 ohm-m)	Aquifer (20-50 ohm-m)	Coarse Aquifer (>50 ohm-m)

Stratigraphy Interpretation

IP	Kd	Kgg	Kc	Kn	To	Q

Kd Aquifer Material

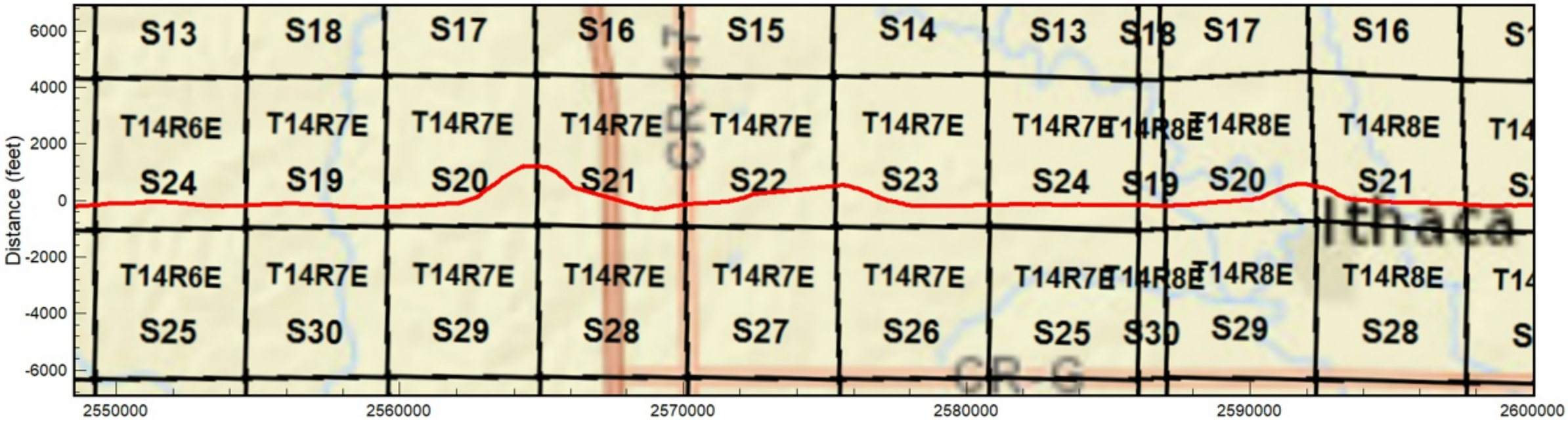
Shale/Clay Dominant	Sandstone/Sand Dominant

Interpreted geological sections from AEM data and flight path location map provided in conjunction with the Google Earth kmz file. The projected downline distance is equal for the flight path (top image) and the AEM data interpretation (bottom image). The flight path is displayed as a red line on the flight path map. The 1995 Conservation and Survey Division (CSD) water table is shown as a dashed blue line on the AEM data interpretation profile. The Quaternary (Q) section is divided into aquifer material categories as indicated by the legend. The Cretaceous Dakota Group (Kd) is split into Sandstone/Sand dominant and Shale/Clay dominant sections as indicated by the legend. The Tertiary Ogallala Group (To), Cretaceous Niobrara Formation (Kn), Cretaceous Carlile Shale (Kc), Cretaceous Greenhorn Limestone and Graneros Shale (Kgg), and the undifferentiated Pennsylvanian (IP) are indicated by the legend. Additional information regarding the use of this figure and the AEM data may be found in the report titled “Airborne Electromagnetic mapping and Hydrogeologic Framework of Selected Areas of the Eastern Nebraska Water Assessment Area” chapter on the Lower Platte North Natural Resources District.

LOWER PLATTE NORTH Natural Resources District

ENWRA
EASTERN NEBRASKA WATER RESOURCES ASSESSMENT

Flight Path Map Line L300200b



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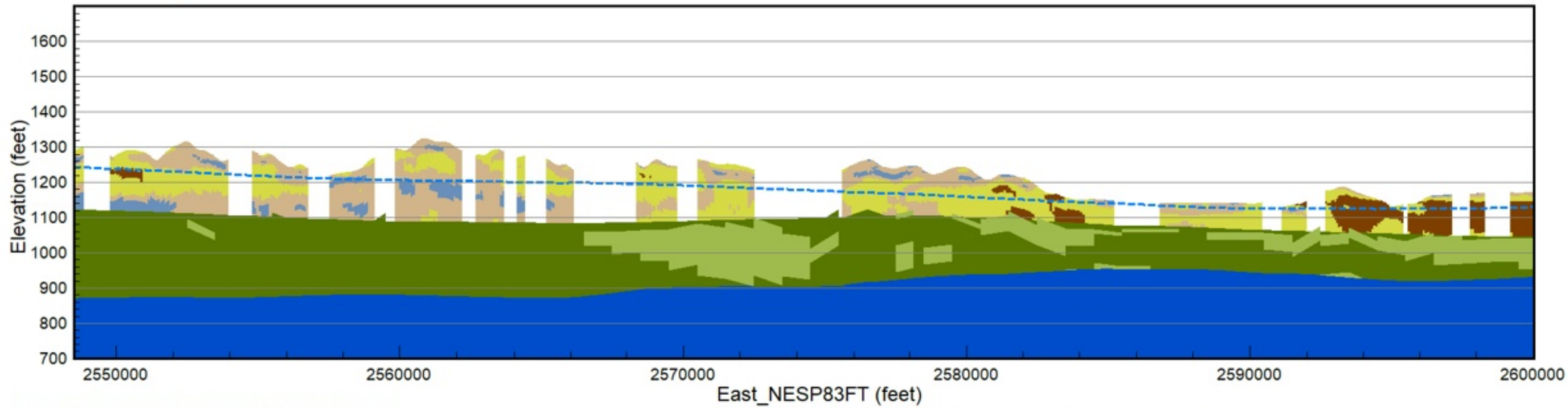


Quaternary/Ogallala Aquifer Material Legend

Non Aquifer (<12 ohm-m)	Marginal Aquifer (12-20 ohm-m)	Aquifer (20-50 ohm-m)	Coarse Aquifer (>50 ohm-m)

Stratigraphy Interpretation

IP	Kd	Kgg	Kc	Kn	To	Q

Kd Aquifer Material

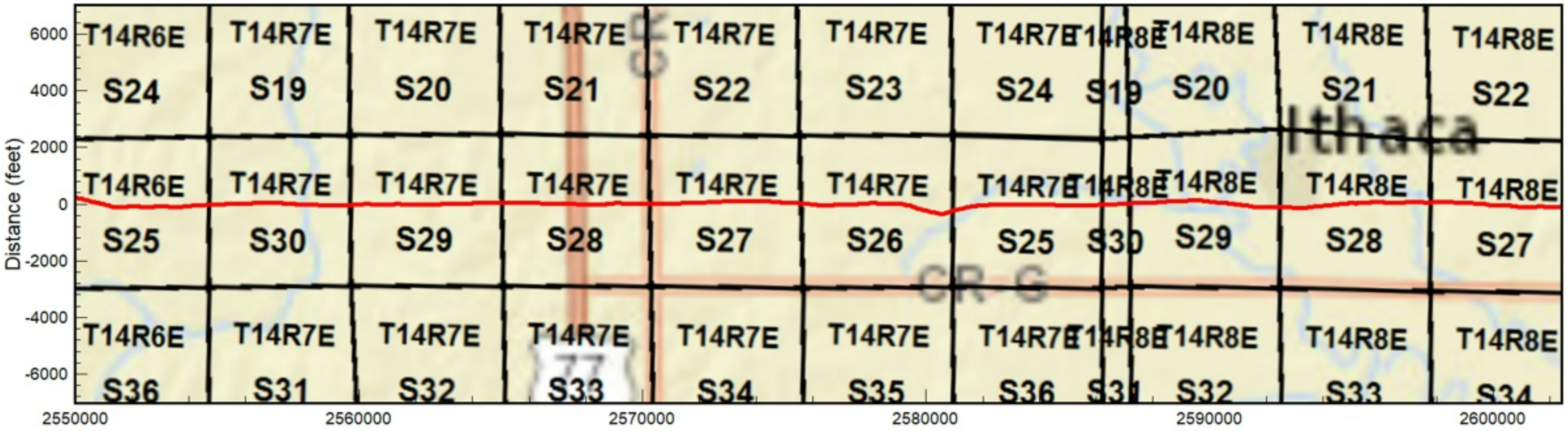
Shale/Clay Dominant	Sandstone/Sand Dominant

Interpreted geological sections from AEM data and flight path location map provided in conjunction with the Google Earth kmz file. The projected downline distance is equal for the flight path (top image) and the AEM data interpretation (bottom image). The flight path is displayed as a red line on the flight path map. The 1995 Conservation and Survey Division (CSD) water table is shown as a dashed blue line on the AEM data interpretation profile. The Quaternary (Q) section is divided into aquifer material categories as indicated by the legend. The Cretaceous Dakota Group (Kd) is split into Sandstone/Sand dominant and Shale/Clay dominant sections as indicated by the legend. The Tertiary Ogallala Group (To), Cretaceous Niobrara Formation (Kn), Cretaceous Carlile Shale (Kc), Cretaceous Greenhorn Limestone and Graneros Shale (Kgg), and the undifferentiated Pennsylvanian (IP) are indicated by the legend. Additional information regarding the use of this figure and the AEM data may be found in the report titled "Airborne Electromagnetic mapping and Hydrogeologic Framework of Selected Areas of the Eastern Nebraska Water Assessment Area" chapter on the Lower Platte North Natural Resources District.

LOWER PLATTE NORTH Natural Resources District

ENWRA
EASTERN NEBRASKA WATER RESOURCES ASSESSMENT

Flight Path Map Line L300400b



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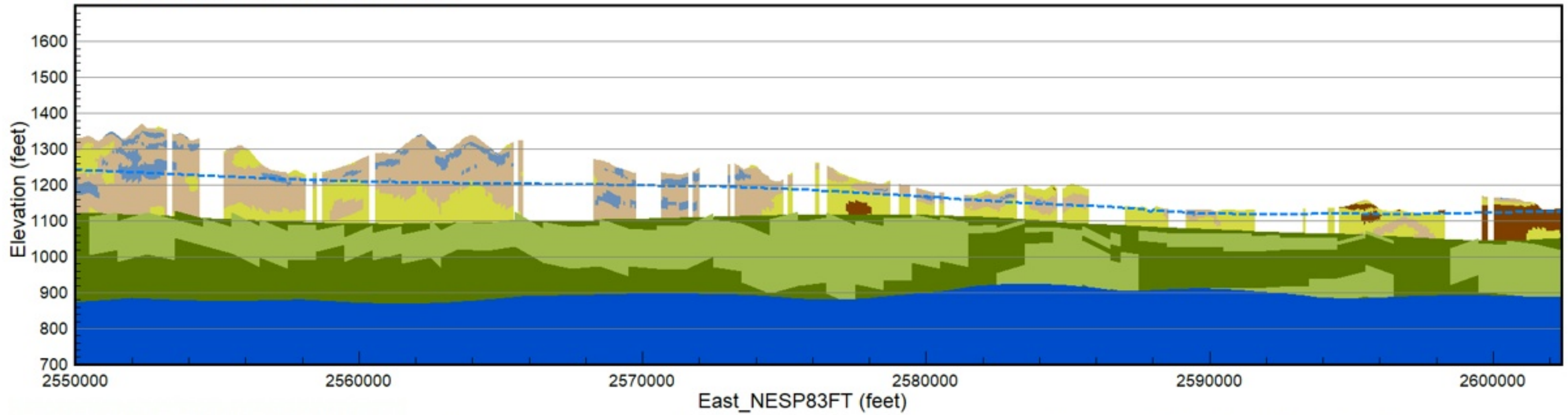


Quaternary/Ogallala Aquifer Material Legend

Non Aquifer (<12 ohm-m)	Marginal Aquifer (12-20 ohm-m)	Aquifer (20-50 ohm-m)	Coarse Aquifer (>50 ohm-m)

Stratigraphy Interpretation

IP	Kd	Kgg	Kc	Kn	To	Q

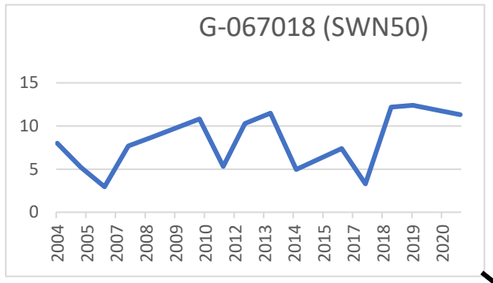
Kd Aquifer Material

Shale/Clay Dominant	Sandstone/Sand Dominant

Interpreted geological sections from AEM data and flight path location map provided in conjunction with the Google Earth kmz file. The projected downline distance is equal for the flight path (top image) and the AEM data interpretation (bottom image). The flight path is displayed as a red line on the flight path map. The 1995 Conservation and Survey Division (CSD) water table is shown as a dashed blue line on the AEM data interpretation profile. The Quaternary (Q) section is divided into aquifer material categories as indicated by the legend. The Cretaceous Dakota Group (Kd) is split into Sandstone/Sand dominant and Shale/Clay dominant sections as indicated by the legend. The Tertiary Ogallala Group (To), Cretaceous Niobrara Formation (Kn), Cretaceous Carlile Shale (Kc), Cretaceous Greenhorn Limestone and Graneros Shale (Kgg), and the undifferentiated Pennsylvanian (IP) are indicated by the legend. Additional information regarding the use of this figure and the AEM data may be found in the report titled “Airborne Electromagnetic mapping and Hydrogeologic Framework of Selected Areas of the Eastern Nebraska Water Assessment Area” chapter on the Lower Platte North Natural Resources District.

LOWER PLATTE NORTH Natural Resources District

ENWRA Eastern Nebraska Water Resources Assessment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15
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5
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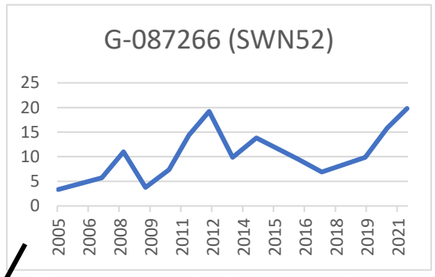
2004 2005 2007 2008 2009 2010 2012 2013 2014 2015 2017 2018 2019 2020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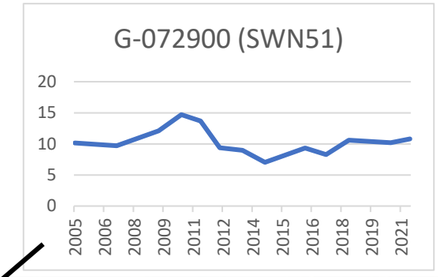
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20
15
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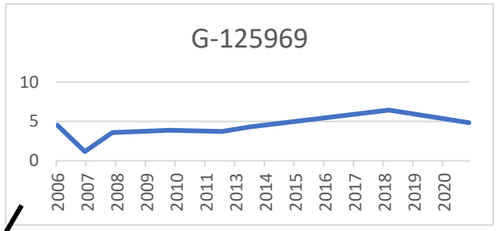
2005 2006 2008 2009 2011 2012 2014 2015 2016 2018 2019 2021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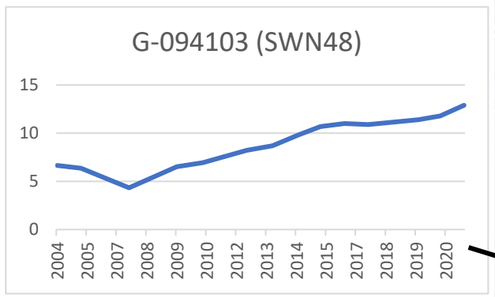
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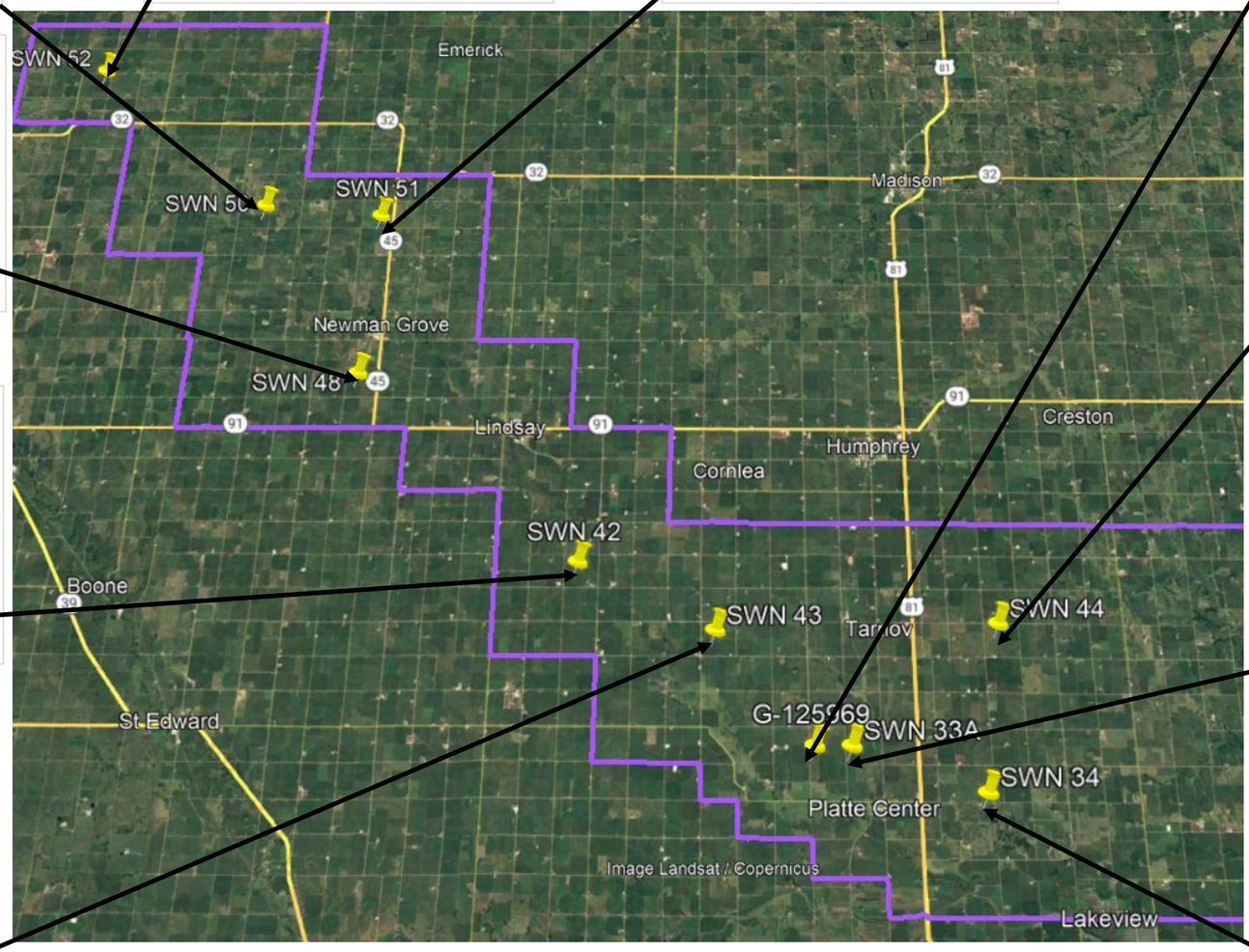
SWN 52
Emerick
SWN 50
SWN 51
Madison
Newman Grove
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Lindsay
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Cornlea
SWN 42
Boone
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SWN 44
St Edward
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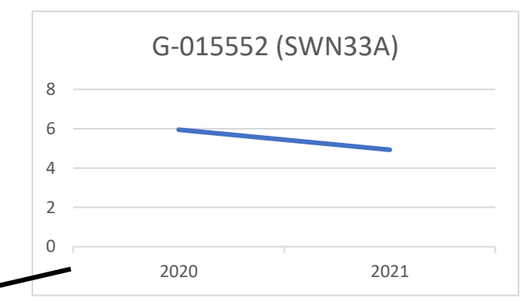
SWN 33A
SWN 34
Platte Center
Image Landsat / Copernicus
Lakeview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8
6
4
2
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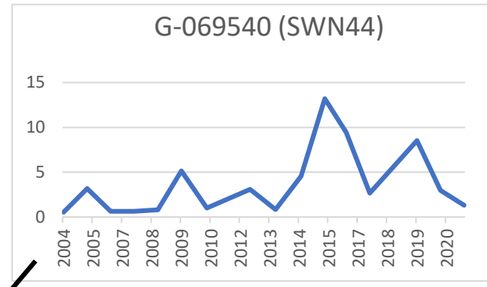
2020
2021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10
5
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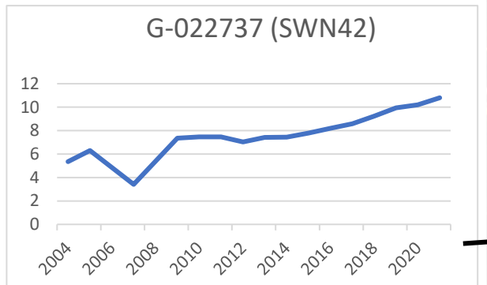
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10
8
6
4
2
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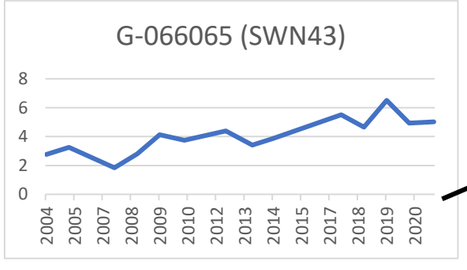
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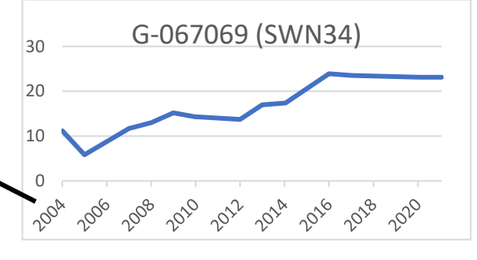
G-067069 (SWN34)
30
20
10
0
2004 2006 2008 2010 2012 2014 2016 2018 2020

25-Year New	*PeakBalance(PB)*	*CarryoverAFTotal*	*PBAdj*	*Loup+Beaver(46%)*	*Elkhorn(32%)*	*LowerPlatte(22%)*
	242,319	*14,328*	*227,991*	*104,876*	*72,957*	*50,158*

NRD	Sub-Basin	Sub-Basin PB 10%	% Sub-Basin	NewAF	CarryoverAF	NewAF+Carryover
UL	Loup+Beaver	10,488	32%	**3,356**	**1,981**	**5,337**
LL	Loup+Beaver	10,488	68%	**7,132**	**5,040**	**12,172**
UE	Elkhorn	7,296	25%	**1,824**	**1,193**	**3,017**
LE	Elkhorn	7,296	75%	**5,472**	**3,258**	**8,730**
PMR	LowerPlatte	5,016	21%	**1,053**	**772**	**1,825**
LPS	LowerPlatte	5,016	24%	**1,204**	**902**	**2,106**
LPN	LowerPlatte	5,016	55%	**2,759**	**1,182**	**3,941**

33-Year New	*PeakBalance(PB)*	*CarryoverPB*	*PBAdj*	*Loup+Beaver(46%)*	*Elkhorn(32%)*	*LowerPlatte(22%)*
	228,547	*14,328*	*214,219*	*98,541*	*68,550*	*47,128*
NRD	**Sub-Basin**	**Sub-Basin PB 10**	**% Sub-Basin**	**NewAF**	**CarryoverAF**	**NewAF+Carryover**
UL	Loup+Beaver	9,854	32%	**3,153**	**1,981**	**5,134**
LL	Loup+Beaver	9,854	68%	**6,701**	**5,040**	**11,741**
UE	Elkhorn	6,855	25%	**1,714**	**1,193**	**2,907**
LE	Elkhorn	6,855	75%	**5,141**	**3,258**	**8,399**
PMR	LowerPlatte	4,713	21%	**990**	**772**	**1,762**
LPS	LowerPlatte	4,713	24%	**1,131**	**902**	**2,033**
LPN	LowerPlatte	4,713	55%	**2,592**	**1,182**	**3,774**

25-Year Old	*PeakBalance(PB)*	*CarryoverPB*	*PBAdj*	*Loup+Beaver(46%)*	*Elkhorn(32%)*	*LowerPlatte(22%)*
	188,073	*14,328*	*173,745*	*79,923*	*55,598*	*38,224*

NRD	Sub-Basin	Sub-Basin PB 10	% Sub-Basin	NewAF	CarryoverAF	NewAF+Carryover
UL	Loup+Beaver	7,992	32%	**2,558**	**1,981**	**4,539**
LL	Loup+Beaver	7,992	68%	**5,435**	**5,040**	**10,475**
UE	Elkhorn	5,560	25%	**1,390**	**1,193**	**2,583**
LE	Elkhorn	5,560	75%	**4,170**	**3,258**	**7,428**
PMR	LowerPlatte	3,822	21%	**803**	**772**	**1,575**
LPS	LowerPlatte	3,822	24%	**917**	**902**	**1,819**
LPN	LowerPlatte	3,822	55%	**2,102**	**1,182**	**3,284**

Meeting Notes

Lower Platte River Basin Coalition
Technical Committee Meeting
November 4, 2021 3 P.M.
Zoom – Videoconference

I. Introductions

- Attendees Included: LLNRD: Tylr Naprtsek, Cam Conrad; UENRD: Joslynn VanDerslice; LENRD: Brian Bruckner; LPNNRD: Daryl Andersen, Tom Mountford; LPSNRD: Dick Erhman; PMNRD: Paul Woodward, Marlin Petermann; NeDNR: Jennifer Schellpeper, Jesse Bradley, Ryan Kelly; ULNRD: Anna Baum; TFG: Marc Groff, Chance Thayer; NARD: Dustin Wilcox; HDR: John Engel.

II. Discussion of Increment / Analysis Timeline

- The Committee discussed the appropriate timeline for completion of a new analysis in the next increment. There was discussion about the benefits of making the trigger for a new analysis based on drought or other mechanisms triggering a change in supply. Ultimately the Committee consensus was to recommend sticking with a 5-year timeline for the next increment. It was requested that the discussion of options for timeline and triggers for plan review and new analysis continue to be a topic of discussion over the next increment.

III. Review and Discussion of INSIGHT Analysis Work

- M. Groff provided an overview of the completed analysis work. The data was presented based off both a 25-year period of record (POR) (1996-2020) and a continuous 33-year POR (1988-2020). A PowerPoint with tables breaking down the peak season excess supply was presented to the group. Using a 25-year POR, peak season flows increased from 188,073 ac/ft in the 1st increment analysis to 242,319 ac/ft in the new analysis, the 33-year POR generated a 228,547 ac/ft peak season excess. During the presentation of TFG slides it was noted that 1st increment carry over was accounted for and deducted from the available excess, as stated in Section 4.3 of the Basin Water Management Plan.

  The Committee had lengthy discussion about the pros and cons of a 25-year POR or a continuous record. NeDNR presented a Streamflow Periodicity Analysis that demonstrated a 25-year POR was more than adequate to catch the cyclic nature of flows.

  Tables portraying 1st increment allowable depletions were contrasted with the result of 10% allowable under the new analysis. J. Bradley of NeDNR recommended that, considering the wet cycle creating an abundance of allowable acre-foot depletions, the Committee would continue to use the allowable depletions from the first increment, i.e. the acre-feet depletion totals from the original 25-year period of record.

  The Committee discussed what would be an appropriate recommendation for the 2nd increment. D. Andersen (LPNNRD) made a motion to recommend to the Management Committee use of the 25-year POR and include allowable depletions for 2nd increment equivalent to 1st increment allowable depletions, as recommended by Bradley (NeDNR). The motion was seconded by A. Baum (ULNRD).

  Following discussion on the motion, the committee collectively agreed that while the data and science is supported, the amount of depletions allowed is more of a policy decision reserved for the Management Committee. D. Andersen requested to withdraw his

motion, A. Baum supported the withdrawal, and the motion was withdrawn without objection.

B. Bruckner moved to accept the analysis from TFG with proposed 25- and 33-year POR calculations. D. Andersen seconded the motion. Discussion followed noting that the Committee would report to the Management Committee that they have reviewed the analysis and support the data but would not be making a recommendation for 2nd increment allowable depletions. The motion carried all in favor.

A. Baum noted that it would be helpful for the Management Committee to see a table or breakdown of options for 2nd increment allowable depletion. T. Naprstek noted his office would generate and distribute a table to the Committee, with the intent that the Technical Committee would review the data with Management Committee representatives prior to the meeting on Nov. 16th. It was also discussed that tables portraying the frequency of low-flow events over the POR would be beneficial to present to the Board Committee.

IV. Irrigated Acre Banking Discussion

- D. Andersen asked if NRDs are banking acres when certified acres are converted to highway or developed. It was discussed that it may not be legal to take those acres, however the best process may be to decertify. Several Committee members noted they have transfer rules in place that address what owners can do when developing certified acres.

V. Next Meeting

- The next meeting was discussed, and it was noted that it would be scheduled February 28th to review annual reports, with the option to convene the Committee prior to that time if the HDR database was successfully transferred to NeDNR, and as time warranted.

LPRBC INSIGHT Update

4 November 2021

TABLE 4.2. FIRST 5-YEAR INCREMENT ALLOWABLE NEW DEVELOPMENT (DEPLETIONS) BY NRD

NRD	Sub-Basin	First 5-year Increment Allowable New Development (Depletions) – Peak Season [1]	
		% Sub-Basin	AF
Upper Loup NRD	Loup River	32%	2,768
Lower Loup NRD	Loup River	68%	5,883
Upper Elkhorn NRD	Elkhorn River	25%	1,504
Lower Elkhorn NRD	Elkhorn River	75%	4,514
Papio-Missouri River NRD	Lower Platte River	21%	869
Lower Platte South NRD	Lower Platte River	24%	993
Lower Platte North NRD	Lower Platte River	55%	2,276

[1]*The allowable new depletion is for all new uses. Apportionment between new surface water and groundwater uses will be made according to each individual NRD Integrated Management Plan.*

4.1 Allowable New Depletions

For the first 5-year increment of the Plan:

- The total depletive effect of allowable new surface water and groundwater uses will be limited to 10% of the 25-year average (consistent with INSIGHT) annual basinwide excess during the peak season (June, July, August) (see Table 4.1).
- Allowable new depletions are apportioned to the Elkhorn, Loup, and Lower Platte River sub-basin based on each sub-basin's contribution of flows at Louisville gage.
- Peak and non-peak season depletions will be computed and reported.
- The full consumptive use (long-term effects) of new development, for both the peak and non-peak seasons will be computed and reported.

The allowable new depletions shown in Table 4.1 correspond to the impact new development (both agricultural and non-agricultural uses) would have on a stream in 50 years. Depletion estimates for new uses will be made using the best available data and models.[5]

TABLE 4.1. FIRST 5-YEAR INCREMENT ALLOWABLE DEVELOPMENT (DEPLETIONS) BY BASIN

Basin	First 5-year Increment Allowable Development (Depletions) – Peak Season (AF) [1/2]
Loup Basin	8,651
Elkhorn Basin	6,018
Lower Platte Sub-basins	4,138

TABLE 4.1. FIRST 5-YEAR INCREMENT ALLOWABLE DEVELOPMENT (DEPLETIONS) BY BASIN	
Basin	First 5-year Increment Allowable Development (Depletions) – Peak Season (AF) [1/2]
Loup Basin	8,651
Elkhorn Basin	6,018
Lower Platte Sub-basins	4,138

Original 25Yr Avg	**Peak BWS**						**Peak Total Long Term Demand**					**Peak Balance**	
Pasted Values	SWCU	GW Depl.	Streamflow	intrinsic supply	Req. Inflow	Total	SW demand	GWCU	NonCU	Net SW Loss	Total		
Loup	152,576	29,072	380,027	561,676	-	561,676	109,733	128,051	223,704	42,898	504,386	57,290	
Beaver Creek	2,777	7,266	(490)	9,554	2,686	12,240	2,999	30,199	5,393	-	38,591	(26,351)	
Elkhorn	16,849	59,246	357,354	433,450	-	433,450	17,476	98,209	180,260	-	295,945	137,505	
Lower Platte	32,073	54,184	238,210	324,467	408,454	732,921	116,646	56,713	539,934	-	713,293	19,629	
Total Lower Platte				1,329,147							1,552,215		
				BWS%	Basin Splits						total	188,073	10%
			Loup	0.4226	0.44								
			Beaver Creek	0.0072	0.02						Loup Plus Beaver	86,514	8,651
			Elkhorn	0.3261	0.32						Elkhorn	60,183	6,018
			Lower Platte	0.2441	0.22						Lower Platte	41,376	4,138

Focus has been on updating the 188,073 value

From Original DNR Spreadsheet 20200709LowerPlatteExcess_increase1050example_withGraphs.xlsx

Original 25Yr Avg	Peak BWS						Peak Total Long Term Demand					Peak Balance	
Pasted Values	SWCU	GW Depl.	Streamflow	intrinsic supply	Req. Inflow	Total	SW demand	GWCU	NonCU	Net SW Loss	Total		
Loup	152,576	29,072	380,027	561,676	-	561,676	109,733	128,051	223,704	42,898	504,386	57,290	
Beaver Creek	2,777	7,266	(490)	9,554	2,686	12,240	2,999	30,199	5,393	-	38,591	(26,351)	
Elkhorn	16,849	59,246	357,354	433,450	-	433,450	17,476	98,209	180,260	-	295,945	137,505	
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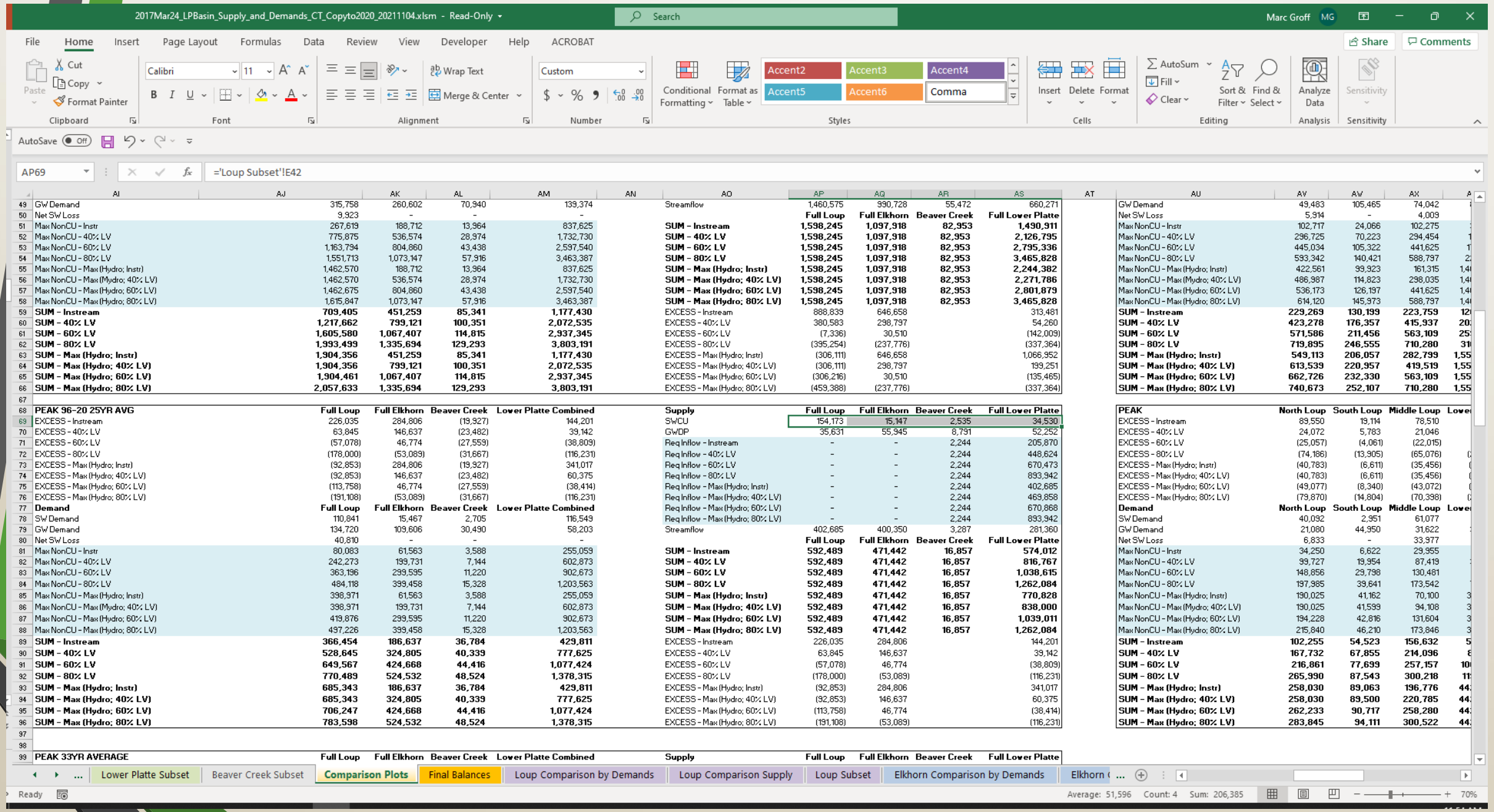
			Beaver Creek	0.0072	0.02						Loup Plus Beaver	86,514	8,651
			Elkhorn	0.3261	0.32						Elkhorn	60,183	6,018
			Lower Platte	0.2441	0.22						Lower Platte	41,376	4,138

Re-created in 2017Mar24_LPBasin_Supply_and_Demands_CT_Copyto2020_20211104.xlsm

Original 25Yr Avg	Peak BWS						Peak Total Long Term Demand					Peak Balance	
	SWCU	GW Depl.	Streamflow	intrinsic supply	Req. Inflow	Total	SW demand	GWCU	NonCU	Net SW Loss	Total		
Loup	152,576	29,072	380,027	561,677	-	561,677	109,733	128,051	223,704	42,898	504,386	57,291	
Beaver Creek	2,777	7,266	(490)	9,555	2,686	12,241	2,999	30,199	5,393	-	38,591	(26,350)	
Elkhorn	16,849	59,246	357,354	433,450	-	433,450	17,476	98,209	180,260	-	295,945	137,506	
Lower Platte	32,073	54,184	238,210	324,468	408,454	732,922	116,646	56,713	539,934	-	713,293	19,630	
Total Lower Platte				1,329,150							1,552,215		
				BWS%	Basin Splits						total	188,077	10%
			Loup	0.4226	0.44								
			Beaver Creek	0.0072	0.02						Loup Plus Beaver	86,515	8,652
			Elkhorn	0.3261	0.32						Elkhorn	60,185	6,018
			Lower Platte	0.2441	0.22						Lower Platte	41,377	4,138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AP69
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Lower Platte Subset Beaver Creek Subset Comparison Plots Final Balances Loup Comparison by Demands Loup Comparison Supply Loup Subset Elkhorn Comparison by Demands Elkhorn
Ready
Average: 51,596 Count: 4 Sum: 206,385
70%

Re-created in 2017Mar24_LPBasin_Supply_and_Demands_CT_Copyto2020_20211104.xlsm

Original 25Yr Avg	Peak BWS						Peak Total Long Term Demand					Peak Balance	
	SWCU	GW Depl.	Streamflow	intrinsic supply	Req. Inflow	Total	SW demand	GWCU	NonCU	Net SW Loss	Total		
Loup	152,576	29,072	380,027	561,677	-	561,677	109,733	128,051	223,704	42,898	504,386	57,291	
Beaver Creek	2,777	7,266	(490)	9,555	2,686	12,241	2,999	30,199	5,393	-	38,591	(26,350)	
Elkhorn	16,849	59,246	357,354	433,450	-	433,450	17,476	98,209	180,260	-	295,945	137,506	
Lower Platte	32,073	54,184	238,210	324,468	408,454	732,922	116,646	56,713	539,934	-	713,293	19,630	
Total Lower Platte				1,329,150							1,552,215		
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			Elkhorn	0.3261	0.32						Elkhorn	60,185	6,018
			Lower Platte	0.2441	0.22						Lower Platte	41,377	4,138

Developed in 2017Mar24_LPBasin_Supply_and_Demands_CT_Copyto2020_20211104.xlsm

Updated 25Yr Avg	Peak BWS						Peak Total Long Term Demand					Peak Balance	
	SWCU	GW Depl.	Streamflow	intrinsic supply	Req. Inflow	Total	SW demand	GWCU	NonCU	Net SW Loss	Total		
Loup	154,173	35,631	402,685	592,490	-	592,490	110,841	131,971	242,273	40,810	525,896	66,595	
Beaver Creek	2,535	8,791	3,287	14,614	2,244	16,858	2,705	30,490	7,144	-	40,339	(23,481)	
Elkhorn	15,147	55,945	400,350	471,443	-	471,443	15,467	100,125	199,731	-	315,324	156,120	
Lower Platte	34,530	52,252	281,360	368,143	448,624	816,767	116,549	54,260	602,873	-	773,682	43,086	
Total Lower Platte				1,446,690							1,655,240	103,025	
				BWS%	Basin Splits						total	242,319	10%
			Loup	0.4095	0.44								
			Beaver Creek	0.0101	0.02						Loup Plus Beaver	111,467	11,147
			Elkhorn	0.3259	0.32						Elkhorn	77,542	7,754
			Lower Platte	0.2545	0.22						Lower Platte	53,310	5,331

Developed in 2017Mar24_LPBasin_Supply_and_Demands_CT_Copyto2020_20211104.xlsm

Updated 25Yr Avg	Peak BWS						Peak Total Long Term Demand					Peak Balance	
	SWCU	GW Depl.	Streamflow	intrinsic supply	Req. Inflow	Total	SW demand	GWCU	NonCU	Net SW Loss	Total		
Loup	154,173	35,631	402,685	592,490	-	592,490	110,841	131,971	242,273	40,810	525,896	66,595	
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			Loup	0.4095	0.44								
			Beaver Creek	0.0101	0.02						Loup Plus Beaver	111,467	11,147
			Elkhorn	0.3259	0.32						Elkhorn	77,542	7,754
			Lower Platte	0.2545	0.22						Lower Platte	53,310	5,331

Updated 33Yr Avg	Peak BWS						Peak Total Long Term Demand					Peak Balance	
	SWCU	GW Depl.	Streamflow	intrinsic supply	Req. Inflow	Total	SW demand	GWCU	NonCU	Net SW Loss	Total		
Loup	147,907	32,596	398,135	578,639	-	578,639	107,935	125,818	237,609	40,851	512,213	66,425	
Beaver Creek	2,549	8,110	5,096	15,756	2,303	18,058	2,716	29,084	6,881	-	38,682	(20,623)	
Elkhorn	15,558	55,111	380,933	451,603	-	451,603	16,033	95,369	192,253	-	303,655	147,949	
Lower Platte	33,328	51,339	269,198	353,865	436,140	790,005	116,351	52,874	585,986	-	755,211	34,796	
Total Lower Platte				1,399,863							1,609,760		
				BWS%	Basin Splits						total	228,547	10%
			Loup	0.4134	0.44								
			Beaver Creek	0.0113	0.02						Loup Plus Beaver	105,131	10,513
			Elkhorn	0.3226	0.32						Elkhorn	73,135	7,313
			Lower Platte	0.2528	0.22						Lower Platte	50,280	5,028

Taken From: 210312-LPBWMP-Reported_Depletions_And CU by_NRD-PW1.xlsx

TABLE 2 - PEAK SEASON DEPLETIONS AND CONSUMPTIVE USE

NRD	PEAK SEASON 5-YR ALLOWABLE DEPLETION (AF)	NRD - Peak Season Depletion (AF)	NeDNR Reported Depletion (AF)	Remaining 5-YR Allowable Depletion (AF)	Percent of Remaining 5-YR Allowable Depletion
Upper Loup NRD	2768	417.9	369.6	1980.5	71.6%
Lower Loup NRD	5883	362.4	481.0	5039.7	85.7%
Upper Elkhorn NRD	1504	225.6	85.0	1193.4	79.3%
Lower Elkhorn NRD	4514	1093.7	162.0	3258.3	72.2%
Papio-Missouri River NRD	869	30.0	67.0	772.0	88.8%
Lower Platte South NRD	993	23.6	67.0	902.4	90.9%
Lower Platte North NRD	2276	1093.8	0.0	1182.2	51.9%
TOTALS	**18,807**	**3,247**	**1,232**	**14,328**	**76%**

4.3 Allowable New Depletion Carryover to Next Increment

Any allowable new depletions not utilized during the first 5-year increment will carry-over to the second increment and be prioritized in the second increment allowable new depletions for those NRDs. Any carryover of allowable new depletions will be removed from the calculated water supply when conducting the analysis of allowable new depletions for the second increment so that future depletion limits can accommodate the allowable new depletions…

Taken From: 210312-LPBWMP-Reported_Depletions_And CU by_NRD-PW1.xlsx

TABLE 2 - PEAK SEASON DEPLETIONS AND CONSUMPTIVE USE

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Lower Platte South NRD	993	23.6	67.0	902.4	90.9%
Lower Platte North NRD	2276	1093.8	0.0	1182.2	51.9%
TOTALS	**18,807**	**3,247**	**1,232**	**14,328**	**76%**

	Computed Peak Balance (AF)	Remaining 5-Yr Allowable Depletion (AF)	Adjusted Balance (AF)
Updated 25Yr Avg	242,319	14,328	227,991
Updated 33Yr Avg	228,547	14,328	214,219

Projected Schedule

Nov 16th NRD Management Meeting

Data Repository:

https://nebraska.sharefile.com/d-s9b4b4228d03949bf902c3289453fced5

Quote – Q-71955

In-Situ, Inc.
221 E. Lincoln Avenue
Fort Collins, CO 80524
U.S.A.

Tel: (800) 446-7488
Fax: (970) 498-1598
Email: sales@in-situ.com
Web: www.in-situ.com

Issued By: Tony Walker
Date: November 24, 2021
Quote Valid for 30 days

Sales Manager	Customer ID	Payment Terms	Shipping Method	INCO Terms	Final Destination
Chris Howard	004961	NET 30 DAYS	FedEx Ground		United States Nebraska

Quote To:

Lower Platte North NRD
P.O. BOX 126
Wahoo, Nebraska 68066
United States

Attn:

Russell Oaklund
roaklund@lpnnrd.org

(402) 443-4675

Ship To:

Lower Platte North NRD
511 COMMERCIAL PARK ROAD
WAHOO, Nebraska 68066
United States

Comments:

Please allow 10 business days to prepare your order prior to shipping. Please be sure to confirm exact transducer psi ranges, and exact cable lengths one last time before finalizing your order. Order Expedite option available for an added fee. Thank you!

Equipment

Line	Product Description	Part Number	Unit of Sale	Qty.	Unit List Price	Total List Price	Disc.	Customer Total Price
1.	Rugged Twist-Lock Cable, Vented, TPU, SM Spool, Twist-Lock,None	0052000-01-02-07-00	270 ft	2	$1,105.00	$2,210.00	15.00%	$1,878.50
2.	Rugged Twist-Lock Cable, Vented, TPU, SM Spool, Twist-Lock,None	0052000-01-02-07-00	310 ft	1	$1,245.00	$1,245.00	15.00%	$1,058.25
							Subtotal:	**$2,936.75**

Quote Total

Tax is not normally quoted due to State & local variability. If you need to have Tax included in this quotation, please contact us.
If your organization is a tax-exempt entity, please email or fax a copy of your tax-exempt certificate to taxcerts@in-situ.com or fax to (970) 498-1598.
Tax rates will be based on delivery address of the order.

Sales Tax: **$0.00**

For further information regarding the Warranty or Terms and Conditions, please refer to our website at http://in-situ.com/terms-conditions/

All quoted product & service prices are in U.S. Dollars unless specifically noted otherwise.

Shipping: **$105.60**

Total Amount (Excludes Optional Items): **USD** **$3,042.35**

In-Situ, Inc.
221 E. Lincoln Avenue
Fort Collins, CO 80524
U.S.A.

Tel: (800) 446-7488
Fax: (970) 498-1598
Email: sales@in-situ.com
Web: www.in-situ.com

Quote – Q-71955

Issued By: Tony Walker
Date: November 24, 2021
Quote Valid for 30 days

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New 2022 agreement

USGS Water Quality Gages on the Platte River near Leshara

1) The USGS Nebraska Water Science Center in addition to several cooperators are interested in extending the agreement for continuous water quality monitoring at the Platte River near Leshara gage. Beginning in April, 2016 a continuous water quality monitor was deployed in the Platte River near Leshara to help get additional water quality information in the upper portions of the Lower Platte River. This site has a joint agreement with several cooperators. This site's operation is similar to data collected at other USGS-Lower Platte River monitoring sites.

2) Water quality information collected at this site helps:
   a) Monitoring in support of the Lower Platte River's Water Quality Management Plan
   b) Potential to identify the water-quality impacts from management and land use changes in the contributing basin as well as to provide a baseline for future comparisons.
   c) Assessing the stream health for fisheries
   d) Better characterization of nitrate concentration in the drinking water source of many Nebraskans.
   e) Inform those who use the river for recreating of potential water quality risks
   f) Development of surrogate estimates to help better quantify loads of non-monitored parameters.
   i) Assess the stream health for both immediate concentrations and loads heading downstream
   g) Understand nitrate concentrations above the shallow aquifers used for drinking water

3) The water quality gage at the Platte River Leshara has been a multi-cooperative agreement.
   a) Funds contributed by Lower Platte South NRD, Lower Platte North NRD, Papio-Missouri NRD, Lincoln Water Systems, M.U.D, and USGS
   b) For the 2022-2024 data collection the USGS contributes 30% of the total cost, Papio, LPS, LPN, , LWS, and M.U.D c split the remaining funds.

4) The current agreement runs from April 30, 2019 to June 30, 2022. This covers data collection for the 2019-2021 calendar years. A proposed extension to this agreement would cover data collection for the years of 2022-2024. Funding below assumes that all parties would still be interested in operating the gage with the same scope for an additional three years beyond the 2021 data collection year. Please see Table 2 for a detailed breakout of charges.

Table 1:

	Federal Fiscal Year 2022	Federal Fiscal Year 2023	Federal Fiscal Year 2024	Federal Fiscal Year 2025	Total
USGS	$7,200	$9,600	$10,000	$3,600	$30,400
Partners	$19,000	$26,000	$27,200	$8,200	$80,400

For questions or additional information, contact Matt Moser, (402)328-4184 mmoser@usgs.gov

Table 2:

Agreement # **16EMNE000210**

Billing Date	Total Amount	Federal Fiscal Year	LPN NRD	LPS NRD	Papio-M NRD	LWS	M.U.D.	USGS
6/30/2022	$13,100	2022	$1,900	$1,900	$1,900	$1,900	$1,900	$3,600
8/31/2022	$13,100	2022	$1,900	$1,900	$1,900	$1,900	$1,900	$3,600
12/31/2022	$8,900	2023	$1,300	$1,300	$1,300	$1,300	$1,300	$2,400
3/31/2023	$8,900	2023	$1,300	$1,300	$1,300	$1,300	$1,300	$2,400
6/30/2023	$8,900	2023	$1,300	$1,300	$1,300	$1,300	$1,300	$2,400
8/31/2023	$8,900	2023	$1,300	$1,300	$1,300	$1,300	$1,300	$2,400
12/31/2023	$9,300	2024	$1,360	$1,360	$1,360	$1,360	$1,360	$2,500
3/31/2024	$9,300	2024	$1,360	$1,360	$1,360	$1,360	$1,360	$2,500
6/30/2024	$9,300	2024	$1,360	$1,360	$1,360	$1,360	$1,360	$2,500
8/31/2024	$9,300	2024	$1,360	$1,360	$1,360	$1,360	$1,360	$2,500
12/31/2024	$5,900	2025	$820	$820	$820	$820	$820	$1,800
3/30/2025	$5,900	2025	$820	$820	$820	$820	$820	$1,800
	$110,800		**$16,080**	**$16,080**	**$16,080**	**$16,080**	**$16,080**	**$30,400**

FY-23 6,400

FY-24 5,320

FY-25 4,360

Budgeting assumes all cooperators would take part and fund the agreement equally.

5) Beginning with the installment in 2016, a nitrate meter was also deployed at this to provide continuous nitrate concentrations in the Platte River. This location has been useful because it is above the L.W.S. and M.U.D. wellfields. The nitrate meter operates similarly to data being collected downstream at the Platte River at Louisville, and the Elkhorn River at Waterloo. Together, these monitors help provide a better understanding of nutrient concentrations and loads in the Lower Platte River.

6) Parameters monitored at the Platte River near Leshara include: water temperature, specific conductance, turbidity, dissolved oxygen, and nitrate
   i) Data for the site can be accessed at: https://waterdata.usgs.gov/ne/nwis/uv?site_no=06796500

7) These water quality gages are operated seasonally from April 1 to October 1 because of the risk for ice damage to the equipment.

For questions or additional information, contact Matt Moser, (402)328-4184 mmoser@usgs.gov

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JOINT FUNDING AGREEMENT

For

REAL-TIME CONTINUOUS WATER QUALITY MONITORING

in the LOWER PLATTE RIVER AT LESHARA

The "JOINT FUNDING AGREEMENT—REAL-TIME CONTINUOUS WATER QUALITY MONITORING in the PLATTE RIVER AT LESHARA" (hereinafter referred to as "the Agreement") to be executed by and among the Lower Platte South Natural Resources District, on behalf of the Lower Platte River Corridor Alliance and _____ (herein after referred to as "the Partners").

The Partners agree as follows.

Scope of work

Real-time continuous water quality monitoring data will be collected by USGS personnel and equipment in the Platte River near Leshara. Water quality data to be collected include temperature, turbidity, dissolved oxygen, specific conductance, nitrate/nitrite and others as available. Data will be displayed in real-time over the internet. The data is anticipated to be collected generally March through October in 2022, 2023 and 2024.

Funding

The Lower Platte South Natural Resources District, on behalf of the Lower Platte River Corridor Alliance, will hold and disburse funds from all Partners as needed for this study. The _____ will provide $6,400.00 in 2022 (FY23), $5,320.00 in 2023 (FY24), and $4,360.00 in 2024 (FY25) for a total of $16,080 for the three-year agreement. The Lower Platte River Corridor Alliance will pay the balance of the annual fee for the monitoring agreement (four other partners paying equal amounts).

Effective date

The agreement shall become effective upon execution by all parties.

Duration of agreement

The agreement shall run through the end of calendar year 2024 when all required funds have been received and data collection completed.

This Agreement is hereby approved and executed by the following parties on the dates shown below.

_____ _____

Paul Zillig, General Manager LPSNRD DATE

_____ _____

DATE

12/1/2021

Projects being worked on:

Field Climate/Metos

Gained access to admin site for Metos. Should help in detecting problems on field equipment.

Helping other water staff with firmware updates/Teraterm checks out in the field.

More sites are up and running, Russ has been great at getting out and checking them.

Phase Area/Schuyler Training in Phoenix

Started meeting with producers in person in Schuyler/Bellwood Phase Areas.

Getting data/Yield Worksheets for producer meetings ready.

Entering phase data and approving as it comes in.

General Database Work

Cleaning up tasks/workflow dashboard as things get done. Start working with new reports coming in for this reporting year.

Clean up People database

Work with producer side of site as things go from beta site to live site.

Checking flow meter reports as they come in

Finding and fixing mistakes in the database.