PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM
Water Advisory Committee Meeting Minutes
Nebraska Game and Parks Commission – Lake McConaughy Visitors Center
May 3, 2016

Meeting Attendees

Water Advisory Committee (WAC)

State of Colorado
Suzanne Sellers – Member

State of Wyoming
Matt Hoobler

State of Nebraska
Jessie Winter – Member

U.S. Fish and Wildlife Service
Tom Econopouly – Member
Jeff Runge – Alternate

U.S. Bureau of Reclamation
Brock Merrill – Alternate

Downstream Water Users
Cory Steinke – Chair
Duane Woodward – Member
Jeff Shafer – Member
Landon Shaw – Member
Nolan Little
Tyler Thulin

Colorado Water Users
Jon Altenhofen – Member
Luke Shawcross

Upper Platte Water Users
Dennis Strauch – Member

Environmental Groups
Jacob Fritton – Member
Bill Taddicken – Member
Duane Hovorka – Member

Executive Director's Office (ED Office)
Jerry Kenny, ED
Scott Griebling
Sira Sartori
Kevin Werbylo
Justin Brei
Jason Farnsworth

Contractors
Mike Applegate (Special Advisor) – Applegate Group, Inc.
Dmitry Smirnov – Dewberry
Stuart Geiger – Dewberry
Rick Wilson – JEO
Jake Miriovsky – JEO
James Cannia – Aqua Geo Frameworks
Matt McConville – HDR

Welcome and Administrative: *Cory Steinke, WAC Chair*
Introductions were made. There were no agenda modifications. Some edits were reported on the February 2016 WAC meeting minutes. Motion to approve meeting minutes was made by Shafer, seconded by Woodward, unanimously approved.

WAP Projects and Other Brief Water Updates

J-2 Regulating Reservoirs: *Cory Steinke, CNPPID*
Steinke said the CNPPID is in negotiations to amend the Three-Party Agreement to make the reservoir one cell. The CNPPID is looking at a slurry wall concept and the preliminary findings look positive.

Phelps Groundwater Recharge and Recapture Project: *Sira Sartori, ED Office*
Sartori gave an update on the Phelps recharge project – deliveries for recharge went through mid-April. The Cook tract recapture well was constructed and the electrical work and dissipation structure should be completed by the summer (the project will be operational at that time).

No-Cost NCCW Score: *Sira Sartori, ED Office*
The Governance Committee (GC) assigned a score to the No-Cost Net Controllable Conserved Water (NCCW) project at the March 2016 meeting. The accepted score is 260 acre-feet per year (AFY) at Grand Island.

CPNRD Water Leasing: *Duane Woodward, CPNRD and James Cannia, Aqua Geo Frameworks*
Woodward provided an updated on the surface water leasing project. The CPNRD is working on finalizing the surface water transfer permits with the NDNR for this year. The CPNRD diverted excess flows into their canals for recharge operations in March and April.

Woodward reported the CPNRD and Twin Platte NRD have a grant through the Nebraska Environmental Trust for subsurface data collection in the Central Platte. Cannia from Aqua Geo Frameworks, the contractor completing the work, provided a brief presentation on the data collection process. Electromagnetics are used to measure the resistivity of materials, such as clays and gravels, to map the subsurface layers of material. The data is then calibrated using well logs from test holes in the area. The price of the work includes data analysis, groundwater modeling inputs, mapping inputs and a final report. The Program may also request extra data collection for the J-2 Reservoir area or potential recharge sites. This can help the Program determine if there are any thick clay layers for storage projects, or sand/gravel deposits that may support recharge facilities.

NPPD Water Leasing: *Jeff Shafer, NPPD*
Shafer reported the surface water transfers applications are still pending with the NDNR.

Kenny talked about the NPPD's recharge projects in the Dawson County and Gothenburg Canals using excess flows. The project is already permitted through the NDNR and the NPPD is offering an affordable price. The Program has leased some recharge water already and is looking at a 2016 water service agreement with the NPPD.

CNPPID Water Leasing: *Jerry Kenny, ED*
There are no new updates from the last meeting. The Program hopes to try water leasing with irrigators in the future and will talk with the CNPPID and GC about 2016 leases. Since it is a new concept, it may take irrigators a year or two to get comfortable with the project.

CPNRD Groundwater Market: *Jerry Kenny, ED*
Kenny noted the official term used is "exchange" instead of market. The CPNRD Groundwater Exchange is a blind exchange where sellers and buyers both put in offers for groundwater, and then a matching software is used to make transactions. The Program was a bidder and did a tiered bidding strategy to try to understand the demand curve for water. Unfortunately, the Program did not have any accepted bids. There were successful transactions within the exchange; however, they were farmer to farmer transactions. The Program asked the CPNRD to consider a post-exchange framework for negotiations to add more flexibility in the future. The Program likely did not offer high enough bids, due to the reduced yield for the Program based on the scoring process.

Wet Meadows Update: *Scott Griebling, ED Office*
Wet meadows monitoring will continue through the spring. Griebling said the atmometers are installed, bubbler staff gages will be installed (to accommodate high flows) and soil moisture monitoring continues.

COHYST Update: *Scott Griebling, ED Office*
COHYST is nearing completion – the GUI (graphical user interface) is almost complete for the integrated model run (surface water, groundwater and watershed models). The model will soon go from 1947 through 2010.

Broad-Scale Recharge and Slurry Wall Concept: *Sira Sartori, Scott Griebling and Kevin Werbylo, ED Office and Jerry Kenny, ED*
Sartori gave an overview of the documentation on broad-scale recharge provided to the WAC and requested the WAC review and provide comments to the ED Office (white paper and status update memorandum). Econopouly said he would like the ED Office to add a section on the risks and uncertainties of the project (e.g., permitting and upstream competition for excesses).~~potential risks of the project.~~

Werbylo gave updates on the feasibility testing at the Cottonwood Ranch site for potential broad-scale recharge operations. Infiltration test pits were constructed on the Cottonwood Ranch site at the end of February/early March this year. One is an excavated test pit and one is a bermed test pit. Testing will run from March through June or July. Preliminary results show average

infiltration rates of 0.3 ft/day for the bermed pit and 0.1 ft/day for the excavated pit. The U.S. Geological Survey (USGS) is scheduled to start a survey this week to evaluate the site's subsurface material using an OhmMapper. This data will be used to assess the potential of recharge pond construction and operations at the site.

The ED Office is also developing a groundwater model of the Cottonwood Ranch site to assess the feasibility. Griebling briefly described the model construction, extent of area modeled and the anticipated schedule to complete modeling. Little noted there is some high groundwater in the area to be aware of.

Runge asked the ED Office when the Technical Advisory Committee (TAC) and Land Advisory Committee (LAC) would have a chance to review the project. Kenny said that after feasibility testing is complete, the concept can be introduced to other committees.
Sartori introduced a new concept of constructing slurry walls around gravel pits to construct below-grade reservoirs. This would be another way to use excess flows and retime water, as the Cottonwood Ranch infiltration rates are lower than expected. The Program could either purchase existing pits with potential for slurry wall construction, or hire a company to mine out a new site.

Kenny discussed how projects have evolved over time, since the J-2 Reservoir size and yield are less in the one-cell option, than in the original two-cell option. The ED Office evaluated broad-scale recharge to compensate for the reduction in yield from the J-2 Reservoir. Cottonwood Ranch emerged as a potential site for recharge operations, as the site is an appropriate distance from the river and the Program owns or manages the properties and can easily gather information. The Program is moving forward studying the feasibility of recharge beginning with infiltration tests, stratigraphy surveys and groundwater modeling. Since the groundwater is high and infiltration rates are low at Cottonwood Ranch, a broad-scale recharge project may not yield what was anticipated during the project conception. The concept of using existing gravel pits as storage facilities developed as an alternative way to capture and retime excess flows. A combination of small gravel pit reservoirs could be constructed along the Platte River. Excess flows would be retimed similar to the J-2 Regulating Reservoir.

Altenhofen asked how the NDNR would deal with gravel pit seepage. Kenny responded that the Program would work closely with the NDNR on the dam safety requirements; however, the NDNR has determined that seepage into gravel pits is not a depletion, so there shouldn't be any issues with that aspect. Slurry walls key into bedrock, or at least a low-permeability layer, so seepage should be negligible. It creates a volume of below-grade storage that is isolated from the surrounding groundwater. Mike Applegate mentioned the Colorado State Engineer's Office has guidelines for lining criteria/allowable seepage into gravel pit lakes, as this has been a popular concept in Colorado.

Hovorka asked if these storage basins could be used to store leased water rights that return to the river during times when the Program doesn't need water, during excesses. Kenny said yes, one of the benefits of gravel pit lakes is that they could be constructed at various locations. Plus, the

Program doesn't need large areas of land at specific locations, like at the J-2 Reservoir site. Mike Applegate was selected as a Special Advisor to the ED Office to help in the evaluation of gravel pit lakes and slurry walls in the Central Platte Basin.

Gravel Pit Slurry Walls for Storage: *Mike Applegate (Special Advisor), Applegate Group, Inc.*
Applegate provided an overview presentation on the general concept of slurry wall construction and the concerns regarding seepage and groundwater impacts of these types of projects. Applegate discussed the two methods to construct slurry wall trenches and the basic requirements to appropriately select sites, including evaluating the bedrock and subsurface materials. Data collected for the design includes geotechnical properties of the soil, survey data, estimates of on-site materials, groundwater table data, bedrock data and floodplain maps. He emphasized the importance of quality assurance/quality control during the design and construction phases of the projects. A contiguous layer of impermeable or low permeable materials to serve as the reservoir bottom for the slurry wall to key into is imperative in site selection. Applegate discussed some of the requirements for seepage rates used by the State Engineer's Office in Colorado. It is unknown whether slurry walls have been used in Nebraska; however, they are very common along the South Platte in Colorado.

Excess Flow Analysis: *Scott Griebling, ED Office*
The excess flow analysis was presented to the WAC by Griebling. He presented various graphs of annual/monthly gage excesses, excess distribution characterized over various time periods and showed the annual/monthly trends of excesses. A comparison of OpStudy hydrology excesses (used in the score model) and actual gage data was presented. The key points from the analysis include:

- There is a wide variation in the distribution of excess flows; most years experience below average excesses, meaning high flows skew the average volume upwards.
- Most of the excesses come in short periods of time during high flow events.
- There are no clear trends in the distribution of excesses over the 1947 to 2015 analysis period.
- OpStudy does a reasonable job of estimating gage excesses.
- It may be best to capitalize on large flow events with storage and large diversion capacities.

Hovorka stated that since the high flow events don't occur often, it places more emphasize on drying up land and using the consumptive use credit for yield. Based on the cost increases of retiming and storage, other projects may start looking better for the Program.

Nebraska Depletions Plan Update: *Jessie Winter, NDNR*
Winter went over the permitted uses including groundwater transfer permits, new well permits, groundwater variance permits and surface water permits. She described the net impact at the river through 2019. Kenny requested the calculations of the permitting activities and the mitigation efforts. Winter said the NDNR is working on compiling the data. There was some

discussion about how a smaller J-2 Reservoir size may impact the NDNR's mitigation of activities.

Hydroclimatic Indices Update: *Stuart Geiger and Dmitry Smirnov, Dewberry*

Overviews of the Phase I and Phase II Hydroclimatic Indices Reports were given by Geiger and Smirnov. Phase II focused on developing quantitative forecasts of streamflow in the North and South Platte Basins including streamflow estimates at Kersey, Julesburg and Lewellen. Refinements in the Hydroclimatic Indices included the addition of modeling locations and an expansion of the condition designations to include more categories.

The forecasts for 2016 include:

- South Platte snowpack – average (19.0 inches SWE_{max})
- Kersey streamflow – high average (279,100 AF)
- Julesburg streamflow – high average (229,200 AF)
- Lewellen streamflow – high average (310,700 AF)

Dewberry is working on Phase III and anticipates completing a draft report in July or August. The Phase III goals include exploring the driving mechanisms of the Palmer Drought Severity Index to confirm its relationship with the Platte hydrologic forecasts. Other aspects to be explored in Phase III include assessing the feasibility of earlier forecasts and developing a South Platte precipitation index forecast.

Runge said he would be interested in a workshop to integrate the hydroclimatic indices tools in the EA ~~and look at~~ decision-making processes and suggested the fall EAC/RCC for the workshop. Steinke said the CNPPID and other districts would likely not depend on the forecast tool for operations, such as filling Lake McConaughy, but that it may be useful for the Program in determining how to manage EA releases. There was some discussion of whether the tools are easy to use. Smirnov stated all of the data is public and users have access to the methods and equations developed by Dewberry. Griebling confirmed the analysis is straight-forward.

Kenny commented that it may take several years of evaluating the success rate of the hydroclimatic indices before groups begin to use the method. He noted that the group is much more interested in the potential of this tool than when the concept was initially introduced at the WAC. The tool provides a good lead time, with the potential for pushing initial forecasts in November of the previous year and Dewberry is working on improving quantitative forecasts.

Choke Point Update: *Justin Brei, ED*

Brei discussed the four choke point activities:

State Channel

The Program received a draft permit for the state channel project. The conditions include wetland mitigation of 3:1 with a buffer, plus a covenant on the property deed(s) with wetland mitigation. The ED Office will do the design and bid the project; completion is anticipated by the

end of 2016. Mitigation is anticipated on the Program's Speidell tract. Mitigation areas will not be counted towards the Program's habitat goals. The next steps in the state channel project include the design/bid for wetland mitigation, securing easements for the state channel footprint and creating management agreements with the Twin Platte NRD for maintenance of the site.

Vegetation Control
The Program is working on channel widening and disking as an initial way to increase the chokepoint capacity. The work will be completed during low flows when vegetation can be disked. Obtaining landowner agreements for disking on private property is underway. The Program is also working with Platte Valley Weed Management to spray phragmites this fall.

Bypass Canals
The status of using canals to route water from the North Platte to the South Platte in order to avoid the chokepoint is currently on-hold. The Program would need to increase the capacity of bottleneck points, such as laterals and waste ways, for the project to be useful. The Platte Valley Irrigation Canal/North Platte Canal has a large main capacity and is the canal with the most potential for bypass activities. The project may resume after channel widening/vegetation clearing is completed.

USACE Section 206 Project
The U.S. Army Corps of Engineers (USACE) offers partnerships to develop projects that enhance habitat for plants/fish/wildlife. The Program is evaluating whether there are projects that could be completed through this partnership, including chokepoint activities (such as constructing levees) for the benefit of species habitat in the Central Platte. The Program would likely use State funding for this project since the USACE would partially match funding and likely require non-federal funds for the match. The Program would also likely partner with the Twin Platte NRD as a local sponsor to ensure long-term maintenance of any project completed under this type of partnership.

Federal Depletions Plan Update: *Tom Econopouly, USFWS*
Econopouly reported the consultations in Colorado. There weren't any consultations in Nebraska or Wyoming.

Wyoming Depletions Plan Update: *Matt Hoobler, WY SEO*
Hoobler presented the three baselines, and current status of each, used in the Wyoming Depletions Plan. He reported the Platte River Basin Water Plan is to be completed in 2016 under the direction of the Wyoming Water Development Office.

Colorado Depletions Plan Update: *Jon Altenhofen, Northern Colorado Water Conservancy District & Suzanne Sellers, CO Water Conservation Board*
Sellers reported on the North Platte accounting in Colorado. Altenhofen discussed retiming water in the Tamarack project. In the past two years, the Tamarack project has exceeded the 10,000 AFY goal.

Additional Business: *Cory Steinke, WAC Chair*
The next WAC meeting is August 9, 2016.

Action Items

General WAC

- Review and provide comments on the broad-scale recharge white paper and gravel pit memorandum on the WAC website.

ED Office

- Add a section in the broad-scale documentation white paper on potential difficulties with the project including permitting, future excess flows and other risks.