PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM

Governance Committee Meeting Agenda – June 8-9, 2010

Wyoming Water Development Commission – Cheyenne, WY

START TIME (Duration)	*TUESDAY, JUNE 8th (ALL TIMES MOUNTAIN)* TOPIC, PRESENTER, & PROGRAM PURPOSE[i]	DOCUMENT # - DOCUMENT
2:00 p.m. (:15)	**Welcome and Administrative** John Lawson, GC Chair *Information, Discussion, & Action* • Introductions/Attendance Roster/Agenda Modifications • **APPROVE MARCH 2010 MINUTES**	**01 – GC Agenda** **02 – GC Minutes**
2:15 p.m. (:30)	**Program Committee Updates** *Information & Discussion* • LAC – Mark Czaplewski, CPNRD (Vice Chair) • WAC – Cory Steinke, CNPPID (Chair) • TAC – Mike Besson, State of WY (Chair) • FC – Mike Purcell, State of WY (Chair)	**03 – LAC Minutes** **04 – WAC Minutes** **05 – TAC Minutes** **06 – FC Minutes**
2:45 p.m. (:15)	**Program Outreach Update** Bridget Barron, ED Office *Information & Discussion* • Recent media stories/upcoming Program presentations	
3:00 p.m. (:60)	**PRRIP Pallid Sturgeon Assessment** Jerry Kenny, ED/Chad Smith, ED Office *Information & Discussion* • Discussion of ED Office pallid sturgeon assessment memo	**07 – Pallid sturgeon assessment memo**
4:00 p.m. (:15)	**BREAK**	
4:15 p.m. (:30)	**FY 2010 Program Budget, RFPs, and Contracts** Jerry Kenny, ED/ED Office Staff *Information and Discussion* • Program budget status update • Standard PRRIP contract • Update on PRRIP RFPs and contracts	**08 - Budget Spreadsheet** **09 – Financial Status Report**
4:45 p.m. (:30)	**Water Action Plan Scoring Status Update** John Lawson, Subcommittee Chair *Information & Discussion* • Report from subcommittee • Scoring example	**10 – Scoring example**
5:15 p.m.	**ADJOURN**	

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8:00 a.m. (:05)	**Welcome and Administrative:** John Lawson, GC Chair *Information & Discussion* • Introductions/Attendance Roster	
8:05 a.m. (:45)	**Elm Creek Complex Actions** Chad Smith and Jason Farnsworth, ED Office *Information & Discussion* • FSM "Proof of Concept" study design and monitoring protocol • Bird response experiment	
8:50 a.m. (:10)	**PUBLIC COMMENT**	
9:00 a.m. (:05)	**BREAK**	
9:05 a.m. (:60)	***GOVERNANCE COMMITTEE EXECUTIVE SESSION*** **Program Land Tracts & Issues:** Bruce Sackett, ED Office *Information & Discussion* • Lease @ Tract 0818 • Land trades @ Tracts 2009003 and 2009004 • LAC recommendation on Tracts 911, 917, 918 • Land Tract updates	**11 – Tract 0818 lease** **12 – Tract 2009003 trade** **13 – Tract 2009004 trade**
10:05 a.m. (:10)	**Program Land Tracts & Issues** *Information, Discussion, & Action* • **APPROVE LEASE @ TRACT 0818** • **APPROVE TRADES @ TRACTS 2009003 & 2009004** • **APPROVE LAC RECOMMENDATION TO REMOVE TRACTS 911, 917, 918 FROM FURTHER CONSIDERATION**	
10:15 a.m. (:60)	**PRRIP Web Site** Monte McDonald, Riverside Technologies & Justin Brei, ED Office • Features of new PRRIP web site • Use for future PRRIP meetings • Update on Database Management System	
11:15 a.m. (:10)	**Future Meetings & Closing Business** *Information & Discussion* • ISAC meeting – **July 13-14, 2010 @ Kearney NE** • Next GC Meeting – **September 14-15, 2010 @ Kearney, NE**	
11:25 a.m.	**GC MEETING WRAP-UP & ADJOURN**	

[i] *Items noted in uppercase and red are Action Items requiring Governance Committee motions and approval.*

PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM
Governance Committee Meeting Minutes
Ramada Inn – Kearney, NE
March 9-10, 2010

Tuesday, March 9, 2010

Executive Director's Office (ED Office)
Jerry Kenny – Executive Director
Chad Smith
Beorn Courtney
Jason Farnsworth
Bruce Sackett
Justin Brei
Tim Tunnell

Governance Committee (GC)
Brian Barels – Nebraska Public Power District
Alan Berryman – Northern Colorado Water Conservancy District
Mike Besson – State of Wyoming
Kevin Urie – Denver Water
Ted Kowalski – Colorado Water Conservation Board
Mark Czaplewski – Central Platte Natural Resources District
Don Kraus – Central Nebraska Public Power and Irrigation District
Mike Purcell – State of Wyoming
Harry LaBonde – State of Wyoming
John Lawson – Bureau of Reclamation, Chair
Jim Schneider – Nebraska DNR
Norm DeMott – Upper Platte River Water Users
Dennis Strauch – Pathfinder Irrigation District
Michael Thabault – U.S. Fish and Wildlife Service
Greg Wingfield – U.S. Fish and Wildlife Service
Bill Taddicken – Audubon Rowe Sanctuary
John Heaston – The Nature Conservancy
George Williams – Upper Platte River Water Users

Participants
Pat Engelbert – HDR
Mike Drain – Central Nebraska Public Power and District
Brock Merrill – Bureau of Reclamation
Cory Steinke – Central Nebraska Public Power and Irrigation District
Matt Lindburg – Brown & Caldwell
Dan Bigbee – EA

Jim Jenniges – Nebraska Public Power District
Rich Walters – The Nature Conservancy
Doug Hallum – Nebraska DNR
Kevin Prior – Olsson Associates
Matt Rabbe – U.S. Fish and Wildlife Service
Larry Schulz – ED Office contractor
Mark Pegg – University of Nebraska - Lincoln

Welcome & Administrative

Lawson called the meeting to order and the group proceeded with introductions. Lawson asked for agenda modifications; none offered. Berryman moved to approve the December 2009 GC minutes; DeMott seconded. **Minutes approved.** Kenny said Wingfield would be stricken from the attendance list at the February 2010 GC Special Session. Purcell moved to approve the February 2010 GC Special Session minutes; Kowalski seconded, adding that Wingfield's name needs to be removed from several places in the minutes. **Minutes approved.**

Kenny circulated a membership list for the GC to review and make modifications if necessary by the end of the meeting on Wednesday, March 10.

Program Committee Updates

Land Advisory Committee (LAC)

Czaplewski provided an update on the latest LAC activities. The LAC last met on January 29 in Kearney. Most of the discussion was related to Program land management activities and the LAC took action several Program land management plans. The next LAC meeting is April 9 in Kearney.

Water Advisory Committee (WAC)

Steinke provided an update on the latest WAC activities. Courtney provided an update to the Water Action Plan and the WAC approved. The ED Office is moving forward on permitting that includes potential Water Action Plan projects. The WAC approved the J-2 Re-Regulating Reservoir Prefeasibility Study. Steve Smith from the ED Office provided an update on potential groundwater recharge projects. Kenny provided an update on water management incentives scoping underway by the Flatwater Group and University of Nebraska experts. The next WAC meeting is in May in Ogallala and that agenda will include depletions plans updates.

Technical Advisory Committee (TAC)

Besson provided an update on the latest TAC activities. The TAC had two meetings since the last GC meeting in December 2009. Discussion at the January 2010 meeting included Program monitoring protocols, tern and plover annual reporting, initial report from the tern and plover foraging habits study, whooping crane monitoring report, forage fish monitoring report, geomorphology/in-channel vegetation monitoring report, water quality monitoring report, PRRIP Responses to 2009 ISAC Findings, and Program land management plans.

At the March 3 meeting, the TAC approved revisions to the tern and plover and water quality monitoring protocols. The TAC discussed and recommended the FC approve the Cottonwood Ranch OCSW & Flow Consolidation Conceptual Design RFP. Chad Smith provided a presentation on AMP implementation activities and next steps on prioritizing and sequencing hypotheses. The TAC then held a long conversation on wet meadows and agreed to do an information review on wet meadows without refinement of the wet meadows Conceptual Ecological Model (CEM). The RFP focuses on gathering wet meadows information and the TAC will work on taking that information and using it to help establish next steps on wet meadows.

Kraus asked if wet meadows would be discussed during the GC meeting. Kenny said the only item on the agenda relates to approval of the RFP Proposal Selection Panel. Kraus asked about the discussion at the TAC regarding the Program's McCormick Tract. Besson said the focus was on whether to clear trees on the parcel, if that land could be restored to wet meadows, and how it relates to other surrounding properties.

Finance Committee (FC)

Purcell provided an update on the latest FC activities. The FC met on February 10 and approved the next phase of the J-2 reservoir geotechnical contract and the Sediment Augmentation Feasibility Analysis contract amendment. The FC recommended spending Program funds on the geomorphology/in-channel vegetation monitoring atlas if the funds could be moved from another existing Program budget line item. The FC approved the Directed Vegetation Research RFP.

The FC met again the morning of March 9 to discuss the indexing of Program funds. The FC approved the recommendations from Lawson and seeks support of the GC at the meeting today. The FC also approved the Cottonwood Ranch OCSW RFP. The ED Office will work with the FC to develop standard consultant contract language.

Program Outreach Update

Presentations

- Bruce Sackett and Tim Tunnell hosted an appreciation with the landowners that were kind enough to help us this year at river Anchor Points on December 10, 2009 at the Kearney office. The Program's geomorphology and vegetation contractors gave a presentation to the landowners on the years activities.
- Justin Brei presented on GIS and the Program to the Holdrege Rotary Club on January 28, 2010.
- Jerry Kenny and Beorn Courtney presented on the Program's Water Plan at Colorado Water Congress on January 29, 2010.
- Bruce Sackett and Jason Farnsworth presented on the Program's Land Plan at the Holdrege Water Conference on February 4, 2010.
- Chad Smith and David Baasch presented on the Adaptive Management Plan at the Tern & Plover Annual Meeting in Lincoln, Nebraska on February 23, 2010.

- Jerry Kenny presented on the Program to the Central Plains Irrigation Conference in Kearney, Nebraska on February 23, 2010. The conference rotates among the states of Colorado, Kansas, and Nebraska and has an audience of producers and agricultural industry personnel.
- Jerry Kenny presented on the Program to the Nebraska Legal Professionals Association Spring Seminar in Grand Island, Nebraska on March 6, 2010.

Future Presentations

- Chad Smith will be presenting on the Program at the annual Rivers & Wildlife conference in Kearney, Nebraska on March 20, 2010.
- Chad Smith will be presenting on the Program to the UNL Lifetime Learning course on April 27, 2010.
- Jerry Kenny will be presenting on the Program to the North Platte NRD board on March 18, 2010 in Oshkosh, NE.

Exhibits/Sponsorships

- The Program had a poster exhibited at the Colorado Water Congress on January 28 & 29, 2010. We made 163 direct contacts with attendees over the course of those two days. The estimated overall attendance was 500 people.
- The Program had a poster exhibited at the Tern & Plover Annual Meeting in Lincoln, Nebraska on February 23, 2010.
- The Program had a poster exhibited at the annual CAMNet rendezvous in Tucson, Arizona on March 7, 2010.
- The Program will have an exhibit at Rivers & Wildlife on March 20, 2010 in Kearney, Nebraska.
- The Program will have exhibits and materials at both the Nebraska Nature and Visitors Center and Rowe Sanctuary during migration season.

Press Coverage

- David Freeman's book, tentatively titled *Negotiating New Environmental Governance on the Platte River Basin Water Commons: Mobilizing Water Users to Implement the Endangered Species Act*, has been accepted for publication and is scheduled to be published in October 2010.

AMP Implementation Update

Smith provided a presentation on the results of the February 2010 AMP Reporting Session in Denver, PRRIP responses to the 2009 ISAC Findings, and next steps on AMP implementation. Thabault asked about the context for some of the tern and plover numbers and how the Program is going to consider looking at Platte River birds in the context of the larger population. Smith said that is a challenge that the ED Office and technical representatives of the Program continue to assess. Smith noted one example of how to address context is to collect tern and plover data and analyze it by plugging that data into a population model that can reflect how the Platte River

population is faring, but that can also reflect what is happening with the larger population (Missouri River, Niobrara River, etc.). Kowalski said he thought the meeting went very well, provided a great opportunity for horizontal communication, and is a session that should continue in the future.

AMP Monitoring Protocols

Smith provided a brief summary of how changes were made to the tern and plover and water quality monitoring protocols. **Czaplewski moved to approve the tern and plover monitoring protocol; Urie seconded. Approved.**

Purcell moved to approve the water quality monitoring protocol; Heaston seconded. Approved.

FY 2010 Program Budget and Contract

Kenny provided an update on the Program budget, with graphics showing Program budgets and expenditures over time, as well as breakdowns of annual expenditures by administration, land, water, and adaptive management. Kenny discussed the Program's current financial status report, which included a final tally for FY 2009 expenditures. Purcell asked what qualifies for Unliquidated Obligations (UO). Kenny said those are contract commitments. Lawson asked if UO becomes a liability for the following year. Kenny said that is correct. Barels asked why $2.1 million was budgeted for IMRP activities in 2009, but only $1.9 million was spent. Kenny said it was the result of several items: No money was spent on monitoring a Short-Duration High Flow (SDHF); reduced spending from IMRP-2 on research activities; no money was spent on tern and plover monitoring; the wet meadows information review stalled until 2010; etc. Monitoring was accomplished, but there was a budget savings as Program staff and Program cooperators performed some of the work. Kraus asked about the status of the Database Management System. Farnsworth said the contractor is completing the content management portion, which will mean that for the next GC meeting, GC members will be able to access meeting documents through the web site. The scientific data repository piece is still in development.

Sediment Augmentation Feasibility Analysis contract amendment

Kenny discussed the need for amending the Sediment Augmentation contract to allow for an extension of the model being developed under that contract. The amount of $10,000 would be shifted from PD-12 to PD-13. Purcell moved approval; Thabault seconded. **Budget shift approved.**

Purcell asked about the status of shifting funds in the budget for the purposes of developing the geomorphology/in-channel vegetation monitoring atlas. Kenny said the ED Office is not yet comfortable moving money in the budget for this project and will continue to assess the possibility throughout the year.

Program RFPs

The GC discussed the recommended Proposal Selection Panels for three Program RFPs:

Directed Vegetation Research

Recommended panel: C. Smith, Farnsworth, Jenniges, Drain, Czaplewski, Fritz, Harner

Cottonwood Ranch OCSW & Flow Consolidation Conceptual Design

Recommended panel: Farnsworth, Jenniges, C. Smith, Rabbe, Besson, Urie, Goltl, Heaston

Wet Meadows Information Review:

Recommended panel: C. Smith, Baasch, Czaplewski, Heaston, Rabbe, Jenniges, Hallum, Fritz, Urie

Taddicken moved to approve the Proposal Selection Panels; Kowalski seconded. **Panels approved.**

Indexing of Program Funds

Lawson discussed the proposal for indexing Program funds for inflation. Consultation and coordination with the Department of the Interior (DOI) Office of the Solicitor and states of Colorado and Wyoming has resulted in the development of a methodology that has been approved by the DOI and is acceptable to the two states. Indexing will be based on the Bureau of Reclamation's Construction Cost Trends (CCT). All land acquisition costs will be indexed using CCT Nebraska Land Index, water conservation/supply projects will be based on the CCT General Property Index, and all other Program costs will be based on the Federal Salary Index, since they are primarily staff driven.

Of the cash contributions, funding which remains to be expended each October 1st will be indexed and NOT the remaining balance of Program funding to be appropriated. The first index will be applied on October 1, 2009 per guidance from the DOI Office of the Solicitor. In order to maintain the established cost share equality between Federal and State contributions, an index adjustment will also be applied to the cast equivalent water and land contributions provided by the States. The cash contribution index ratios will also be applied to the cash equivalent contributions in order to maintain the cost share equality.

Kowalski asked why Lawson did not take the state contributions out. Lawson said page 2 of Program Document Attachment #1 says includes the state contributions as well so they need to stay in the calculation. Reclamation approves of and supports this indexing process. **Kowalski moved to support the indexing process; Purcell seconded.** Kowalski said Colorado has a little bit of heartburn because of what is specified in the legislation when it was passed, especially in light of Colorado sending its contributions into the Nebraska Community Foundation (NCF) for the Program. Nevertheless, Lawson has provided a clear and understandable template for talking to the Colorado General Assembly about the state's contributions to the Program. Colorado believes there is a risk in terms of whether interest will cover the contributions. It seems odd to apply an inflationary index to contributions of land and water. Purcell said the reason is the

50/50 cost-share and the need to stick with that 50/50 split as outlined in the federal statute. In addition, water contributions are annual contributions and as such are annual payments just like money.

Besson asked how the Program is going to deal with the interest in the NCF. Lawson said the federal government cannot use interest on those dollars and the federal share is based on annual appropriations. Besson said there will still be interest earned by Wyoming with their quarterly payments to the Program. Lawson agreed and said Wyoming receives that interest. Czaplewski said there does not seem to be a lot of room for play in the "other" category, which contains administration and monitoring/research. Lawson said we are using indices to retain the 2005 buying power. Kraus said the Program still has to live within a budget.

Motion approved (approved methodology attached).

Water Action Plan Scoring Status Update

Lawson discussed the recent work of the sub-group working on issues related to Water Action Plan scoring. Work has continued with the ED Office and Don Anderson (formerly of the U.S. Fish and Wildlife Service) to develop a scoring proposal that can be brought back to the GC for approval. The sub-group asked the ED Office and Anderson to use the J-2 reservoir project as an example to show how it would score. The sub-group held a conference call to discuss this example and work continues on refining the process. Once that is complete, the sub-group will report to the GC on alternatives for consideration. Lawson expects to report to the GC during the June meeting. The expectation is that the GC will be presented with a scoring plan for the J-2 project, but each project will likely require its own specific scoring process.

Miscellaneous Program Business

Kenny said every year in Nebraska in June there is a Cattlemen's Ball that is a fundraiser for cancer research. The event in 2009 was held on property owned by the Platte River Whooping Crane Maintenance Trust. The 2010 event will be near Kearney on property owned by Norris Marshall. One of the planned events is airboat rides. Kenny asked if there is any objection to use of the Program airboat, piloted by Headwaters staff as volunteers, to assist with providing airboat rides at the Ball. The Program will not be charged for gas, and current insurance will cover use of the boat. Heaston asked what happens if the airboat is broken. Kenny said insurance will cover it, as well as any potential injuries. Heaston asked what the problem would be with having staff serve on billable time to the Program to ensure they are fully covered by proper insurance. Kenny said he would not be opposed to that.

Heaston moved to have Program staff serve on billable time to the Program during this event and to authorize use the Program airboat. Berryman seconded. **Motion approved.**

Meeting adjourned at 4:57 p.m. Central time.

Wednesday, March 10, 2010

Welcome and Introduction

Lawson called the meeting to order and the group proceeded with a roll call.

Re-regulating Reservoir Agreement

Kenny presented an agreement between CNPPID and PRRIP concerning feasibility analysis of CNPPID reregulating reservoirs. The agreement provides a framework for advancing the J-2 Return/Elwood regulating reservoir(s) through full feasibility. The agreement outlines responsibilities, future steps, and commits CNPPID to contributing $30,000 toward the analysis. The agreement will terminate on June 30, 2011 or completion of the feasibility studies, whichever occurs sooner. Purcell moved to approve the agreement and Kowalski seconded. **The motion was approved with Kraus abstaining.**

2009 Tiered Platte River Biological Opinions

Rabbe provided a summary of 2009 tiered United States Fish and Wildlife Service (Service) Section 7 consultations for projects seeking ESA coverage for water-related activities through the PRRIP. 24 consultations were completed in 2009. Eighteen were in Colorado, two in Nebraska and four in Wyoming. The Service also worked with the State of Colorado to develop a memorandum of understanding (MOA) outlining how federal depletions will be handled consistently with Colorado's depletions plan. The Service is also working with other federal agencies and the State of Wyoming to develop similar MOAs.

Lower Platte River Stage Change Study

Engelbert and Pegg gave a presentation on the results of the Lower Platte Stage Change Study performed for the Program by HDR in association with TetraTech and the University of Nebraska at Lincoln (UNL). In general, the hydrologic analysis, hydraulic modeling, and habitat classification work conducted for the study indicated that Program diversions or retiming of flows in the central Platte would likely not have a negative impact on pallid sturgeon in the lower Platte River. Relative change in lower Platte habitat for pallid sturgeon would be very small to undetectable and thus these changes should not provide additional stress to the population. . Impacts could occur if Program diversions occur during times of extremely low flow in the lower Platte and the impacts would likely be in the form of reduced lateral channel connectivity, although Pegg noted that longitudinal connectivity was maintained even at these low flows. Those impacts could be avoided by monitoring flows in the lower Platte and not diverting or retiming flows when lower Platte flows fall below approximately 4,000 cfs.

Purcell asked if pallid sturgeon use the lower Platte. Pegg indicated that approximately 70 pallid sturgeon were caught on the lower Platte last year during an ongoing shovelnose sturgeon research project. Three of the pallid sturgeon were caught above the mouth of the Elkhorn River. Czaplewski asked what the Program's next step will be regarding the pallid sturgeon. Kenny explained that the Program committed to performing a literature review, stage-change study, and conducting water quality monitoring in the lower Platte. Those items have been completed and

the Program is now at a decision-point, and consensus needs to be reached on what, if anything, needs to be done next. Lawson indicated that next steps should be discussed at the June GC meeting. Thabault requested that Program staff prepare a summary memorandum that provides information regarding the results of the work done to-date and outlines the limitations and information gaps associated with that work; further, the document should provide guidance with respect to risk management regarding potential GC decisions related to the pallid sturgeon. In general, the GC should be able to use the memorandum to determine if the Program has adequately tested the hypothesis of whether or not Program actions in the central Platte would negatively impact the pallid sturgeon in the lower Platte. Barrels requested that the memorandum be completed in time for discussion at the June GC meeting. **The ED office will prepare a pallid sturgeon summary memorandum for the GC.**

Land Management Plans

Sackett introduced the 5-year Land Management Plans and gave a brief overview of the structure of the Complex plans, which include individual tract operations and maintenance plans, as well as 1-year work plans contained in the appendices of each Complex plan. Farnsworth described AMP activities that will occur in the Elm Creek Complex under the proposed plan. A Flow-Sediment-Mechanical experiment will take place from the Elm Creek bridge to the Kearney Canal Diversion. This includes clearing and leveling islands to an elevation that can be overtopped at flows around 3,000 cfs. The Program intends to test the theory that it can maintain target species habitat with the use of sediment augmentation and control of river flows. Barels said NPPD would like a better understanding of the effects on NPPD assets. Farnsworth said that NPPD has been involved in TAC discussions to this point, and the ED Office will be working with NPPD to insure understanding before any action takes place. In the Elm Creek Complex downstream of the Kearney Canal Diversion, a bird response experiment will be constructed. The goal of this experiment is to assess species response to a variety of available habitat characteristics such as island sizes, heights above water, and distance to disturbance. Lawson asked about expected future operations and maintenance costs within the complex. Farnsworth said barring any major flood events causing problems with in-channel experiments, operations and maintenance would likely be limited to maintenance of islands, invasive species control off-channel, other land maintenance activities, and would likely be in the $20,000-$30,000 per year range.

Sackett then gave an overview of the Fort Kearny Complex plan. Farnsworth discussed management and restoration activities planned for this Complex, including: a second bird response experiment, possible relocation of a power distribution line near the river channel on 2009004, the potential involvement of 2008001 in the upcoming directed vegetation research, and the preparation of the sandpit peninsula on 2009008 for the upcoming nesting season.

Farnsworth then discussed activities to take place under the proposed 2009003 Operations and Maintenance Plan. Since at the time of acquisition, 2009003 was not associated with any other Program or partner lands, a complex plan was not yet developed. Activities on 2009003 include conversion of poor cropland areas (old food plots) back to grass, some in-channel vegetation

clearing, clean-up of cedars, logged cottonwood stumps, and other woody vegetation in riparian area, and the potential clearing of invasive woody vegetation in the area north of the channel. In addition, the mobile home that was located on the property as been sold and will be moved off the property. The hunting lodge is being maintained and will house the USGS team performing the Program's Tern and Plover Foraging Habits study this summer.

Heaston asked why we planned to keep the grain bins on 2009003, indicating they are a tax and insurance liability and of limited use to the Program. Heaston would like the Program to consider their removal. Sackett said they provide some use to the Program, which has entered into crop share agreements with some tenants of Program cropland, as well as potential for some rent income and good neighbor benefits.

Thabault asked why rehabilitation of the old slough on 2009003 (the track faintly visible on aerial photography) was not considered. Farnsworth said it is an issue of water level and channel degradation. Just upstream of the slough there is a large Tri-basin NRD groundwater drain that is 10-15 feet below ground level which controls the groundwater level in the area. In addition, output of the water would be an issue, as the historic slough track continues south to the cropland off Program lands.

Barels requested some synthesis to how Program FSM and MCM activities are being tackled across the associated habitats. Farnsworth said that is already under way in the form of experimental design documents for those activities.

Strauch asked if any invasive removal activities have cost shares available. Czaplewski said CPNRD has cost sharing for prescribed burns. Tunnell said the Program is working with CPNRD to perform prescribed burns on Program lands where needed.

Sackett then discussed the 2008002 1-year work plan. The 5-year plan for 2008002 (Cottonwood Ranch) was approved in 2009.

Heaston moved to approve the 5-year and 1-year plans as presented, including the Elm Creek Complex plan (with associated tract plans for 2009002 and 2009005), the Elm Creek Complex 2010 work plan, the Fort Kearny Complex plan (with associated tract plans for 2009001 and 2009004), The Fort Kearny 2010 work plan, the 2009003 Operations and Maintenance plan, the 2009003 2010 work plan, and the 2008002 2010 work plan. Thabault seconded. **Land plans approved.**

Public Comment

Lawson asked for public comment. None was offered.

Executive Session

Berryman moved to enter Executive Session to discuss land issues; Czaplewski seconded. **GC entered Executive Session at 10:40 a.m. Central time.**

Purcell moved to end Executive Session; Berryman seconded. **GC ended Executive Session at 11:40 a.m. Central time.**

Future Meetings & Closing Business

Upcoming GC meetings are scheduled for:

June 8-9, 2010 @ Cheyenne, WY
September 14-15, 2010 @ Kearney, NE
December 7-8, 2010 @ Denver, CO

Meeting adjourned at 11:45 a.m. Central time.

Summary of Action Items/Decisions from March 2010GC meeting

1) Approved December 2009 GC minutes
2) Approved February 2010 GC Special Session minutes.
3) Approved Tern and Plover Monitoring Protocol
4) Approved Water Quality Monitoring Protocol
5) Approved shifting $10,000 from budget item PD-12 to budget item PD-13.
6) Approved selection panels for three RFPs: directed vegetation research, Cottonwood Ranch OCSW & flow consolidation conceptual design, and wet meadows information review.
7) Approved proposed process for indexing Program funds.
8) Approved use of Program Staff and Program airboat at Cattleman's Ball fundraiser in June.
9) ED office will prepare a pallid sturgeon summary memorandum for the June 2010 GC meeting.
10) Approved land plans for Elm Creek Complex, Fort Kearny Complex, and 2009003.

Platte River Recovery Implementation Program Indexing Overview

1. All land acquisition costs will be indexed using the CCT Nebraska Land Index (Attachment 1).

2. The Program's Water Conservation/Supply projects will be indexed using the CCT General Property Index (Attachment 1).

3. All other Program costs will be indexed using the CCT Federal Salary Index (Attachment 1).

4. The first index to the Program will be applied on October 1, 2009 relative to a baseline starting on October 1, 2008 (Solicitor's Opinion – Attachment 2).

5. For each year thereafter, the index will be applied on October 1st to the funding which remains to be expended by the Program (the remaining amount of funding to be disbursed by the Nebraska Community Foundation).

Attached is the supporting material (Attachment 3) that reflects the balance of funds to be expended as of October 1, 2009, and the application of an index to the Program from October 1, 2008 to October 1, 2009. The application of the index results in a total Program ceiling increase from $187,140,000.00 ($157,140,000.00 Federal, $24,000,000.00 Colorado, $6,000,000.00 Wyoming) to $189,913,617.70 ($159,470,464.78 Federal, $24,346,925.79 Colorado, $6,096,227.13 Wyoming).

In order to maintain the established cost share equality between Federal and State contributions, an index adjustment will also need to be applied to the cash equivalent water and land contributions provided by the States. Section 515(b)(3)(B)(ii) of the Consolidated Natural Resources Act of 2008 (Public Law 110-229) (Attachment 4) establishes credits for contributions of land or water (credits established in the Program Finance Document - Attachment 5) for the purposes of implementing the Program, as determined to be appropriate by the Secretary of the Interior. Attachment 3 illustrates how the State cash equivalents can be indexed at the same rate as the cash contributions in order to maintain the cost share equality.

Bureau of Reclamation Construction Cost Trends

(Base: 1977 = 100 for Indexing Field Costs Only)

Item	2008 Jan	2008 Apr	2008 Jul	2008 Oct	2009 Jan	2009 Apr	2009 Jul	2009 Oct	2010 Jan	2010 Apr	2010 Jul	2010 Oct	2011 Jan	2011 Apr	2011 Jul	2011 Oct
Construction Indexes																
Earth dams	291	296	309	312	298	289	291	294								
Dam structure	257	262	271	274	266	260	265	268								
Spillway	323	329	347	349	326	311	312	315								
Outlet works	334	338	354	359	343	332	332	332								
Concrete dams	320	323	332	334	326	319	321	321								
Diversion dams	307	311	322	326	320	316	317	318								
Pumping plants	305	308	321	326	322	318	319	320								
Structures and improvements	308	312	326	330	320	315	316	318								
Equipment	307	309	321	329	329	326	328	328								
Pumps and prime movers	314	317	332	341	341	337	339	339								
Accessory elect. & misc. equip.	296	298	303	311	311	310	311	312								
Powerplants	302	306	317	322	318	319	321	323								
Structures and improvements	307	312	326	330	320	315	316	318								
Equipment	302	305	316	321	320	324	326	328								
Turbines and accessories	307	310	320	326	324	329	332	333								
Accessory elect. & misc. equip.	294	296	304	312	310	309	311	312								
Steel pipelines	326	328	347	361	362	352	350	350								
Concrete pipelines	296	305	314	318	317	316	317	317								
Canals	312	317	329	333	324	317	320	324								
Canal earthwork	295	300	311	315	305	298	304	308								
Canal structures	318	322	334	338	331	326	327	329								
Tunnels	332	337	347	353	348	345	346	346								
Laterals and drains	360	372	400	404	390	371	366	373								
Lateral earthwork	285	289	298	302	295	289	294	298								
Lateral structures	403	419	459	463	446	418	408	416								
Distribution pipelines	296	304	313	318	316	316	317	317								
Switchyards and substations	303	311	321	327	319	314	313	314								
Wood pole transmission lines	244	252	257	260	244	228	223	224								
Poles and fixtures	209	203	210	214	202	193	198	198								
Overhead conductors and devices	291	317	317	320	299	275	258	261								
Steel tower transmission lines	302	317	327	330	317	304	295	294								
Primary roads	320	323	339	340	327	316	316	316								
Secondary roads	394	399	416	418	409	393	397	396								
Bridges	342	346	354	360	358	354	356	357								
General property	294	295	308	317	307	304	304	305								
Composite trend	318	325	340	345	337	328	327	329								
Land Indexes																
Arizona	926	986	1046	1096	1146	1196	1246	1226								
California	720	750	780	815	850	885	920	890								
Colorado	420	445	470	490	510	530	550	525								
Idaho	506	546	586	616	646	676	706	656								
Kansas	245	257	269	284	299	314	329	314								
Montana	484	534	584	634	684	734	784	714								
Nebraska	260	272	284	309	334	359	384	369								
Nevada	784	849	914	969	1024	1079	1134	1079								
New Mexico	639	699	759	814	869	924	979	909								
North Dakota	215	225	235	255	275	295	315	310								
Oklahoma	250	260	270	282	294	306	318	313								
Oregon	440	455	470	495	520	545	570	560								
South Dakota	372	392	412	447	482	517	552	532								
Texas	418	448	478	513	548	583	618	593								
Utah	700	770	840	910	980	1050	1120	1020								
Washington	339	347	355	370	385	400	415	405								
Wyoming	421	456	491	526	561	596	631	596								
Other Indicators																
Machinery and equipment (BLS)	291	293	298	300	305	307	309	307								
Federal salary	316	316	316	316	328	328	328	328								

Inquiries to: 86-68170, Fax: (303) 445-6475

United States Department of the Interior

BUREAU OF RECLAMATION

OFFICE OF THE SOLICITOR
P.O. Box 31394
Billings, Montana 59107-1394

2009 MAY 11 PM 3 29

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May 11, 2009

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MEMORANDUM

TO: Regional Director, Bureau of Reclamation
Great Plains Region (GP-3400)

FROM: Karan L. Dunnigan, Field Solicitor
Rocky Mountain Region (Billings)

SUBJECT: Legal Opinion – Whether the Indexing Provision in P.L. 110-229 can be interpreted to begin on January 1, 2005, or must begin on October 1, 2008, the first October after the date of enactment.

You have requested an opinion as to whether the authorization by Congress of the Platte River Recovery Implementation Program and the indexing of appropriations for the Program can be calculated from the date when the authorization was introduced in Congress, January 1, 2005, or whether it may not begin until October 1, 2008, the first October after the Act was enacted.

Section 515 (b) (6) (C) of P.L. 110-229 reads as follows:

> Adjustment – The balance of funds remaining to be appropriated shall be adjusted for inflation on October 1 of the year after the date of enactment of this Act and each October 1 thereafter.

Paragraph (6) is a title reading "AUTHORIZATION OF APPROPRIATION." Subparagraph (A) reads "IN GENERAL – There is authorized to be appropriated to carry out projects and activities under this subsection $157,140,000, as adjusted under subparagraph (C)."

You have provided information to this office indicating that the amount of monies needed and intended for this program was determined when the bill containing the authorization was introduced into Congress and that initial legislation contained language that the costs were based on January 2005 levels. You provide further information that it was the intent that the amount of appropriations authorized by what is now subparagraph (A), be adjusted for inflation and that such an indexing provision is now in subparagraph (C). Your materials explain that when the Platte River Recovery Implementation Program legislation was eventually passed as part of the Consolidated Natural Resources Act of 2008, it did not contain the language concerning the 2005 cost levels. You provide as support for the above explanation, parts of the Program Document and the

Finance Document that we understand were generated by the Governance Committee for the Program. We do not have any information showing that these documents were submitted to Congress or that they reflect the intent of Congress.

When reviewing a statute, the reviewer examines the pertinent language in context. *Sutherland Statutory Construction, Statutes and Statutory Construction*, vol. 2A, § 46.06, 181-194, Norman J. Singer, ed. 6th ed. (Thomson – West 2005) states that within a statute each sentence, phrase and word must be given meaning. As we have reviewed Section 515 of the Consolidated Natural Resources Act of 2008, we have determined that the meaning of subparagraph (C) is clear on its face. Indexing for inflation is to begin on October 1 of the year after enactment of the Act. We understand that the intent of the sponsors of the legislation was to be able to index the subparagraph (A) costs from January of 2005. However, we do not find among the documents provided by your staff anything that would indicate that Congress intended such indexing to be begin earlier than expressed in the legislation.

You explain that the bill was introduced in 2005, but Congress did not finally pass the authorization until 2008. We find it credible that Congress may merely have forgotten to relate the indexing back to 2005 so that the costs of the program could account for inflation. However, we have not found any case law that would support an interpretation of relating back because of a mere oversight and no other expression of intent by Congress. We believe that such an interpretation would set a bad precedent for future legislative interpretation.

If you have further questions, please contact John Chaffin of this office at 406-247-7058.

Indexing the PRRIP

Index Calculation[1]

	October 2008		October 2009		Index Factor to Apply on 10/1/09
Land Index (Nebraska Land Index)	309	÷	369	=	1.19
Water Index (General Property Index)	317	÷	305	=	0.96
Other Cost Index (Federal Salary Index)	316	÷	328	=	1.04

Index Application

	A Original Program Budget[2]	B Expenditures Through 9/30/2009	C Budget Remaining As of 10/1/09 (A minus B)	D Index Applied on 10/1/2009 (C times Index)	E Total Budget Change (D minus C)	F New Program Ceiling (E plus A)
Land (Index 1.19)	$22,900,000.00	$3,516,024.28	$19,383,975.72	$23,066,931.11	$3,682,955.39	$26,582,955.39
Water (Index 0.96)	$90,140,000.00	$383,963.63	$89,756,036.37	$86,165,794.92	-$3,590,241.45	$86,549,758.55
Other (Index 1.04)	$74,100,000.00	$7,077,405.95	$67,022,594.05	$69,703,497.81	$2,680,903.76	$76,780,903.76
Total	$187,140,000.00	$10,977,393.86	$176,162,606.14	$178,936,223.84	$2,773,617.70	$189,913,617.70

State & Federal Shares - Original Total Program Cash Budget of $187,140,000[2] - New Ceiling of $189,913,617.70

Colorado	$24,000,000.00 / $187,140,000.00	÷	0.1282
Wyoming	$6,000,000.00 / $187,140,000.00	÷	0.0321
Federal	$157,140,000.00 / $187,140,000.00	÷	0.8397

	New Ceiling		Parties Share		Parties Share of New Ceiling
Colorado	$189,913,617.70	X	0.1282	=	$24,346,925.79
Wyoming	$189,913,617.70	X	0.0321	=	$6,096,227.13
Federal	$189,913,617.70	X	0.8397	=	$159,470,464.78

Maintaining the Original Cost Share - Original Program Budget of $317,330,000 ($187,140,000 Cash; $130,190,000 Cash Equivalents)[2]

State Contributions / Total Program	$160,190,000.00 / $317,330,000.00	=	0.5048	=	States Cost Share Ratio
Federal Contributions / Total Program	$157,140,000.00 / $317,330,000.00	=	0.4952	=	Federal Cost Share Ratio
New Federal Program Ceiling (Cash) / Original Federal Program Ceiling (Cash)	$159,470,464.78 / $157,140,000.00	=	1.015	=	Index Factor for State Cash & Equivalents

	Cash & Equivalents		Index Factor		New Value State Cash & Equivalents
Original Value State Cash & Equivalents	$ 160,190,000.00	X	1.015	=	$162,592,850.00

New Value State Cash & Equivalents	$162,592,850.00
New Federal Ceiling	$159,470,464.78
New Total Program	$322,063,314.78

New Federal Ceiling / New Total Program	$159,470,464.78 / $322,063,314.78	=	0.4952	=	Federal Cost Share Ratio
New Value State Cash & Equivalents / New Total Program	$162,592,850.00 / $322,063,314.78	=	0.5048	=	State Cost Share Ratio

1) Index calculated using the Bureau of Reclamation's Construction Cost Trends

2) Original Program Budget from the Program Finance Document

SEC. 515. PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM AND PATHFINDER MODIFICATION PROJECT AUTHORIZATION. State listing.

(a) PURPOSES.—The purposes of this section are to authorize—

(1) the Secretary of the Interior, acting through the Commissioner of Reclamation and in partnership with the States, other Federal agencies, and other non-Federal entities, to continue the cooperative effort among the Federal and non-Federal entities through the implementation of the Platte River Recovery Implementation Program for threatened and endangered species in the Central and Lower Platte River Basin without creating Federal water rights or requiring the grant of water rights to Federal entities; and

(2) the modification of the Pathfinder Dam and Reservoir, in accordance with the requirements described in subsection (c).

(b) PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM.—

(1) DEFINITIONS.—In this subsection:

(A) AGREEMENT.—The term "Agreement" means the Platte River Recovery Implementation Program Cooperative Agreement entered into by the Governors of the States and the Secretary.

(B) FIRST INCREMENT.—The term "First Increment" means the first 13 years of the Program.

(C) GOVERNANCE COMMITTEE.—The term "Governance Committee" means the governance committee established under the Agreement and composed of members from the States, the Federal Government, environmental interests, and water users.

(D) INTEREST IN LAND OR WATER.—The term "interest in land or water" includes a fee title, short- or long-term easement, lease, or other contractual arrangement that is determined to be necessary by the Secretary to implement the land and water components of the Program.

(E) PROGRAM.—The term "Program" means the Platte River Recovery Implementation Program established under the Agreement.

(F) PROJECT OR ACTIVITY.—The term "project or activity" means—

(i) the planning, design, permitting or other compliance activity, preconstruction activity, construction, construction management, operation, maintenance, and replacement of a facility;

(ii) the acquisition of an interest in land or water;

(iii) habitat restoration;

(iv) research and monitoring;

(v) program administration; and

(vi) any other activity that is determined to be necessary by the Secretary to carry out the Program.

(G) SECRETARY.—The term "Secretary" means the Secretary of the Interior, acting through the Commissioner of Reclamation.

(H) STATES.—The term "States" means the States of Nebraska, Wyoming, and Colorado.

(2) IMPLEMENTATION OF PROGRAM.—

(A) IN GENERAL.—The Secretary, in cooperation with the Governance Committee, may—

(i) participate in the Program; and

(ii) carry out any projects and activities that are designated for implementation during the First Increment.

(B) AUTHORITY OF SECRETARY.—For purposes of carrying out this section, the Secretary, in cooperation with the Governance Committee, may—

(i) enter into agreements and contracts with Federal and non-Federal entities;

(ii) acquire interests in land, water, and facilities from willing sellers without the use of eminent domain;

(iii) subsequently transfer any interests acquired under clause (ii); and

(iv) accept or provide grants.

(3) COST-SHARING CONTRIBUTIONS.—

(A) IN GENERAL.—As provided in the Agreement, the States shall contribute not less than 50 percent of the total contributions necessary to carry out the Program.

(B) NON-FEDERAL CONTRIBUTIONS.—The following contributions shall constitute the States' share of the Program:

(i) $30,000,000 in non-Federal funds, with the balance of funds remaining to be contributed to be adjusted for inflation on October 1 of the year after the date of enactment of this Act and each October 1 thereafter.

(ii) Credit for contributions of water or land for the purposes of implementing the Program, as determined to be appropriate by the Secretary.

(C) IN-KIND CONTRIBUTIONS.—The Secretary or the States may elect to provide a portion of the Federal share or non-Federal share, respectively, in the form of in-kind goods or services, if the contribution of goods or services is approved by the Governance Committee, as provided in Attachment 1 of the Agreement.

(4) AUTHORITY TO MODIFY PROGRAM.—The Program may be modified or amended before the completion of the First Increment if the Secretary and the States determine that the modifications are consistent with the purposes of the Program.

(5) EFFECT.—

(A) EFFECT ON RECLAMATION LAWS.—No action carried out under this subsection shall, with respect to the acreage limitation provisions of the reclamation laws—

(i) be considered in determining whether a district (as the term is defined in section 202 of the Reclamation Reform Act of 1982 (43 U.S.C. 390bb)) has discharged the obligation of the district to repay the construction cost of project facilities used to make irrigation water available for delivery to land in the district;

(ii) serve as the basis for reinstating acreage limitation provisions in a district that has completed payment of the construction obligations of the district; or

(iii) serve as the basis for increasing the construction repayment obligation of the district, which would extend the period during which the acreage limitation provisions would apply.

(B) EFFECT ON WATER RIGHTS.—Nothing in this section—

(i) creates Federal water rights; or

(ii) requires the grant of water rights to Federal entities.

(6) AUTHORIZATION OF APPROPRIATIONS.—

(A) IN GENERAL.—There is authorized to be appropriated to carry out projects and activities under this subsection $157,140,000, as adjusted under subparagraph (C).

(B) NONREIMBURSABLE FEDERAL EXPENDITURES.—Any amounts expended under subparagraph (A) shall be considered to be nonreimbursable Federal expenditures.

(C) ADJUSTMENT.—The balance of funds remaining to be appropriated shall be adjusted for inflation on October 1 of the year after the date of enactment of this Act and each October 1 thereafter.

(D) AVAILABILITY OF FUNDS.—At the end of each fiscal year, any unexpended funds for projects and activities made available under subparagraph (A) shall be retained for use in future fiscal years to implement projects and activities under the Program.

(7) TERMINATION OF AUTHORITY.—The authority for the Secretary to implement the First Increment shall terminate on September 30, 2020.

(c) PATHFINDER MODIFICATION PROJECT.—

(1) AUTHORIZATION OF PROJECT.—

(A) IN GENERAL.—The Secretary of the Interior, acting through the Commissioner of Reclamation (referred to in this subsection as the "Secretary"), may—

(i) modify the Pathfinder Dam and Reservoir; and

(ii) enter into 1 or more agreements with the State of Wyoming to implement the Pathfinder Modification Project (referred to in this subsection as the "Project"), as described in Appendix F to the Final Settlement Stipulation in Nebraska v. Wyoming, 534 U.S. 40 (2001).

(B) FEDERAL APPROPRIATIONS.—No Federal appropriations are required to modify the Pathfinder Dam under this paragraph.

(2) AUTHORIZED USES OF PATHFINDER RESERVOIR.—Provided that all of the conditions described in paragraph (3) are first met, the approximately 54,000 acre-feet capacity of Pathfinder Reservoir, which has been lost to sediment but will be recaptured by the Project, may be used for municipal, environmental, and other purposes, as described in Appendix F to the Final Settlement Stipulation in Nebraska v. Wyoming, 534 U.S. 40 (2001).

(3) CONDITIONS PRECEDENT.—The actions and water uses authorized in paragraphs (1)(A)(i) and (2) shall not occur until each of the following actions have been completed:

(A) Final approval from the Wyoming legislature for the export of Project water to the State of Nebraska under the laws (including regulations) of the State of Wyoming.

(B) Final approval in a change of water use proceeding under the laws (including regulations) of the State of Wyoming for all new uses planned for Project water. Final

approval, as used in this subparagraph, includes exhaustion of any available review under State law of any administrative action authorizing the change of the Pathfinder Reservoir water right.

SEC. 516. CENTRAL OKLAHOMA MASTER CONSERVATORY DISTRICT FEASIBILITY STUDY.

(a) STUDY.—

Deadline.

(1) IN GENERAL.—Not later than 3 years after the date of enactment of this Act, the Secretary of the Interior, acting through the Commissioner of Reclamation (referred to in this section as the "Secretary"), shall—

(A) conduct a feasibility study of alternatives to augment the water supplies of—

(i) the Central Oklahoma Master Conservatory District (referred to in this section as the "District)"; and

(ii) cities served by the District;

(2) INCLUSIONS.—The study under paragraph (1) shall include recommendations of the Secretary, if any, relating to the alternatives studied.

(b) COST-SHARING REQUIREMENT.—

(1) IN GENERAL.—The Federal share of the total costs of the study under subsection (a) shall not exceed 50 percent.

(2) FORM OF NON-FEDERAL SHARE.—The non-Federal share required under paragraph (1) may be in the form of any in-kind services that the Secretary determines would contribute substantially toward the conduct and completion of the study.

(c) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Secretary to conduct the study under subsection (a) $900,000.

TITLE VI—DEPARTMENT OF ENERGY AUTHORIZATIONS

SEC. 601. ENERGY TECHNOLOGY TRANSFER.

Section 917 of the Energy Policy Act of 2005 (42 U.S.C. 16197) is amended to read as follows:

Grants.

"SEC. 917. ADVANCED ENERGY TECHNOLOGY TRANSFER CENTERS.

Deadline.

"(a) GRANTS.—Not later than 18 months after the date of enactment of the National Forests, Parks, Public Land, and Reclamation Projects Authorization Act of 2008, the Secretary shall make grants to nonprofit institutions, State and local governments, cooperative extension services, or institutions of higher education (or consortia thereof), to establish a geographically dispersed network of Advanced Energy Technology Transfer Centers, to be located in areas the Secretary determines have the greatest need of the services of such Centers. In making awards under this section, the Secretary shall—

"(1) give priority to applicants already operating or partnered with an outreach program capable of transferring knowledge and information about advanced energy efficiency methods and technologies;

"(2) ensure that, to the extent practicable, the program enables the transfer of knowledge and information—

PLATTE RIVER RECOVERY IMPLEMENATION PROGRAM

ATTACHMENT 1

FINANCE DOCUMENT
CREDITING AND EXIT PRINCIPLES
AND
PROGRAM BUDGET

PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM
Attachment 1

Finance Document
Crediting and Exit Principles
And
Program Budget

December 7, 2005

Table of Contents

I. INTRODUCTION

A. Purposes

The purposes of this document are (1) to establish credits for certain cash, cash equivalent, water, and land contributions made by or on behalf of the parties to the Platte River Recovery Implementation Program Cooperative Agreement (the Program); (2) to provide guidance for use in determining other credits earned by or on behalf of the parties during the First Increment of the Program; (3) to establish principles for disposition, should the Program terminate, of assets acquired or contributed to accomplish the objectives of the Program; (4) to provide guidance on the ESA credits that might be available for use in consultation with the Fish and Wildlife Service should the Program terminate; and (5) detail the Program budget and the cash flow requirements for the First Increment of the Program.

B. Definitions of Terms

1. Cash Contributions - The respective amount of money that each signatory will contribute to the Program Budget during the First Increment. The records of the Financial Management Entity (FME) will be used to determine the amount and date of each signatory's actual cash contributions.

2. In-kind Contributions - During the First Increment of the Program, signatories may elect to be "Water Project Sponsors" or "Sponsors of Program Lands," as defined in Sections VIII.C and VIII.D of Attachment 6, respectively, in lieu of making their required Cash Contributions. In addition, a signatory may propose and the Governance Committee may approve agreements whereby signatories elect to provide technical or other services as in-kind contributions in lieu of making its Cash Contribution. The agreements between the signatory and the Governance Committee documenting these transactions will include the credit the signatory will receive toward its respective Cash Contribution. In addition, the agreements will address the disposition of the Program Assets provided by the in-kind contribution in the event of Program dissolution. (In-kind contributions do not include the costs associated with providing representatives on the Governance Committee, Oversight Committee or other committees established by the Governance Committee.)

3. Cash Equivalents - The states of Colorado, Nebraska, and Wyoming (the states) will be contributing water from the three initial Program water projects and the use of lands for Program purposes, herein defined as Cash Equivalents, in order to match, in part, the Cash Contributions of the Department of the Interior (DOI). During the Program, additional Cash Equivalent Contributions to the Program may be proposed. Such contributions will need to be approved by the Governance Committee before any crediting is authorized. The review and ultimate approval will have two elements: (1) whether the activity merits Cash Equivalent credit, and (2) if so, in what amount (potentially measured by value to the Program in meeting its First Increment objectives rather than by the level of expenditure).

4. Program Assets - Subject to the provisions in Section III, those assets acquired through the Cash Contributions of the signatories are considered Program Assets for purposes of this Attachment 1. Program Assets include, but are not limited to, land interests acquired through fee title, easements, or leases to the extent such easements and leases survive Program termination. Program Assets also include water interests and projects acquired through project construction or leases to the extent such leases survive Program termination. While the water from the three initial Program water projects and the use of Cottonwood Ranch and Deer Creek lands are considered Cash Equivalents for purposes noted in Section I.B.3 above, the projects and lands are not Cash Equivalents or Program Assets for purposes of determining a Signatory's Share of Program Assets as provided in Section I.B.5 below and those projects and lands are not subject to disposition by the Governance Committee. Neither Program dissolution nor withdrawal of a signatory party will have any impact on the ownership of any such projects or lands nor will it have any effect on the rights of the state where the project or land is located, or of entities within that state, to administer the project or land in accordance with applicable law.

5. Signatory's Share of Program Assets - Each signatory's respective share of the Program Assets will be equal to that signatory's total cash contributions at the time of Program dissolution compared against the total Cash Contributions made by all of the signatories at the time of Program dissolution For example, if Signatory A has made Cash Contributions totaling $3M to the Program and all of the signatories, including Signatory A, have made cash contributions totaling $100M to the Program at the time of dissolution, Signatory A would have an interest in 3% of the Program Assets.

II. CREDITING UNDER THE PROGRAM

The following table depicts the Cash Contributions and Cash Equivalent Contributions that will be provided by the DOI and the states during the First Increment of the Program:

Program Contributions
(values in millions of dollars)

Contributions	Total	DOI	States	Description
Cash	187.14	157.14	30.0	Colorado – 24.0; Wyoming 6.0
Cash Equivalents				
Land	10.0		10.0	Cottonwood Ranch/Deer Creek Lands
Water	120.19		120.19	Water from three initial projects
Total	**317.33**	**157.14**	**160.19**	

III. DISTRIBUTION OF PROGRAM ASSETS AND ESA CREDITS FOLLOWING PROGRAM TERMINATION OR SIGNATORY WITHDRAWAL

A. Principles Governing Dissolution of the Program

Consistent with section II.E. of the Program Agreement, if the Secretary of the Interior and the Governors of Colorado, Nebraska and Wyoming decide to dissolve the Program before the end of the First Increment or to not pursue a second increment of the Program, or if the Program is dissolved as the result of a signatory's withdrawal, the Program Governance Committee is dissolved and the signatories agree to form a signatory committee to satisfy the signatories' existing legal obligations under contracts and arrange for disposition of Program Assets. Other members of the Program Governance Committee may be invited to advise signatories in that regard. In the event that any signatory is unable or unwilling, following a decision to dissolve the Program, to continue to participate on such signatory committee, the remaining signatories shall be fully empowered to make such decisions and take such actions as are necessary to meet the signatories' legal obligations under the contracts with the Financial Management Entity (FME) and the Land Holding Entity (LHE) and properly dispose of Program Assets.

1. The signatory committee will remain functional until such time as the signatories' legal obligations under existing contracts and agreements are met and the disposition of Program Assets is resolved, including any outstanding payments due and payable to a "Water Project Sponsor" or "Sponsors of Program Lands." Until an asset is no longer the responsibility of the signatories, the signatories agree to ensure that FME will continue to pay property taxes and retain liability insurance. The signatories agree to manage the property in compliance with the "good neighbor" policy.

2. A signatory or a partnership of signatories may wish to purchase the shares in the Program Assets of any signatory or signatories wishing to sell, under the condition that the Program Assets will continue to be managed to provide habitat for the target species. If this occurs, the signatory committee will have the FME acquire the services of an independent appraiser to complete an appraisal of the Program Assets. The appraisal will be based on the continued use of the Program Asset to provide habitat to the target species. If the Program Governance Committee had previously established the appraised value or a method for determining the appraised value of a particular Program Asset in the event of Program dissolution, that value or method shall be used. The signatory or partnership of signatories may purchase the shares of the selling signatories at a price equal to the respective selling signatories' share of the Program Assets times the appraised value of the Program Assets. If the purchased Program Assets are land, those lands will be held by the Land Holding Entity or a successor selected by the purchaser and approved by the signatory committee as a condition of the sale. (A signatory state may offer to donate its interest in a Program Asset to another signatory or partnership of signatories and seek ESA credit from FWS in future reinitiated consultations in that state for the continuing benefits provided to the target species as a result of the donation.)

3. If none of the signatories are interested in acquiring Program Assets as described in Section III.A.2 above, the signatory committee will entertain offers from water user

and environmental entities to purchase the Program Assets under the condition that the Program Assets will continue to be managed to provide habitat for the target species. If the purchased Program Asset is land, that land will be held by the Land Holding Entity or a successor selected by the purchaser and approved by the signatory committee as a condition of the sale. The proceeds of the sale, after expenses, will be distributed to the signatories in accordance with their respective Signatory's Share of the Program Assets.

4. If the Program Assets are not purchased in accordance with Sections III.A.2 or 3 above, the signatory committee shall oversee the sale of such assets. Such sale may be made without the condition that the Program Asset must be managed to provide habitat for the target species. The proceeds of the sale, after expenses, will be distributed to the signatories in accordance with their respective Signatory's Share of the Program Assets.

B. ESA Credits

In the event of Program dissolution, if a state agrees to and continues to carry out the responsibilities it had under the Program, there is a presumption that such actions are sufficient to provide ESA compliance with respect to all water related activities in that state until any reinitiated consultations have been completed. When a state agrees to and continues to carry out the responsibilities it had under the Program, that state and any water related activities covered also retain the right to argue that the responsibilities undertaken are sufficient to constitute long term ESA compliance for the reinitiated consultations. FWS agrees to consider these undertakings in any reinitiated Section 7 consultations, including in the development of new reasonable and prudent alternatives or other measures.

In addition, to the extent the states respective contributions of cash, water (through the initial Program water projects), and land (Cottonwood Ranch and Deer Creek lands) will continue to benefit the target species beyond the dissolution of the Program, the states retain the right to argue that such future benefits resulting from their contributions should be considered in any reinitiated consultations. The FWS will give due consideration to these contributions and their resulting subsequent benefits to the target species and habitat in any reinitiated consultations.

IV. PROGRAM BUDGET AND CASH FLOW REQUIREMENTS

Activity	Estimated Cash Needs in 2005 Dollars (Millions)	Cash Equivalent Credit (Millions)
Water (130-150KAF)		
Three State Water Projects (80KAF)[1, *]		$120.19
Water Conservation/Supply (60KAF)[2]	$90.14	
Project Permitting[3]	$1.35	
Bypass	$3.08	
Channel Capacity Issues	$1.00	
Subtotal Water	$95.57	$120.19
Land (10K Acres)		
Cottonwood Ranch Acquisition (2,650 A, cash equivalent)[4, *]		$8.50
Wyoming's Deer Creek Property		$1.50
Acquisition (7,350A)[4]	$22.90	
0&M (Includes clearing)	$10.00	
Investigation/Leveling Act.[5]	$3.35	
Taxes	$1.53	
Project Perm. & LAC[3]	$1.35	
Subtotal Land	$39.13	$10.00
Program & Project Monitoring and Research[6]	$30.00	
Program & Project Administration (@ 1.49M/Yr)[7]	$19.37	
Third Party Direct Impact Mitigation Contingency and Liability	$0.67	
Peer Review and Independent Science Advice[8]	$2.35	
Program Legal Fees[9]	$0.05	
Totals	**$187.14**	**$130.19**

Estimated Total First Increment Cash and Cash Equivalent Costs **$317.33**

* Indicates items for cash equivalent or in-kind contribution credit

[1]Three State Water Projects (80AF) from the Reconnaissance - Level Water Action Plan, Page 105, September 14, 2000 Reconnaissance - Level Water Action Plan, Page 108-109, September 14, 2000

[2]Estimate based on review of Reconnaissance-Level Water Action Plan.

[3]Project specific compliance with state and federal laws and regulations including NEPA requirement, and ESA requirements for protected species not covered by the Program.

[4]Cost for Cottonwood Ranch negotiated for in the Cooperative Agreement. Other purchase costs assume approximately $3,100/ac.

[5]Preliminary cost associated with moving 40 acres of land, 4 feet deep (per analysis in EIS) at cost of $1/yard.

[6]Monitoring and Research costs estimated by the Technical Committee, including Parsons/EIS Team estimate for Sediment/Vegetation and additional tasks identified by Governance Committee (e.g. water quality)

[7]Executive Director, staff, office space, travel, etc.

[8]Includes assistance for implementing the AMP and peer review of individual documents.

[9]Estimate includes assistance in developing Program, land, water entities, contracts, taxes, etc.

PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM
Land Advisory Committee Meeting Minutes
Executive Director's Office – Kearney, NE
April 9, 2010

Attendees

Scott Woodman, Chair, Landowner, Central Platte Natural Resources District
Mark Czaplewski, Vice Chair, Central Platte Natural Resources District
Jerry Kenny - Executive Director
Bruce Sackett - ED Office
Justin Brei - ED Office
Jason Farnsworth - ED Office
Tim Tunnell - ED Office
Chad Smith - ED Office
Greg Wingfield - U.S. Fish & Wildlife Service
Matt Steffl - Nebraska Game & Parks Commission
Ted LaGrange - Nebraska Game & Parks Commission
Jennifer Schellpeper - State of Nebraska Department of Natural Resources
Harry LaBonde - State of Wyoming
Ted Kowalski - State of Colorado (by phone)
Joe Frank - State of Colorado (by phone)
Jim Jenniges - Nebraska Public Power District
Kent Aden – Central Nebraska Public Power & Irrigation District
John Thorburn - Tri-Basin Natural Resources District
John Heaston - The Nature Conservancy
Brock Merrill - U.S. Bureau of Reclamation

Welcome and Administrative

Chairman Scott Woodman called the meeting to order at 9:00 am Central Time and the group proceeded with introductions.

Woodman asked for agenda modifications. The agenda listed an incorrect date for the action item of approval of the prior meeting minutes. The date was changed from January 19 to January 29.

LaBonde made a motion to approve the minutes from the January 29 LAC meeting. The motion was seconded by Czaplewski and passed unanimously.

GC Meeting Update

Czaplewski gave an update on GC activities since the LAC last met. The GC met on March 9 & 10, 2010 in Kearney, NE.

GC action items for their recent meeting included the approval of: tern and plover monitoring protocol, water quality monitoring protocol, process for indexing of Program funds (which adjusts Program allocations for inflation), and agreement with CNPPID for pursuing reregulating reservoirs.

In addition, the GC approved the land management and complex management plans that were previously approved by the LAC.

The next GC meeting is scheduled for June 8 & 9 in Cheyenne, WY.

Other Committee Coordination Information

Smith gave a brief update on recent TAC activities. Work is beginning to prioritize the subset of "priority hypotheses" as well as the triggers that will determine when these hypotheses are valid or not. The TAC has been reviewing and refining tern and plover monitoring and research protocols as well as the wet meadow information review RFP.

Kenny gave an update on recent WAC activities. The WAC has been focusing on the reregulation reservoir investigations. Contractors have completed exploratory soil borings near the proposed J-2 reregulating reservoir and are working on a feasibility analysis scope to be completed by the end of 2010. The Program has also partnered with CPNRD for analysis of the Elm Creek Reservoir alternative.

Discussion of Evaluation Team Recommendation 0919 & Reconsider a Portion of 818 as a Lease

Sackett introduced tract 0919 and discussed the evaluation team's site visit. The evaluation team recommended that the LAC not pursue tract 0919. NPPD maintains a management lease on the property through 2026 for the purpose of maintaining tern and plover habitat.

Sackett offered that TAC may wish to pursue the tract as a source of sediment for sediment augmentation. LaBonde asked if those actions could take place within the terms of NPPD's lease agreement. Jenniges said it is not likely. The lease is for tern and plover management activities. Steffl asked if the owner was anxious to sell or was there time for the TAC to examine the potential for other purposes. Sackett said probably not more than a few months.

Czaplewski moved to accept the evaluation team's recommendation to decline pursuit of 0919 for habitat and recommends that the TAC or WAC examine potential for sediment augmentation. LaBonde seconded and the motion passed unanimously.

Sackett then discussed the terms of a proposed management lease on tract 0818. The lease would cover approximately 15 acres of sandpit habitat through 2019. The Program pursued the purchase of this property in its entirety in 2009, but the negotiations were not successful. Several LAC members expressed concern over the lease requirement that the Program take on liability for fines for activities on the leased area.

LaBonde moved to recommend that the GC pursue the lease under the presented terms, and asked that the ED office identify past or future MSHA liabilities before presentation and approval by the GC. Motion seconded by Czaplewski and passed unanimously.

Update on Land Management

Tunnell gave a PowerPoint presentation on a number of land management activities under way.

- 2008001: Fence reworking still under way. Power lines south of property have been removed and solar livestock watering well in place on south 2008001. Some seeding planned both north and south of river in late spring. Prescribed burn planned on islands between the high banks for late spring.
- 2008002: IFB 09:05 and 09:06 have been completed by Hood Construction (leveling of in-channel island and removal of tree piles in off-channel sand and water area). Tunnell is working with NPPD and CPNRD to plan a late spring prescribed burn for Lloyd Island and a half section of wheatgrass south of the river on 2008002.
- 2009001 & 2009004: Tree and debris removal in ditches along Kilgore Rd. is complete. Seeding is planned for later this spring. .
- 2009003: Residence removal is scheduled for April 15, 2010. Power lines to residence have been removed and power has been run to east entrance to run gate to be installed this spring. The lodge has been cleaned and brought into shape to house summer technicians, who will be moving in prior to tern and plover nesting season. IFB 09:08 has been completed (clearing of trees in and south of channel). Old food plots have been disced and seeded to grass.
- 2009005: Home site to be seeded this spring. Planning to develop bid package for tree removal, fence upkeep, for work to begin in late summer or early fall.
- 2009008: Vegetation has been cleared for tern and plover habitat. Preliminary discussions are under with Ducks Unlimited to assist with development of fencing bid package.
- 2010001: Ducks Unlimited is moving forward with habitat construction under a NAWCA grant on southern parts of 2010001 as well as adjacent NPPD and DU lands.

Brei asked the LAC for volunteers to participate in a subgroup to begin development of land management plans for the next round of recent land purchases. Steffl, Czaplewski, Jenniges, Aden, and Wingfield volunteered.

Land Trades

Sackett distributed information on potential land trades prior to the LAC meeting. These trades are primarily to fix existing boundary issues to satisfy Program needs and good neighbor policy considerations.

Wingfield moved to recommend approval of trades on 2009003 and 2009004 as presented. Heaston seconded and the motion passed unanimously.

Sackett was asked about the status of potential land trades for the parts of 2009008. Jenniges asked if USFWS has considered whether one of the possible targets (East Odessa WMA), would

be considered complex habitat or not if acquired by the Program. Wingfield said USFWS is proceeding with the assumption it would be considered complex. Czaplewski recommends that the LAC perform a typical evaluation team site visit once trade terms are outlined.

Outdoor Recreation Policy Discussion

Sackett said the Program needs to begin development of recreational access policies for Program property, including hunting. Calls are coming more and more frequently from interested public. The ED office invited interested public to a meeting on March16 to provide ideas for possible access policies. Sackett provided the LAC a document outlining some of those ideas. To this point, the focus has been from the good neighbor policy perspective in reducing deer population. Wingfield asked what the purpose of the supervisors was. Sackett said they are to handle first level problems; primarily their function is to reduce administrative burden on Program staff. Jenniges asked how supervisors would be selected. Sackett said this is being treated as a private land situation, and the ED office would select supervisors. LaGrange asked why discussions to this point have not included hunting for waterfowl or upland species, potentially bracketing access dates. Sackett said experiences so far have been negative with other species, but they are not being ruled out completely at this time. Kenny said these recreational access discussions are just beginning, and they are important, but on the list of Program priorities it is fairly low. Sackett said the approach is to start small. The whole process will be probationary. If there are too many impacts to other Program priorities, access can be removed. Over the next few months, Sackett will flesh out a plan to solicit comments.

Public Comment/Closing Business

Chairman Woodman asked for public comments, none were offered.

The next meeting of the LAC will be held in Kearney, Nebraska at the Executive Director's Office on Friday, June 15, 2010 at 9:00 a.m. central time.

Executive Session

LaBonde moved to go into executive session with LAC members, alternates, and technical staff to review details of land offerings. The motion was seconded by Merrill. The motion carried and the committee entered executive session at 12:46 a.m.

Wingfield moved to come out of executive session. Merrill seconded and the motion carried. The committee came out of executive session at 1:08 p.m.

Discussion of Tabled LAC Recommendations

Sackett brought forth four tracts which had been tabled at previous LAC meetings. These tracts were presented to remind the LAC of their status, and to give the LAC the opportunity to act on them should they desire. LaBonde asked of the status on 0917. Sackett said the property has changed hands, and is not a priority for the Program.

LaBonde moved to take 0917 off of further agendas and remove it from further consideration by the Program. Heaston seconded and the motion passed unanimously.

Sackett gave status updates on 0918 and 0911 as well. Tract 0918 was tabled previously to give other conservation owners an opportunity to pursue it before the Program turned it down. These discussions have occurred and they are working to purchase the property.

Heaston moved to remove 0918 from further consideration by the Program. Motion seconded by Jenniges and passed unanimously.

0911 was being pursued as a potential trade land and has since been sold.

Wingfield moved to remove 0911 from further consideration by the Program. Motion seconded by LaBonde and passed unanimously.

With no further business, the meeting was adjourned by Chairman Woodman at 1:17 p.m.

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

May 11, 2010

ED Office Note: The WAC has reviewed but has not yet approved of these draft minutes.

Attendance

Cory Steinke – WAC Chair, CNPPID
Jerry Kenny – Executive Director, Headwaters Corp
Beorn Courtney – ED Office/Headwaters Corp
Laura Belanger – ED Office/Headwaters Corp
Steve Smith – ED Office/Headwaters Corp (by phone/Webex)
Doug Hallum – NDNR
Dennis Strauch – Pathfinder Irrigation District
Jeff Shafer - NPPD
Jon Altenhofen – Northern Colorado WCD
Duane Hovorka – Nebraska Wildlife Federation
Mike Besson – Wyoming Water Development Office
Mike Drain – CNPPID
Rich Holloway – Tri-Bain NRD
Pat Goltl – NDNR
Brock Merrill – Bureau of Reclamation
Jeff Runge – U.S. Fish and Wildlife Service
Duane Woodward – Central Platte NRD
Matt Hoobler – Wyoming SEO
Greg Wingfield - U.S. Fish and Wildlife Service
Kent Miller – Twin Platte NRD

Other Attendees
Kevin Prior – Olsson Associates
Karen O'Connor – Olsson Associates
Ted Tietjen – Republic River Restoration Partners
Eric Dove – Olsson Associates (by phone)
John Engel – HDR (by phone)
Tom Riley – Flatwater Group
Marc Groff – Flatwater Group
Dean Eisenhauer – University of Nebraska at Lincoln

Welcome and Administrative

Introductions were made. There were no agenda modifications. **The February WAC Minutes were approved with no modifications.**

Federal Depletions Plan Update

Jeff Runge referred to federal depletions plans referral packet that had been provided, noting that several agreements have been signed regarding how depletions associated with federal water-related activities may be addressed in Colorado. Matt Hoobler provided an update on Wyoming's work with the Fish and Wildlife Service (FWS) toward a similar agreement in Wyoming. Wyoming has provided comments and intend to have a signed agreement by the June Governance Committee (GC) meeting. Runge said that Nebraska hasn't done an update as there are currently no federal projects impacted in the state. Runge also noted that by the end of the year the FWS will probably be working with Nebraska to allow for federal depletions. He said that there shouldn't be any conflict between state and federal depletions plans.

Colorado Depletions Plan Update

Jon Altenhofen provided a handout and referred to Colorado's annual depletions report that had been sent out with the meeting materials. He explained that the state uses State Demographer data regarding population estimates to develop Colorado's plan for future depletions. Altenhofen said Colorado' update includes a few changes in assumptions that were previously approved by the WAC and the GC. He then provided an overview of the State's calculations and South Platte Water Related Activities Program (SPWRAP) which will fund Colorado's depletion plan. Altenhofen also said that the state has been meeting their depletions plan obligations.

Wyoming Depletions Plan Update

Matt Hoobler referred to Wyoming's 2009 Depletions Report which was sent out with the meeting materials. He went over data the state has collected and reviewed. He noted that 14 federal projects and 7 wetlands projects were examined for their impact on depletions. Wyoming met all their requirements as documented in the report. In response to a question, Hoobler clarified that the State Engineer's Office (SEO) isn't currently permitting any new irrigation applications for new lands except in non-hydrologically connected areas or for supplemental supply to existing lands. They are monitoring uses as measured against their settlement decree and may consider allowing new irrigation permits at some point in the future.

Nebraska Depletions Plan Update

Doug Hallum explained that Nebraska's Depletion Plan is not yet complete. He reviewed progress the state has made towards steps outlined in their 2008 report. Nebraska anticipates having a completed depletions plan by December 2010. At this time the state and natural resource districts (NRDs) intend to offset all depletions to state protected flows. Hallum also noted that since 2005 (when the moratorium went into place) any "new" approved uses are really transfers or different use/locations, so are not a new depletion. Duane Hovorka noted that trying to offset new depletions resulting from new permits prior to offsetting existing depletions increases competition for and cost of water.

WAP Scoring Case Study Update

Beorn Courtney reminded the group that the GC formed a Scoring Subcommittee in December. This was prompted in order to review the various target flows and their use in scoring. John

Lawson is the chair. The subcommittee used the CNPPID Reregulating Reservoir (the project we currently know that most about) as a case study to evaluate how it would be scored. The pre-feasibility study design parameters for the J-2 Alternative 2, Areas 1 and 2 were used. Scoring was done using a continuous daily simulation in Excel of the OPStudy 48 year period with OPStudy hydrology, attempting to be consistent where possible with the OPStudy model. The score was based solely on target flow operations, though the reservoir was designed around the ability to augment a short duration high flow (SDHF). Courtney provided an overview of sensitivities analyses completed, including: reregulating or not reregulating Environmental Account (EA) flows released from Lake McConaughy, use of various target flows, and the gage used to calculate excess flows and shortages. Potential adjustments to score for SDHF or other uses were also discussed with the decision that for this case study no scoring adjustment would be proposed. The main finding of this work was that, for the CNPPID reregulating reservoir, the yield is most sensitive to the design capacity of the reservoir. The preliminary project score is about 40,000 acre-feet for the pre-feasibility level design. The subcommittee believes using a similar approach and going through a sensitivity analysis is sound for use with other projects, although specific analyses may be different. As the feasibility study for this project is complete, the score can be updated. Though a daily analysis was appropriate for this case study, that may not be the case for all WAP projects. Courtney also gave the WAC a heads up that a few items were put on a short list of things that may possibly come in front of the WAC to be investigated later.

CNPPID Reregulating Reservoir Scoping

Courtney told the group that since the last WAC meeting the GC approved of the field work contract with Olsson Associates (Olsson). Boring samples were collected in the areas of interest (J-2 Alternative 2, Areas 1 & 2) and cross sections of Phelps County Canal were surveyed. Olsson has also started incorporating LiDAR data into AutoCAD. Wetland work will be completed this week and a report provided by end of this month. The full geotechnical report won't be completed until the next phase of this project is approved. Courtney told the group that we were unable to get permission from the land owner for one of the three parcels that constitute Area 2. Plum Creek also runs through this section of Area 2. For now we are moving forward assuming this area is unavailable. Mike Drain said that unless we know this parcel is off the table, it might be better to slow down the schedule for this project rather than to lose the potential yield associated with this area. He said we shouldn't let the lack of access for field work this year remove this area from consideration. Courtney said we are going to update the storage and yield now that we have better data and potentially consider a new area to the south of Area 1. Eric Dove noted that pre-feasibility storage was based on gravity feed so it may be possible to increase J-2 storage even with the decrease in surface area by pumping to fill a reservoir with higher embankments. Courtney reminded the group that the pre-feasibility study normal year yield at Overton for this alternative was 47,480 acre-feet. Using the same assumptions, the continuous simulation showed an average yield at Overton of 47,621 acre-feet and a routed yield at Grand Island of 42,181 acre-feet. This shows that the representative normal year used in the pre-feasibility study provided good information.

The ED Office has been working with Olsson to scope the next phase of the J-2 Reregulating Reservoir Feasibility Study. We are hoping to get this work started by the end of the month and would like the WAC to recommend the scope to the Finance Committee (FC). The scope is within the budget limits for the project so it doesn't need to go back to the GC. The FC meeting hasn't been scheduled yet.

Altenhofen pointed out that in the draft scope the final report is scheduled for January of 2011. He asked how final will the design be at this time. Jerry Kenny said that the scope is designed so that we will be confident of the cost of the reservoir and associated facilities within 25%. The design may not necessarily be at this percentage level nor would the design be at a level to sufficient to release plans and specifications except possibly to a design/build contractor. Mike Besson said that the Army Corps of Engineers is going to want good information on the design. Altenhofen recommended that including an operating manual would be helpful. Kenny noted that this level of detail is probably for the next phase. The budget is still being discussed but is between $300,000 and $350,000. He also said the scope will be an amendment to the field work contract rather than a new contract. **The WAC scheduled a follow-up conference call on May 20, 2010 at 9:00 AM mountain time to discuss this. The group should get comments to the ED Office by noon on the 19th, though sooner is preferable so the ED Office can forward any significant issues to the group. If a call is not necessary the ED Office will let the group know on the 19th.** Cory Steinke told the group that unless the ED Office receives comments that someone is opposed to the scope being approved, we will assume everyone is supportive and it will be recommended to the FC.

Courtney discussed some of the analyses that would be completed under the contract as well as the phasing, including evaluating the potential use of the project for hydrocycling mitigation.

Water Management Incentives Pre-Feasibility Study

Kenny reminded the group that the Water Management Incentives WAP project looks at projects that could reduce consumptive use and result in additional river flows. Kenny, NDNR, Tri-basin, and Central Platte NRD (CPNRD) have been working with Flatwater and the University of Nebraska at Lincoln (UNL). Tom Riley reviewed a feasibility study scope the group has developed to evaluate existing knowledge and identify practices to increase returns flows, considering temporal and spatial impacts. Runge asked if there were enough quick response areas, considering the Program's first increment, for Nebraska and Program needs. Kenny said that they are planning on looking at areas that would have timely impacts to the river. He stressed that the first phase of the project is designed to gain information so we don't know what the findings will be. Some longer response time projects could end up being of interest. Riley confirmed that both surface water and ground water irrigation would be examined. They will examine anything that impacts consumptive use. Kenny said that he is hoping for consensus from the group in support of the scope. Brock Merrill asked if there was any potential for cost-sharing from the State or the natural resource districts (NRDs). Kenny said that for this phase the Program intends to pay for it though there is a lot of interest in the results so cost-sharing could be possible for future phases.

Drain said this project looks almost like it's at design level, though we haven't yet done enough feasibility level analysis to determine if this project is appropriate for the Program. Altenhofen stated that this shouldn't turn into a research program, noting that we have the conjunctive management tool and COHYST. We don't want to reinvent these tools that already exist. He said Task 1 is important so we could review existing practices and put some economics on it. UNL and other universities have been doing research regarding on-farm deficit irrigation. We shouldn't be doing that. Kenny explained that existed tools were the starting place, but that modifications might be needed. Further, the research items were potential options in subsequent phases, not the initial phase. Information had been included so that the cost of such research was before the group to understand the cost implications of pursuing that option. Drain asked if the proposed budget was a reasonable amount of money to putting towards the level of investigation currently needed. Kenny reviewed pre-feasibility level costs for other projects, noting that they are similar. Drain commented that he's not sure the deliverables match the price but he knows Flatwater does good work so that made him more comfortable. He suggested additional detail on the deliverables be provided. Drain also suggested that the WAC be given more time to review things such as this so that the group has more than one meeting to discuss an item with such a large budget prior to it being recommended to the GC or FC. He suggested that it would be useful to expect that more than one meeting would be needed. If something needs to move faster, a subcommittee could be formed. He also recognized the Program's tight schedule.

Altenhofen said that he would like to see a lot more detail in the scope tasks to understand how the COHYST model will be used specifically. He suggested we first do the literature review, then think about the next phase focusing on specific practices that look promising. Besson had similar concerns regarding how this relates to other things going on. Drain told the group that conjunctive management components have been added to COHYST and Duane Woodward summarized the current status and capabilities of the model. Altenhofen expressed concern about the Phase II schedule starting in August 2010. Wingfield expressed support of moving forward on "new water" projects in addition to reregulated water projects, but he also wondered if there could be a more preliminary investigation first. The group asked for more details in a scope. **Kenny said that in response to WAC comments, the scope will be adjusted to be more phased and will contain additional detail.** Ted Tietjen suggested that the group look at issues at a watershed level, noting that there can be a lot of unintended consequences to actions if this is not done.

Elm Creek Pre-Feasibility Update

Kenny reminded the group that the Olsson team has been looking at various aspects of an Elm Creek reservoir project. CPNRD is in the lead on this project, which is now being considered for its potential to provide additional benefits for the Program. Kevin Prior told the group that flooding has been a problem in the village of Elm Creek (downstream of the proposed Elm Creek reservoir) so the project was started for flood control. He reviewed preliminary specifications which have since been updated to improve the cost-benefit ratio for Nebraska Resources Development Fund (NRDF) funding to include recreation and Program uses. The reservoir is

located at the end of the 42 mile long Dawson County Canal. There has been concern about potential ground water impact resulting from the reservoir. Karen O'Connor reviewed findings of a ground water model Olsson developed, noting that there would be mounding and in an area just south of the reservoir water would come up to the surface. In Elm Creek the model shows that the depth to groundwater would typically rise (by < 2 feet) to 7 to 10 feet. Dewatering wells were modeled and shown to draw down ground water enough to alleviate major issues.

Since the prefeasibility study, Olsson has compiled LiDAR data and updated stage storage curves. The current study looks at inlet and outlet channel capacities among other items. The current beneficial storage (what could be available to the Program) estimate is 19,850 acre-feet. The principal spillway outlet could be costly if sized to provide 2,000 cfs of SDHF augmentation flows. Preliminary data suggests that providing 1,000 cfs would require significantly less outlet channel capacity improvements. Prior reviewed dam and upstream impacts. Olsson has completed preliminary geotechnical work which has driven initial design estimates. They now need to update the water budget to understand how an operational plan, including Program use, can be developed to optimize cost-benefits.

O'Connor reviewed ground water model enhancements that include an expanded model area (to the Platte River) as well as the larger Elm Creek reservoir. Prior reviewed water supply options being considered including the Dawson County Canal (which can't be used in the winter), a Platte River Pump Station and/or a Kearney Canal Pump Station. He reminded the group that pump station options, that could likely be operated in the winter, are below the J-2 Return to the river. He also reviewed outlet options. Olsson will be developing probable costs and cost-benefits to screen potential alternatives. Action items specific to the Program were discussed. Prior said they would like to return with additional information, and hopefully a draft report, by the August WAC meeting. He also noted that the costs he gave the WAC today are not for the larger reservoir size and don't include the pump stations. He said the pumping station from the river could be either groundwater or surface water and is this open for discussion. The ED Office discussed the work they have been doing with Olsson to evaluate alternatives using an analysis and spreadsheets very similar to what is being done for the J-2 Reregulating Reservoir.

Altenhofen asked about impacted landowners and if it's looking like they would be willing to sell. He noted that, though CPNRD can condemn land, the Program needs to be careful about this. Prior said that there are 5 houses in the reservoir area and 30 parcels, though likely fewer than 30 landowners. Hallum asked about the ground water modeling period and if stability was reached. O'Connor noted that they are looking at expanding the current 8 year period to 10 years or possibly 20 years, including both wet and dry periods. She also said that the aquifer properties in the model are based on COHYST data.

Ground Water Recharge/Management Pre-Feasibility Update

Steve Smith provided a brief update on the Ground Water Recharge/Management WAP project. He anticipates wrapping up the pre-feasibility study project this fall. He reminded the WAC that integrating both ground water recharge and ground water management components optimizes the

project yield. He reviewed project components and configurations that were considered. Detailed cost and yield analyses are being completed for a short list of five projects that emerged after applying screening criteria: Phelps 9.7, Thirty Mile, Gothenburg Canal (south of golf course), B1 Reservoir, and pumping high ground water southwest of Overton. A draft report should go out to the workgroup next week and then hopefully a draft report will go out to the WAC.

Water Evaluations

Kenny told the group that the Program is in negotiations with two sets of owners for permanent purchase/permanent lease of water. One is for a ground water well near the J-2 Return which has a yield of about 40 acre-feet to the river (calculated using CPNRD's methods). No purchase cost for this water has been agreed to yet. The other is two land owners with surface water right from the Dawson County Canal. The ED Office and NPPD is meeting with DNR next week to discuss the permitting process.

Drain cautioned that for any potential acquisition of existing surface water uses, consideration should be given to priority dates and whether or not the use would be acquired through a transfer or some other process that provides protection. For example, Kearney Canal has a very senior water right, often in priority over other junior appropriators. If such senior water were acquired by transfer of the appropriation, that same water could be protected in the river from diversion by others. If this water were retired without a formal transfer of the right, the water would then be available to be diverted by junior appropriators, potentially with no benefit to the Program. Likewise, when a more junior natural flow appropriation is retired, it may not have always been in priority to divert, and so retiring the use may not always produce water, regardless of whether or not protection is sought Jeff Schafer said that in the summer most of what the Kearney Canal diverts gets returned to the river. The return is about 20 miles from the diversion. Drain also stated that NPPD's storage water is used to supplement natural flow and that CNPPID's believes their current agreement with NPPD may require CNPPID's permission of any transfer of NPPD's natural flow appropriations. Drain acknowledged that NPPD may not agree with this, but he felt that it was important that the Program be aware of CNPPID's position in this matter. Altenhofen asked about Nebraska water law and if the supplemental well will continue to be pumped whether there will be a net benefit to the river by retiring the surface water portion. The Program needs to think about if this is a net benefit in the long term, not just the short term.

Additional Business

There was no additional business. The next WAC meeting was scheduled for August 17. **The WAC agreed to move the meeting to August 10, 2010 from 9:30 a.m. to 3:00 p.m. in Ogallala.** Various WAP study updates (J-2 reregulating reservoir, Elm Creek Reregulating Reservoir, Ground Water Recharge/Management, Water Management Incentives, and Water Leasing) will be discussed. The meeting was adjourned.

Action Items

General WAC

- WAC members should be any comments on the J-2 Reregulating Reservoir Draft Scope to the ED Office by noon on the 19th, though sooner is preferable
- Potential conference call to discuss J-2 Reregulating Reservoir Scope on May 20, 2010 at 9:00 AM mountain time

ED Office

- Compile J-2 Reregulating Reservoir Draft Scope and forward significant comments to the WAC
- Potential conference call to discuss J-2 Reregulating Reservoir Scope on May 20, 2010 at 9:00 AM mountain time
- Work with the Water Management Incentives team to adjust the draft scope so that it is more phased and contains additional detail (Kenny)

PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM
Technical Advisory Committee (TAC) Meeting Minutes
ED Office Conference Room – Kearney, NE
May 6, 2010

Attendees
Mike Besson – State of Wyoming (Chair)
Jerry Kenny – ED
Chad Smith − ED Office
Dave Baasch − ED Office
Jason Farnsworth − ED Office
Mark Peyton – Central Nebraska Public Power & Irrigation District
Jim Jenniges − NPPD
Rich Walters – The Nature Conservancy
Mark Czaplewski – Central Platte Natural Resource District
Martha Tacha – U.S. Fish and Wildlife Service
Matt Rabbe − U.S. Fish and Wildlife Service
Kevin Urie – Denver Water (via teleconference)
Ted Kowalski – State of Colorado (via teleconference)
Steve Smith – ED Office (via teleconference)
Jennifer Schellpeper – Nebraska Department of Natural Resources (via teleconference)
Jeff Runge – U.S. Fish and Wildlife Service (via teleconference)
Greg Wolterstorff – V3 Companies (consultant)

Welcome and Administrative
Besson called the meeting to order and the group proceeded with a roll call. No agenda modifications were offered. Besson and Tacha offered edits to the March 2010 TAC meeting minutes:

- Line 91, Page 2 “state” should be “stated”
- Line 224, Page 6 “state” should be “stated”
- Line 105, inflows are upstream of Grand Island gage (instead of near)

Czaplewski moved to approve the March 2010 TAC minutes as amended. **Minutes approved.**

PRRIP Tern and Plover Monitoring and Research Protocols
Baasch provided an update on changes to the monitoring and research protocols since last discussed at the TAC and GC meetings. Jenniges suggested changing the definition of nest furniture to include everything (do not exclude any non-living material) – **Baasch agreed to make the change.** Baasch said all nests would be marked ten feet to the north of the nest and asked if marking nests with a paint stir stick six inches above ground is acceptable – **the TAC agreed**. Czaplewski moved to approve changes to monitoring protocol as discussed; Jenniges seconded. **Changes approved.**

Baasch discussed changes to the tern and plover research protocol. Chad Smith said the protocol would stay in draft form this year since implementation during the 2010 nesting season is designed to test methodology and refine data collection efforts. In the fall, the protocol will be finalized by including any changes related to 2010 implementation and the final protocol will include links to priority hypotheses, specific objectives, predictions, decision criteria, and other details important to assessment of progress toward management objectives in the Program's Adaptive Management Plan. In addition, 2010 implementation will help to modify and refine the current draft set of minimum habitat criteria developed by the TAC in 2008. Czaplewski suggested changing the sandpit habitat criteria to say sandpits within the associated habitats; **the TAC agreed**.

201 Tern and Plover Monitoring and Research Activities

Baasch provided an update on implementation of tern and plover monitoring and research activities so far in 2010. Baasch and the three Program summer technicians completed the first river survey of the year (the U.S. Fish and Wildlife Service conducted the survey from Grand Island to Chapman) and saw piping plovers as well as additional species. Program staff and technicians also implemented the research protocol in the two focal areas for 2010.

AMP Implementation Update

Chad Smith provided an update on several AMP implementation activities:

Wet Meadows – The Platte River Whooping Crane Maintenance Trust was selected to perform the work and an agreement is in process. The initial budget estimate from the Trust was within the existing approved budget for this project.

Cottonwood Ranch Off-Channel Sand & Water (OCSW) and Flow Consolidation – The InterFluve/EA team was selected to perform the work. A kick-off meeting is scheduled for May 19 in Kearney. Farnsworth said the Program is still looking to start construction of OCSW this fall. Czaplewski asked about status of bridge construction at Cottonwood Ranch. Farnsworth said there was a kick-off meeting last week and work should begin late summer.

FSM Proof of Concept – Smith discussed the current study design and monitoring protocol for the FSM Proof of Concept experiment at Elm Creek. Program staff are cleaning up the monitoring protocol, prioritizing and sequencing priority hypotheses, developing decision criteria and predictions, and developing a budget for the work. These materials will be pulled together into a package for TAC review likely in June. Jenniges asked if the 14 monitoring transects included in the monitoring protocol would be measured this summer before actions occur in the fall. Farnsworth said that is the plan if we can get agreement with NPPD for doing this in the channel.

Pallid sturgeon – Smith discussed the highlights of the pallid sturgeon assessment memo developed by the ED Office for the June GC meeting. Peyton moved to recommend to the GC that the Program submit the stage change study for peer review; Jenniges seconded. Urie said we need a TAC recommendation on peer review. Kowalski said the IMRP pallid sturgeon

activities suggest that it is understood peer review would be part of the process. **Motion approved.**

1-D model – Steve Smith provided an update on the status of the 1-D model project. The HDR/Tetra Tech team was selected to build the model and this will be peer reviewed by Golder. The original scope was to build the model from Lake McConaughy to Chapman but the initial budget estimate was too high. The current scope is now from North Platte to Chapman. The steady state model will be done in July and the unsteady model with sediment transport will be done in October. Runge asked to what extent the SEH modeling at North Platte could be integrated into this project. Kenny said they have modeled only a short stretch that we could consider incorporating, but their modeling is over such a short reach that he is not too inclined to add it to the scope.

Meeting and Workshop Scheduling and Closing Business

The TAC set two meetings:

June 23 – Tern and plover priority hypotheses workshop (Kearney)
September 1 – TAC meeting (Kearney)

Chad Smith will work with Felipe Chavez-Ramirez to find a date for a whooping crane hypotheses workshop in July.

Summary of Action Items/Decisions from May 2010 TAC meeting

1) Approved March 2010 TAC meeting minutes, with changes.
2) Approved changes in the PRRIP tern and plover monitoring protocol, including changes suggested during the meeting.
3) Agreed to change the sandpit minimum habitat criteria to read, “sandpits included in the associated habitat”.
4) Recommended that the GC approve submitting the stage change study for peer review.
5) Set a workshop on June 23 to discuss tern and plover priority hypotheses.
6) Set the next TAC meeting on September 1.

PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM
Finance Committee Meeting Minutes
March 9, 2010

Attendees

Mike Purcell, Chair – State of Wyoming
Jerry Kenny – ED
Bruce Sackett – ED Office
Jason Farnsworth – ED Office
Jim Schneider – State of Nebraska
Greg Wingfield – U.S. Fish and Wildlife Service
Brian Barels – Nebraska Public Power District
John Lawson – Bureau of Reclamation
Ted Kowalski – State of Colorado
Don Kraus – Central Nebraska Public Power and Irrigation District
John Heaston – The Nature Conservancy
Larry Schulz – ED Office Consultant
Dennis Strauch – Upper North Platte Water Users
Brock Merrill – Bureau of Reclamation

Welcome and Administrative

Purcell called the meeting to order and the group proceeded with a roll call. Wingfield moved to approve the February10, 2010 FC meeting minutes; Kraus seconded. **Minutes approved.**

Indexing of Program Funds

Lawson presented on the results of the ongoing efforts to establish a methodology to index Program funds for inflation. Consultation and coordination with the Department of the Interior (DOI) Office of the Solicitor and states of Colorado and Wyoming has resulted in the development of a methodology that has been approved by the DOI and is acceptable to the two states. Indexing will be based on the Bureau of Reclamation's Construction Cost Trends (CCT). All land acquisition costs will be indexed using CCT Nebraska Land Index, water conservation/supply projects will be based on the CCT General Property Index, and all other Program costs will be based on the Federal Salary Index, since they are primarily staff driven.

Of the cash contributions, funding which remains to be expended each October 1st will be indexed and NOT the remaining balance of Program funding to be appropriated. The first index will be applied on October 1, 2009 per guidance from the DOI Office of the Solicitor. In order to maintain the established cost share equality between Federal and State contributions, an index adjustment will also be applied to the cash equivalent water and land contributions provided by the States. The cash contribution index ratios will also be applied to the cash equivalent contributions in order to maintain the cost share equality.

At the conclusion of the presentation, Purcell opened the floor for discussion. Schneider asked if there was a way to adjust the Program budget to account for changes in total budget category index ceilings due to disparities in index ratios. Lawson and Purcell indicated that the Governance Committee (GC) has the discretion to change cash allocations between budget categories as necessary. However, we should not worry about reallocating at this time because much of the funding has not been spent and indexing ratios may vary widely in the future. The appropriate time for evaluation and reallocation of budgets will likely be near the end of the First Increment of the Program.

Wingfield asked if indexing increases the ceiling for Federal funding that could be contributed to the Program. Lawson replied that it does. Because of the way the legislation was written, indexing automatically increases the Federal Government's ability to appropriate monies above the original cash contribution and up to the indexed ceiling. Barels asked why the first indexed year is October 2008 - September 2009 instead of October 2007 – September 2008. Lawson indicated that the legislation dictated that indexing begins the first October following authorization of the legislation. Since the legislation was authorized in May of 2008, indexing begins in October of 2008.

Sackett asked if this indexing method could be changed. Lawson indicated that the process would be for the FC to approve and recommend for GC approval. Once the GC approves the indexing method, it would not change unless agreed upon by the Governance Committee. This since representatives of the three primary parties contributing cash (DOI, Colorado and Wyoming) are represented on the GC.

Heaston moved to approve the methodology and forward to the GC with a recommendation for GC approval; Kraus seconded the motion. Kowalski stated for the record that the State of Colorado has continued reservations with the indexing approach due to their interpretation of the authorizing legislation. However, they are willing to proceed given the fact that the monies that they have already contributed are accruing interest to help offset cash contribution increases due to indexing. **Indexing methodology approved (approved methodology attached).**

Cottonwood Ranch OCSW and Flow Consolidation RFP

Farnsworth provided background on the RFP, which combines design, bidding and construction administration for the Cottonwood Ranch OCSW complex with conceptual design for flow consolidation on the same property in order to ensure that the two projects are complementary. Purcell asked for budget line item details and reminded the ED Office that the FC wants to see budget implications for all RFPs at the beginning of presentation to the FC. The RFP budget is $200,000 and comes from line item PD-19. Heaston asked the ED Office to make sure that the OCSW project does not result in the transfer of property mineral rights to a contractor. Farnsworth indicated that the RFP solely includes design work and not construction but the ED Office will make sure that the construction contract addresses mineral rights. Kowalski asked about construction costs and Farnsworth indicated that this project would result in the development of a construction cost estimate. That estimate along with a Request for Bids will be

brought forward to the FC for approval prior to bid letting. Farnsworth requested additions to the selection panel. Kowalski requested addition of a Colorado representative. Schneider requested addition of Pat Goltl with Nebraska DNR. Kowalski moved to approve the RFP; Schneider seconded. **RFP approved.**

Closing Business

Purcell reminded the FC of the contract discussion that occurred at the February FC meeting and requested that the ED Office develop a standard contract for consulting services. The State of Wyoming has provided a standard contract used by the Wyoming Water Development Commission and Purcell indicated that other FC members could also provide examples. He also requested that the contract NOT use standard engineer's terms and conditions and that the ED Office provide the draft to the FC for review. Once the FC has reviewed the contract, the ED Office will retain a Nebraska attorney to review and provide comment on the contract. **The ED Office will develop a draft contract to bring before the FC at their next meeting.**

Meeting adjourned at 11:40 a.m. Central time.

Summary of Action Items/Decisions from November 2009 FC meeting

1) FC approved indexing methodology for Program funds.
2) FC approved Cottonwood Ranch OCSW and Flow Consolidation RFP
3) ED Office will develop standard Program contract for consulting services.

Platte River Recovery Implementation Program Indexing Overview

1. All land acquisition costs will be indexed using the CCT Nebraska Land Index (Attachment 1).

2. The Program's Water Conservation/Supply projects will be indexed using the CCT General Property Index (Attachment 1).

3. All other Program costs will be indexed using the CCT Federal Salary Index (Attachment 1).

4. The first index to the Program will be applied on October 1, 2009 relative to a baseline starting on October 1, 2008 (Solicitor's Opinion – Attachment 2).

5. For each year thereafter, the index will be applied on October 1st to the funding which remains to be expended by the Program (the remaining amount of funding to be disbursed by the Nebraska Community Foundation).

Attached is the supporting material (Attachment 3) that reflects the balance of funds to be expended as of October 1, 2009, and the application of an index to the Program from October 1, 2008 to October 1, 2009. The application of the index results in a total Program ceiling increase from $187,140,000.00 ($157,140,000.00 Federal, $24,000,000.00 Colorado, $6,000,000.00 Wyoming) to $189,913,617.70 ($159,470,464.78 Federal, $24,346,925.79 Colorado, $6,096,227.13 Wyoming).

In order to maintain the established cost share equality between Federal and State contributions, an index adjustment will also need to be applied to the cash equivalent water and land contributions provided by the States. Section 515(b)(3)(B)(ii) of the Consolidated Natural Resources Act of 2008 (Public Law 110-229) (Attachment 4) establishes credits for contributions of land or water (credits established in the Program Finance Document - Attachment 5) for the purposes of implementing the Program, as determined to be appropriate by the Secretary of the Interior. Attachment 3 illustrates how the State cash equivalents can be indexed at the same rate as the cash contributions in order to maintain the cost share equality.

Bureau of Reclamation Construction Cost Trends

(Base: 1977 = 100 for Indexing Field Costs Only)

Item	2008 Jan	2008 Apr	2008 Jul	2008 Oct	2009 Jan	2009 Apr	2009 Jul	2009 Oct	2010 Jan	2010 Apr	2010 Jul	2010 Oct	2011 Jan	2011 Apr	2011 Jul	2011 Oct
Construction Indexes																
Earth dams	291	296	309	312	298	289	291	294								
Dam structure	257	262	271	274	266	260	265	268								
Spillway	323	329	347	349	326	311	312	315								
Outlet works	334	338	354	359	343	332	332	332								
Concrete dams	320	323	332	334	326	319	321	321								
Diversion dams	307	311	322	326	320	316	317	318								
Pumping plants	305	308	321	326	322	318	319	320								
Structures and improvements	308	312	326	330	320	315	316	318								
Equipment	307	309	321	329	329	326	328	328								
Pumps and prime movers	314	317	332	341	341	337	339	339								
Accessory elect. & misc. equip.	296	298	303	311	311	310	311	312								
Powerplants	302	306	317	322	318	319	321	323								
Structures and improvements	307	312	326	330	320	315	316	318								
Equipment	302	305	316	321	320	324	326	328								
Turbines and accessories	307	310	320	326	324	329	332	333								
Accessory elect. & misc. equip.	294	296	304	312	310	309	311	312								
Steel pipelines	326	328	347	361	362	352	350	350								
Concrete pipelines	296	305	314	318	317	316	317	317								
Canals	312	317	329	333	324	317	320	324								
Canal earthwork	295	300	311	315	305	298	304	308								
Canal structures	318	322	334	338	331	326	327	329								
Tunnels	332	337	347	353	348	345	346	346								
Laterals and drains	360	372	400	404	390	371	366	373								
Lateral earthwork	285	289	298	302	295	289	294	298								
Lateral structures	403	419	459	463	446	418	408	416								
Distribution pipelines	296	304	313	318	316	316	317	317								
Switchyards and substations	303	311	321	327	319	314	313	314								
Wood pole transmission lines	244	252	257	260	244	228	223	224								
Poles and fixtures	209	203	210	214	202	193	198	198								
Overhead conductors and devices	291	317	317	320	299	275	258	261								
Steel tower transmission lines	302	317	327	330	317	304	295	294								
Primary roads	320	323	339	340	327	316	316	316								
Secondary roads	394	399	416	418	409	393	397	396								
Bridges	342	346	354	360	358	354	356	357								
General property	294	295	308	317	307	304	304	305								
Composite trend	318	325	340	345	337	328	327	329								
Land Indexes																
Arizona	926	986	1046	1096	1146	1196	1246	1226								
California	720	750	780	815	850	885	920	890								
Colorado	420	445	470	490	510	530	550	525								
Idaho	506	546	586	616	646	676	706	656								
Kansas	245	257	269	284	299	314	329	314								
Montana	484	534	584	634	684	734	784	714								
Nebraska	260	272	284	309	334	359	384	369								
Nevada	784	849	914	969	1024	1079	1134	1079								
New Mexico	639	699	759	814	869	924	979	909								
North Dakota	215	225	235	255	275	295	315	310								
Oklahoma	250	260	270	282	294	306	318	313								
Oregon	440	455	470	495	520	545	570	560								
South Dakota	372	392	412	447	482	517	552	532								
Texas	418	448	478	513	548	583	618	593								
Utah	700	770	840	910	980	1050	1120	1020								
Washington	339	347	355	370	385	400	415	405								
Wyoming	421	456	491	526	561	596	631	596								
Other Indicators																
Machinery and equipment (BLS)	291	293	298	300	305	307	309	307								
Federal salary	316	316	316	316	328	328	328	328								

Inquiries to: 86-68170, Fax: (303) 445-6475

United States Department of the Interior

BUREAU OF RECLAMATION

OFFICE OF THE SOLICITOR
P.O. Box 31394
Billings, Montana 59107-1394

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MEMORANDUM

TO: Regional Director, Bureau of Reclamation
Great Plains Region (GP-3400)

FROM: Karan L. Dunnigan, Field Solicitor
Rocky Mountain Region (Billings)

SUBJECT: Legal Opinion – Whether the Indexing Provision in P.L. 110-229 can be interpreted to begin on January 1, 2005, or must begin on October 1, 2008, the first October after the date of enactment.

You have requested an opinion as to whether the authorization by Congress of the Platte River Recovery Implementation Program and the indexing of appropriations for the Program can be calculated from the date when the authorization was introduced in Congress, January 1, 2005, or whether it may not begin until October 1, 2008, the first October after the Act was enacted.

Section 515 (b) (6) (C) of P.L. 110-229 reads as follows:

> Adjustment – The balance of funds remaining to be appropriated shall be adjusted for inflation on October 1 of the year after the date of enactment of this Act and each October 1 thereafter.

Paragraph (6) is a title reading "AUTHORIZATION OF APPROPRIATION." Subparagraph (A) reads "IN GENERAL – There is authorized to be appropriated to carry out projects and activities under this subsection $157,140,000, as adjusted under subparagraph (C)."

You have provided information to this office indicating that the amount of monies needed and intended for this program was determined when the bill containing the authorization was introduced into Congress and that initial legislation contained language that the costs were based on January 2005 levels. You provide further information that it was the intent that the amount of appropriations authorized by what is now subparagraph (A), be adjusted for inflation and that such an indexing provision is now in subparagraph (C). Your materials explain that when the Platte River Recovery Implementation Program legislation was eventually passed as part of the Consolidated Natural Resources Act of 2008, it did not contain the language concerning the 2005 cost levels. You provide as support for the above explanation, parts of the Program Document and the

Finance Document that we understand were generated by the Governance Committee for the Program. We do not have any information showing that these documents were submitted to Congress or that they reflect the intent of Congress.

When reviewing a statute, the reviewer examines the pertinent language in context. *Sutherland Statutory Construction, Statutes and Statutory Construction*, vol. 2A, § 46.06, 181-194, Norman J. Singer, ed. 6th ed. (Thomson – West 2005) states that within a statute each sentence, phrase and word must be given meaning. As we have reviewed Section 515 of the Consolidated Natural Resources Act of 2008, we have determined that the meaning of subparagraph (C) is clear on its face. Indexing for inflation is to begin on October 1 of the year after enactment of the Act. We understand that the intent of the sponsors of the legislation was to be able to index the subparagraph (A) costs from January of 2005. However, we do not find among the documents provided by your staff anything that would indicate that Congress intended such indexing to be begin earlier than expressed in the legislation.

You explain that the bill was introduced in 2005, but Congress did not finally pass the authorization until 2008. We find it credible that Congress may merely have forgotten to relate the indexing back to 2005 so that the costs of the program could account for inflation. However, we have not found any case law that would support an interpretation of relating back because of a mere oversight and no other expression of intent by Congress. We believe that such an interpretation would set a bad precedent for future legislative interpretation.

If you have further questions, please contact John Chaffin of this office at 406-247-7058.

Indexing the PRRIP

Index Calculation[1]

	October 2008		October 2009		Index Factor to Apply on 10/1/09
Land Index (Nebraska Land Index)	309	÷	369	=	1.19
Water Index (General Property Index)	317	÷	305	=	0.96
Other Cost Index (Federal Salary Index)	316	÷	328	=	1.04

Index Application

	A Original Program Budget[2]	B Expenditures Through 9/30/2009	C Budget Remaining As of 10/1/09 (A minus B)	D Index Applied on 10/1/2009 (C times Index)	E Total Budget Change (D minus C)	F New Program Ceiling (E plus A)
Land (Index 1.19)	$22,900,000.00	$3,516,024.28	$19,383,975.72	$23,066,931.11	$3,682,955.39	$26,582,955.39
Water (Index 0.96)	$90,140,000.00	$383,963.63	$89,756,036.37	$86,165,794.92	-$3,590,241.45	$86,549,758.55
Other (Index 1.04)	$74,100,000.00	$7,077,405.95	$67,022,594.05	$69,703,497.81	$2,680,903.76	$76,780,903.76
Total	$187,140,000.00	$10,977,393.86	$176,162,606.14	$178,936,223.84	$2,773,617.70	$189,913,617.70

State & Federal Shares - Original Total Program Cash Budget of $187,140,000[2] - New Ceiling of $189,913,617.70

Colorado	$24,000,000.00 / $187,140,000.00	÷	0.1282
Wyoming	$6,000,000.00 / $187,140,000.00	÷	0.0321
Federal	$157,140,000.00 / $187,140,000.00	÷	0.8397

	New Ceiling		Parties Share		Parties Share of New Ceiling
Colorado	$189,913,617.70	X	0.1282	=	$24,346,925.79
Wyoming	$189,913,617.70	X	0.0321	=	$6,096,227.13
Federal	$189,913,617.70	X	0.8397	=	$159,470,464.78

Maintaining the Original Cost Share - Original Program Budget of $317,330,000 ($187,140,000 Cash; $130,190,000 Cash Equivalents)[2]

State Contributions / Total Program	$160,190,000.00 / $317,330,000.00	=	0.5048	=	States Cost Share Ratio
Federal Contributions / Total Program	$157,140,000.00 / $317,330,000.00	=	0.4952	=	Federal Cost Share Ratio
New Federal Program Ceiling (Cash) / Original Federal Program Ceiling (Cash)	$159,470,464.78 / $157,140,000.00	=	1.015	=	Index Factor for State Cash & Equivalents

	Cash & Equivalents		Index Factor		New Value State Cash & Equivalents
Original Value State Cash & Equivalents	$ 160,190,000.00	X	1.015	=	$162,592,850.00

New Value State Cash & Equivalents	$162,592,850.00
New Federal Ceiling	$159,470,464.78
New Total Program	$322,063,314.78

New Federal Ceiling / New Total Program	$159,470,464.78 / $322,063,314.78	=	0.4952	=	Federal Cost Share Ratio
New Value State Cash & Equivalents / New Total Program	$162,592,850.00 / $322,063,314.78	=	0.5048	=	State Cost Share Ratio

1) Index calculated using the Bureau of Reclamation's Construction Cost Trends

2) Original Program Budget from the Program Finance Document

SEC. 515. PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM AND PATHFINDER MODIFICATION PROJECT AUTHORIZATION. State listing.

(a) PURPOSES.—The purposes of this section are to authorize—

(1) the Secretary of the Interior, acting through the Commissioner of Reclamation and in partnership with the States, other Federal agencies, and other non-Federal entities, to continue the cooperative effort among the Federal and non-Federal entities through the implementation of the Platte River Recovery Implementation Program for threatened and endangered species in the Central and Lower Platte River Basin without creating Federal water rights or requiring the grant of water rights to Federal entities; and

(2) the modification of the Pathfinder Dam and Reservoir, in accordance with the requirements described in subsection (c).

(b) PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM.—

(1) DEFINITIONS.—In this subsection:

(A) AGREEMENT.—The term "Agreement" means the Platte River Recovery Implementation Program Cooperative Agreement entered into by the Governors of the States and the Secretary.

(B) FIRST INCREMENT.—The term "First Increment" means the first 13 years of the Program.

(C) GOVERNANCE COMMITTEE.—The term "Governance Committee" means the governance committee established under the Agreement and composed of members from the States, the Federal Government, environmental interests, and water users.

(D) INTEREST IN LAND OR WATER.—The term "interest in land or water" includes a fee title, short- or long-term easement, lease, or other contractual arrangement that is determined to be necessary by the Secretary to implement the land and water components of the Program.

(E) PROGRAM.—The term "Program" means the Platte River Recovery Implementation Program established under the Agreement.

(F) PROJECT OR ACTIVITY.—The term "project or activity" means—

(i) the planning, design, permitting or other compliance activity, preconstruction activity, construction, construction management, operation, maintenance, and replacement of a facility;

(ii) the acquisition of an interest in land or water;

(iii) habitat restoration;

(iv) research and monitoring;

(v) program administration; and

(vi) any other activity that is determined to be necessary by the Secretary to carry out the Program.

(G) SECRETARY.—The term "Secretary" means the Secretary of the Interior, acting through the Commissioner of Reclamation.

(H) STATES.—The term "States" means the States of Nebraska, Wyoming, and Colorado.

(2) IMPLEMENTATION OF PROGRAM.—

(A) IN GENERAL.—The Secretary, in cooperation with the Governance Committee, may—

(i) participate in the Program; and

(ii) carry out any projects and activities that are designated for implementation during the First Increment.

(B) AUTHORITY OF SECRETARY.—For purposes of carrying out this section, the Secretary, in cooperation with the Governance Committee, may—

(i) enter into agreements and contracts with Federal and non-Federal entities;

(ii) acquire interests in land, water, and facilities from willing sellers without the use of eminent domain;

(iii) subsequently transfer any interests acquired under clause (ii); and

(iv) accept or provide grants.

(3) COST-SHARING CONTRIBUTIONS.—

(A) IN GENERAL.—As provided in the Agreement, the States shall contribute not less than 50 percent of the total contributions necessary to carry out the Program.

(B) NON-FEDERAL CONTRIBUTIONS.—The following contributions shall constitute the States' share of the Program:

(i) $30,000,000 in non-Federal funds, with the balance of funds remaining to be contributed to be adjusted for inflation on October 1 of the year after the date of enactment of this Act and each October 1 thereafter.

(ii) Credit for contributions of water or land for the purposes of implementing the Program, as determined to be appropriate by the Secretary.

(C) IN-KIND CONTRIBUTIONS.—The Secretary or the States may elect to provide a portion of the Federal share or non-Federal share, respectively, in the form of in-kind goods or services, if the contribution of goods or services is approved by the Governance Committee, as provided in Attachment 1 of the Agreement.

(4) AUTHORITY TO MODIFY PROGRAM.—The Program may be modified or amended before the completion of the First Increment if the Secretary and the States determine that the modifications are consistent with the purposes of the Program.

(5) EFFECT.—

(A) EFFECT ON RECLAMATION LAWS.—No action carried out under this subsection shall, with respect to the acreage limitation provisions of the reclamation laws—

(i) be considered in determining whether a district (as the term is defined in section 202 of the Reclamation Reform Act of 1982 (43 U.S.C. 390bb)) has discharged the obligation of the district to repay the construction cost of project facilities used to make irrigation water available for delivery to land in the district;

(ii) serve as the basis for reinstating acreage limitation provisions in a district that has completed payment of the construction obligations of the district; or

(iii) serve as the basis for increasing the construction repayment obligation of the district, which would extend the period during which the acreage limitation provisions would apply.

(B) EFFECT ON WATER RIGHTS.—Nothing in this section—

(i) creates Federal water rights; or

(ii) requires the grant of water rights to Federal entities.

(6) AUTHORIZATION OF APPROPRIATIONS.—

(A) IN GENERAL.—There is authorized to be appropriated to carry out projects and activities under this subsection $157,140,000, as adjusted under subparagraph (C).

(B) NONREIMBURSABLE FEDERAL EXPENDITURES.—Any amounts expended under subparagraph (A) shall be considered to be nonreimbursable Federal expenditures.

(C) ADJUSTMENT.—The balance of funds remaining to be appropriated shall be adjusted for inflation on October 1 of the year after the date of enactment of this Act and each October 1 thereafter.

(D) AVAILABILITY OF FUNDS.—At the end of each fiscal year, any unexpended funds for projects and activities made available under subparagraph (A) shall be retained for use in future fiscal years to implement projects and activities under the Program.

(7) TERMINATION OF AUTHORITY.—The authority for the Secretary to implement the First Increment shall terminate on September 30, 2020.

(c) PATHFINDER MODIFICATION PROJECT.—

(1) AUTHORIZATION OF PROJECT.—

(A) IN GENERAL.—The Secretary of the Interior, acting through the Commissioner of Reclamation (referred to in this subsection as the "Secretary"), may—

(i) modify the Pathfinder Dam and Reservoir; and

(ii) enter into 1 or more agreements with the State of Wyoming to implement the Pathfinder Modification Project (referred to in this subsection as the "Project"), as described in Appendix F to the Final Settlement Stipulation in Nebraska v. Wyoming, 534 U.S. 40 (2001).

(B) FEDERAL APPROPRIATIONS.—No Federal appropriations are required to modify the Pathfinder Dam under this paragraph.

(2) AUTHORIZED USES OF PATHFINDER RESERVOIR.—Provided that all of the conditions described in paragraph (3) are first met, the approximately 54,000 acre-feet capacity of Pathfinder Reservoir, which has been lost to sediment but will be recaptured by the Project, may be used for municipal, environmental, and other purposes, as described in Appendix F to the Final Settlement Stipulation in Nebraska v. Wyoming, 534 U.S. 40 (2001).

(3) CONDITIONS PRECEDENT.—The actions and water uses authorized in paragraphs (1)(A)(i) and (2) shall not occur until each of the following actions have been completed:

(A) Final approval from the Wyoming legislature for the export of Project water to the State of Nebraska under the laws (including regulations) of the State of Wyoming.

(B) Final approval in a change of water use proceeding under the laws (including regulations) of the State of Wyoming for all new uses planned for Project water. Final

approval, as used in this subparagraph, includes exhaustion of any available review under State law of any administrative action authorizing the change of the Pathfinder Reservoir water right.

SEC. 516. CENTRAL OKLAHOMA MASTER CONSERVATORY DISTRICT FEASIBILITY STUDY.

(a) STUDY.—

Deadline.

(1) IN GENERAL.—Not later than 3 years after the date of enactment of this Act, the Secretary of the Interior, acting through the Commissioner of Reclamation (referred to in this section as the "Secretary"), shall—

(A) conduct a feasibility study of alternatives to augment the water supplies of—

(i) the Central Oklahoma Master Conservatory District (referred to in this section as the "District)"; and

(ii) cities served by the District;

(2) INCLUSIONS.—The study under paragraph (1) shall include recommendations of the Secretary, if any, relating to the alternatives studied.

(b) COST-SHARING REQUIREMENT.—

(1) IN GENERAL.—The Federal share of the total costs of the study under subsection (a) shall not exceed 50 percent.

(2) FORM OF NON-FEDERAL SHARE.—The non-Federal share required under paragraph (1) may be in the form of any in-kind services that the Secretary determines would contribute substantially toward the conduct and completion of the study.

(c) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Secretary to conduct the study under subsection (a) $900,000.

TITLE VI—DEPARTMENT OF ENERGY AUTHORIZATIONS

SEC. 601. ENERGY TECHNOLOGY TRANSFER.

Section 917 of the Energy Policy Act of 2005 (42 U.S.C. 16197) is amended to read as follows:

Grants.

"SEC. 917. ADVANCED ENERGY TECHNOLOGY TRANSFER CENTERS.

Deadline.

"(a) GRANTS.—Not later than 18 months after the date of enactment of the National Forests, Parks, Public Land, and Reclamation Projects Authorization Act of 2008, the Secretary shall make grants to nonprofit institutions, State and local governments, cooperative extension services, or institutions of higher education (or consortia thereof), to establish a geographically dispersed network of Advanced Energy Technology Transfer Centers, to be located in areas the Secretary determines have the greatest need of the services of such Centers. In making awards under this section, the Secretary shall—

"(1) give priority to applicants already operating or partnered with an outreach program capable of transferring knowledge and information about advanced energy efficiency methods and technologies;

"(2) ensure that, to the extent practicable, the program enables the transfer of knowledge and information—

PLATTE RIVER RECOVERY IMPLEMENATION PROGRAM

ATTACHMENT 1

FINANCE DOCUMENT
CREDITING AND EXIT PRINCIPLES
AND
PROGRAM BUDGET

PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM
Attachment 1

Finance Document
Crediting and Exit Principles
And
Program Budget

December 7, 2005

Table of Contents

I. INTRODUCTION

A. Purposes

The purposes of this document are (1) to establish credits for certain cash, cash equivalent, water, and land contributions made by or on behalf of the parties to the Platte River Recovery Implementation Program Cooperative Agreement (the Program); (2) to provide guidance for use in determining other credits earned by or on behalf of the parties during the First Increment of the Program; (3) to establish principles for disposition, should the Program terminate, of assets acquired or contributed to accomplish the objectives of the Program; (4) to provide guidance on the ESA credits that might be available for use in consultation with the Fish and Wildlife Service should the Program terminate; and (5) detail the Program budget and the cash flow requirements for the First Increment of the Program.

B. Definitions of Terms

1. Cash Contributions - The respective amount of money that each signatory will contribute to the Program Budget during the First Increment. The records of the Financial Management Entity (FME) will be used to determine the amount and date of each signatory's actual cash contributions.

2. In-kind Contributions - During the First Increment of the Program, signatories may elect to be "Water Project Sponsors" or "Sponsors of Program Lands," as defined in Sections VIII.C and VIII.D of Attachment 6, respectively, in lieu of making their required Cash Contributions. In addition, a signatory may propose and the Governance Committee may approve agreements whereby signatories elect to provide technical or other services as in-kind contributions in lieu of making its Cash Contribution. The agreements between the signatory and the Governance Committee documenting these transactions will include the credit the signatory will receive toward its respective Cash Contribution. In addition, the agreements will address the disposition of the Program Assets provided by the in-kind contribution in the event of Program dissolution. (In-kind contributions do not include the costs associated with providing representatives on the Governance Committee, Oversight Committee or other committees established by the Governance Committee.)

3. Cash Equivalents - The states of Colorado, Nebraska, and Wyoming (the states) will be contributing water from the three initial Program water projects and the use of lands for Program purposes, herein defined as Cash Equivalents, in order to match, in part, the Cash Contributions of the Department of the Interior (DOI). During the Program, additional Cash Equivalent Contributions to the Program may be proposed. Such contributions will need to be approved by the Governance Committee before any crediting is authorized. The review and ultimate approval will have two elements: (1) whether the activity merits Cash Equivalent credit, and (2) if so, in what amount (potentially measured by value to the Program in meeting its First Increment objectives rather than by the level of expenditure).

4. Program Assets - Subject to the provisions in Section III, those assets acquired through the Cash Contributions of the signatories are considered Program Assets for purposes of this Attachment 1. Program Assets include, but are not limited to, land interests acquired through fee title, easements, or leases to the extent such easements and leases survive Program termination. Program Assets also include water interests and projects acquired through project construction or leases to the extent such leases survive Program termination. While the water from the three initial Program water projects and the use of Cottonwood Ranch and Deer Creek lands are considered Cash Equivalents for purposes noted in Section I.B.3 above, the projects and lands are not Cash Equivalents or Program Assets for purposes of determining a Signatory's Share of Program Assets as provided in Section I.B.5 below and those projects and lands are not subject to disposition by the Governance Committee. Neither Program dissolution nor withdrawal of a signatory party will have any impact on the ownership of any such projects or lands nor will it have any effect on the rights of the state where the project or land is located, or of entities within that state, to administer the project or land in accordance with applicable law.

5. Signatory's Share of Program Assets - Each signatory's respective share of the Program Assets will be equal to that signatory's total cash contributions at the time of Program dissolution compared against the total Cash Contributions made by all of the signatories at the time of Program dissolution For example, if Signatory A has made Cash Contributions totaling $3M to the Program and all of the signatories, including Signatory A, have made cash contributions totaling $100M to the Program at the time of dissolution, Signatory A would have an interest in 3% of the Program Assets.

II. CREDITING UNDER THE PROGRAM

The following table depicts the Cash Contributions and Cash Equivalent Contributions that will be provided by the DOI and the states during the First Increment of the Program:

Program Contributions
(values in millions of dollars)

Contributions	Total	DOI	States	Description
Cash	187.14	157.14	30.0	Colorado – 24.0; Wyoming 6.0
Cash Equivalents				
Land	10.0		10.0	Cottonwood Ranch/Deer Creek Lands
Water	120.19		120.19	Water from three initial projects
Total	**317.33**	**157.14**	**160.19**	

III. DISTRIBUTION OF PROGRAM ASSETS AND ESA CREDITS FOLLOWING PROGRAM TERMINATION OR SIGNATORY WITHDRAWAL

A. Principles Governing Dissolution of the Program

Consistent with section II.E. of the Program Agreement, if the Secretary of the Interior and the Governors of Colorado, Nebraska and Wyoming decide to dissolve the Program before the end of the First Increment or to not pursue a second increment of the Program, or if the Program is dissolved as the result of a signatory's withdrawal, the Program Governance Committee is dissolved and the signatories agree to form a signatory committee to satisfy the signatories' existing legal obligations under contracts and arrange for disposition of Program Assets. Other members of the Program Governance Committee may be invited to advise signatories in that regard. In the event that any signatory is unable or unwilling, following a decision to dissolve the Program, to continue to participate on such signatory committee, the remaining signatories shall be fully empowered to make such decisions and take such actions as are necessary to meet the signatories' legal obligations under the contracts with the Financial Management Entity (FME) and the Land Holding Entity (LHE) and properly dispose of Program Assets.

1. The signatory committee will remain functional until such time as the signatories' legal obligations under existing contracts and agreements are met and the disposition of Program Assets is resolved, including any outstanding payments due and payable to a "Water Project Sponsor" or "Sponsors of Program Lands." Until an asset is no longer the responsibility of the signatories, the signatories agree to ensure that FME will continue to pay property taxes and retain liability insurance. The signatories agree to manage the property in compliance with the "good neighbor" policy.

2. A signatory or a partnership of signatories may wish to purchase the shares in the Program Assets of any signatory or signatories wishing to sell, under the condition that the Program Assets will continue to be managed to provide habitat for the target species. If this occurs, the signatory committee will have the FME acquire the services of an independent appraiser to complete an appraisal of the Program Assets. The appraisal will be based on the continued use of the Program Asset to provide habitat to the target species. If the Program Governance Committee had previously established the appraised value or a method for determining the appraised value of a particular Program Asset in the event of Program dissolution, that value or method shall be used. The signatory or partnership of signatories may purchase the shares of the selling signatories at a price equal to the respective selling signatories' share of the Program Assets times the appraised value of the Program Assets. If the purchased Program Assets are land, those lands will be held by the Land Holding Entity or a successor selected by the purchaser and approved by the signatory committee as a condition of the sale. (A signatory state may offer to donate its interest in a Program Asset to another signatory or partnership of signatories and seek ESA credit from FWS in future reinitiated consultations in that state for the continuing benefits provided to the target species as a result of the donation.)

3. If none of the signatories are interested in acquiring Program Assets as described in Section III.A.2 above, the signatory committee will entertain offers from water user

and environmental entities to purchase the Program Assets under the condition that the Program Assets will continue to be managed to provide habitat for the target species. If the purchased Program Asset is land, that land will be held by the Land Holding Entity or a successor selected by the purchaser and approved by the signatory committee as a condition of the sale. The proceeds of the sale, after expenses, will be distributed to the signatories in accordance with their respective Signatory's Share of the Program Assets.

4. If the Program Assets are not purchased in accordance with Sections III.A.2 or 3 above, the signatory committee shall oversee the sale of such assets. Such sale may be made without the condition that the Program Asset must be managed to provide habitat for the target species. The proceeds of the sale, after expenses, will be distributed to the signatories in accordance with their respective Signatory's Share of the Program Assets.

B. ESA Credits

In the event of Program dissolution, if a state agrees to and continues to carry out the responsibilities it had under the Program, there is a presumption that such actions are sufficient to provide ESA compliance with respect to all water related activities in that state until any reinitiated consultations have been completed. When a state agrees to and continues to carry out the responsibilities it had under the Program, that state and any water related activities covered also retain the right to argue that the responsibilities undertaken are sufficient to constitute long term ESA compliance for the reinitiated consultations. FWS agrees to consider these undertakings in any reinitiated Section 7 consultations, including in the development of new reasonable and prudent alternatives or other measures.

In addition, to the extent the states respective contributions of cash, water (through the initial Program water projects), and land (Cottonwood Ranch and Deer Creek lands) will continue to benefit the target species beyond the dissolution of the Program, the states retain the right to argue that such future benefits resulting from their contributions should be considered in any reinitiated consultations. The FWS will give due consideration to these contributions and their resulting subsequent benefits to the target species and habitat in any reinitiated consultations.

IV. PROGRAM BUDGET AND CASH FLOW REQUIREMENTS

Activity	Estimated Cash Needs in 2005 Dollars (Millions)	Cash Equivalent Credit (Millions)
Water (130-150KAF)		
Three State Water Projects (80KAF)[1, *]		$120.19
Water Conservation/Supply (60KAF)[2]	$90.14	
Project Permitting[3]	$1.35	
Bypass	$3.08	
Channel Capacity Issues	$1.00	
Subtotal Water	$95.57	$120.19
Land (10K Acres)		
Cottonwood Ranch Acquisition (2,650 A, cash equivalent)[4, *]		$8.50
Wyoming's Deer Creek Property		$1.50
Acquisition (7,350A)[4]	$22.90	
0&M (Includes clearing)	$10.00	
Investigation/Leveling Act.[5]	$3.35	
Taxes	$1.53	
Project Perm. & LAC[3]	$1.35	
Subtotal Land	$39.13	$10.00
Program & Project Monitoring and Research[6]	$30.00	
Program & Project Administration (@ 1.49M/Yr)[7]	$19.37	
Third Party Direct Impact Mitigation Contingency and Liability	$0.67	
Peer Review and Independent Science Advice[8]	$2.35	
Program Legal Fees[9]	$0.05	
Totals	**$187.14**	**$130.19**

Estimated Total First Increment Cash and Cash Equivalent Costs **$317.33**

* Indicates items for cash equivalent or in-kind contribution credit

[1]Three State Water Projects (80AF) from the Reconnaissance - Level Water Action Plan, Page 105, September 14, 2000 Reconnaissance - Level Water Action Plan, Page 108-109, September 14, 2000

[2]Estimate based on review of Reconnaissance-Level Water Action Plan.

[3]Project specific compliance with state and federal laws and regulations including NEPA requirement, and ESA requirements for protected species not covered by the Program.

[4]Cost for Cottonwood Ranch negotiated for in the Cooperative Agreement. Other purchase costs assume approximately $3,100/ac.

[5]Preliminary cost associated with moving 40 acres of land, 4 feet deep (per analysis in EIS) at cost of $1/yard.

[6]Monitoring and Research costs estimated by the Technical Committee, including Parsons/EIS Team estimate for Sediment/Vegetation and additional tasks identified by Governance Committee (e.g. water quality)

[7]Executive Director, staff, office space, travel, etc.

[8]Includes assistance for implementing the AMP and peer review of individual documents.

[9]Estimate includes assistance in developing Program, land, water entities, contracts, taxes, etc.

PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM
Year Four (2010) Target Species Assessment – Pallid Sturgeon

Purpose

As requested by the Governance Committee (GC), the Executive Director's Office (ED Office) prepared this assessment of Platte River Recovery Implementation Program (Program or PRRIP) activities to date regarding pallid sturgeon (*Scaphirhynchus albus*), a Program target species. This assessment is presented in the context of implementation of the Adaptive Management Plan (AMP), which provides the scientific framework for the Program. The assessment includes an evaluation of key priority hypotheses, progress on specific pallid sturgeon tasks identified in the Integrated Monitoring and Research Plan (IMRP), and a discussion of important outstanding technical and policy issues.

This assessment is provided to the GC in an effort to convey science learning thus far to assist with management and policy decision-making regarding this target species.

Background

The Program's **overall long-term goal** is to improve and maintain the associated habitats, which includes:

> "…3) testing the assumption that managing flow in the central Platte River also improves the pallid sturgeon's lower Platte River habitat." (Final Program Document, 2006)

For the purposes of the Program, lower Platte associated habitat is the reach between the Elkhorn River and Missouri River confluences, approximately a 40-mile (64-km) stretch. The assumption reflected in the long-term goal relates to the U.S. Fish and Wildlife Service's belief that existing water-related activities (those that depend on the Program for Endangered Species Act compliance) have at times reduced the quantity or rate of flow in the lower Platte between February and July and that further alterations (new depletions) to discharge patterns or channel morphology will degrade existing pallid sturgeon habitat in the lower Platte and thus impede recovery efforts.

As detailed in the AMP, Program participants developed a **conceptual ecological model** (CEM) as a graphical representation of the hypothesized understanding of the lower Platte River associated habitat relative to pallid sturgeon (Figure 1). The CEM includes inputs and management actions (some of which are predominantly outside the control of the Program) as well as a framework of "processes → response → indicators" that led to the development of several **priority hypotheses** related to pallid sturgeon. As with other Program target species, those priority hypotheses are to be assessed against the pallid sturgeon management objective #3 that states:

> "Avoid adverse impacts from Program actions on pallid sturgeon populations" (Adaptive Management Plan, 2006)

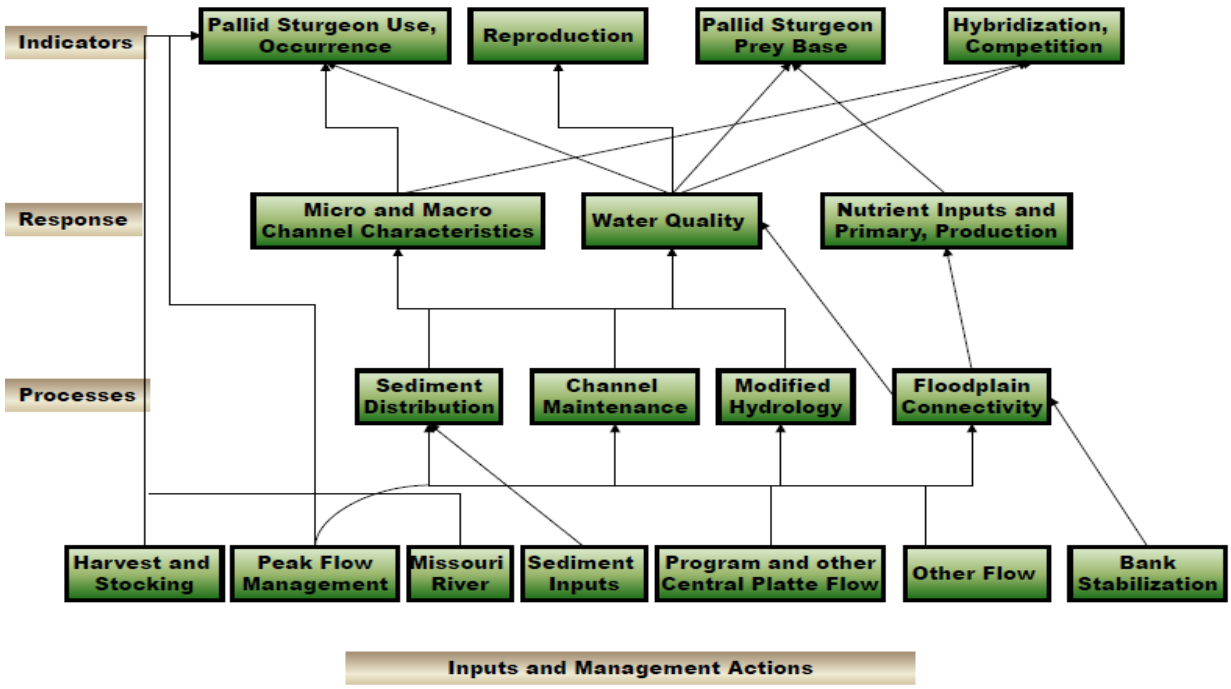

Figure 1. PRRIP pallid sturgeon conceptual ecological model.

This objective is commonly paraphrased as a "Do No Harm" objective and contains no measurable performance measures to assess progress, evaluate species response, or guide management actions. Instead, Program actions related to pallid sturgeon were to begin with **specific tasks** in the IMRP centered on better identifying sturgeon habitat and use rather than addressing specific in-river actions aimed at learning about species response (as done for other Program target species). Thus, Program activities since 2007 have been directed at monitoring and research designed to help fill existing data gaps and include:

1. A summary of existing information on the pallid sturgeon.
2. Micro- and macro-habitat use/selection by adult and juvenile sturgeon.
3. Identify the physical effects of subtly different rates of flow over time on connection, construction, maintenance, and evolution of pallid sturgeon habitat components.
4. Characterization of selected water quality parameters in the lower Platte and tributary contributions.
5. Periodic evaluation and peer review of information.

All but one (#2) of those activities is now complete or underway and can be evaluated in comparison to key priority hypotheses. An initial evaluation (Table 1) of the eight pallid sturgeon priority hypotheses identified in the AMP suggests two are most critical (Tier 1) and actions to test those two hypotheses are necessary first steps in the Program addressing pallid surgeon issues:

- ***PS-2:*** Program water management will result in measurable changes on flow in the lower Platte River.
- ***PS-4:*** Flows in the lower Platte will affect pallid sturgeon habitat suitability.

Assessment of Pallid Sturgeon Priority Hypotheses

PS-2*: Program water management will result in measureable changes on flow in the lower Platte River.*

Assessment strategy and rationale

To test this hypothesis, the Program initiated the Lower Platte River Stage Change Study (IMRP pallid sturgeon activity #3) in 2008 to develop a tool to evaluate the potential effects of Program water management activities (storage projects, re-timing, water conservation, depletions covered by state and federal depletions plans) on stage and how stage changes might affect the physical characteristics of the lower Platte River. Field sampling, 1-D and 2-D modeling, and analysis were completed in 2009 and the study is now final.

Space and time frames

Study scale

The full study scale was the lower Platte River from the Elkhorn River confluence to the Missouri River confluence, as defined in the Program document. Intensive fieldwork and modeling were conducted on a smaller study reach from the Highway 50 bridge to the reclaimed Pedestrian Bridge near Louisville, Nebraska.

Time scale

Data collection and modeling began in September 2008 and concluded in October 2009. A final report was delivered to the ED Office in December 2009 and the study team made a presentation to the GC in March 2010.

Performance measures, expected response, analysis, and conclusions

Performance measures

- **Water depth and velocity** between 3,700 cfs and 40,000 cfs
- **Percentage of Program water** reaching Louisville
- **Changes in habitat classifications** (slackwater, flat, riffle, run, isolated pool, plunge) between 3,700 and 40,000 cfs
- **Number of days** below 4,000 cfs @ Louisville (Dry Conditions Analysis)
- **Range of flows** below 4,000 cfs @ Louisville (Dry Conditions Analysis)
- **Number of consecutive days** below 4,000 cfs @ Louisville (Dry Conditions Analysis)

Expected response

We predicted that given the influence of the Loup and Elkhorn Rivers on lower Platte flows, water management activities in the lower Platte, flow attenuation, and their size and timing, Program water management activities would not have a statistically significant impact on lower

Platte flows or on the type or availability of pallid sturgeon habitat (as defined only by the study's habitat classifications).

Analysis and conclusions

Percentage of Program water reaching Louisville: Analysis of historic reach gains and losses showed not all flow reaching Grand Island is translated downstream to Louisville and that predicted changes in discharge due to Program water management activities is likely within the range of gage uncertainty.

Changes in habitat classifications: 2-D modeling accurately predicted changes in the six habitat classifications over the range of modeled discharges.

Dry Conditions Analysis: The period of record was analyzed for one period in the spring and one in the fall when flows were above target at Grand Island, the Program could divert some portion of that excess, and flows were simultaneously in the 4,000-6,000 cfs range at Louisville. Assuming habitat connectivity is important for pallid sturgeon and that connectivity declines below 4,000 cfs, this analysis showed that short-term connectivity could be problematic, but only for one or a few days.

Conclusion: *Generally, Program water management will not result in measurable changes on flow in the lower Platte River.* However, given that short-term connectivity could be problematic under certain but infrequent hydrological conditions and assuming the biological significance of habitat connection for pallid sturgeon above 4,000 cfs, the study tool could be used by the Program to implement proactive measures (e.g. altering excess-to-target-flow diversion timing or duration) to prevent potential negative impacts on habitat connectivity. Use of the tool for this purpose would be greatly enhanced if additional data were collected and analyzed regarding what defines pallid sturgeon habitat in the lower Platte and how that habitat is being utilized (see discussion regarding Priority Hypothesis PS-4).

Outstanding Issues

With respect to PS-2, several issues have been identified and are expanded upon in the concluding *Technical and Policy Issues to Address* section of this assessment. In brief form, the issues are as follows:

1) Peer review of the Lower Platte River Stage Change Study
2) Assessment of the representativeness of the stage change study's 2-D modeling section
3) Definition of pallid sturgeon habitat and use

***PS-4**: Flows in the lower Platte will affect pallid sturgeon habitat suitability.*

Proposed assessment strategy and rationale

Before testing additional pallid sturgeon hypotheses, more progress is required on better defining pallid sturgeon habitat in the lower Platte River, how that habitat is being utilized, and whether this habitat selection is resulting in pallid sturgeon reproduction and recruitment (IMRP pallid

sturgeon activity #2). The Peters and Parham study of pallid sturgeon habitat use and movement on the lower Platte River did provide useful information on pallid sturgeon ecology and additional information on pallids is being collected through an ongoing University of Nebraska-Lincoln sturgeon population characteristics study. However, that study is only capturing incidental pallid sturgeon (it is a shovelnose study), it is not providing habitat selection data, and even Peters and Parham (2008) suggested that additional habitat selection work is required.

In its 2009 report (Marmorek et al., 2009) the Program's Independent Scientific Advisory Committee (ISAC) provided the following guidance for addressing the pallid sturgeon priority hypotheses and management objective:

- Use a contingent, incremental approach for the sturgeon objective, only progressing to more detailed studies once initial questions have been answered. The stage sensitivity study will document the hydrologic sensitivity of lower Platte to central Platte flow management. If there is a change in flow which could be significant to sturgeon, then the next logical step would be to use a sparse, stationary telemetry framework to define migrations of sturgeon in/out of the Platte. If the telemetry results suggest that sturgeon are using the Platte for spawning, then consider studies of larval recruitment. One ISAC member has suggested that sparse telemetry studies *could* be done as a first step to determining the level and location of use of the Platte by pallid sturgeon, but to do such studies as part of the Missouri River Restoration Program (in coordination with the PRRIP).
- Evidence supports the notion that Platte River pallid sturgeon are Missouri River sturgeon. Movement of fish between the Missouri and Platte is a fundamental issue that needs to be addressed through expanded telemetry. If it is demonstrated that Program-managed discharge events persist downstream to affect reaches occupied by sturgeon, the remainder of the actions will depend on establishing the relative numbers of sturgeon using the Platte, and whether the Platte (or Elkhorn) provides critical habitat for its reproduction.

While the stage change study showed that, in general, lower Platte flow is not negatively impacted by potential Program water management activities, there are hydrological conditions and Program water actions that could result in some short-term loss of habitat connectivity unless preventative measures were undertaken to avoid the potentially negative impacts. According to the ISAC guidance, a next step should be taken through telemetry and habitat selection research to determine how pallids move from the Missouri to the Platte and if this movement is related to reproduction and recruitment (among other life history requirements). Then, results of this research could be used to test priority hypotheses PS-4 and potentially additional Tier 2 or Tier 3 hypotheses. In addition, this data could be used to refine the pallid sturgeon CEM and develop measurable indicators for assessing the current pallid sturgeon management objective.

Additional IMRP pallid sturgeon tasks also link to this potential habitat selection research:

IMRP Task #1 – Summary of existing information on the pallid sturgeon
Status: Complete; information review completed in 2008 and all documents available for consideration.

IMRP Task #4 – Characterization of selected water quality parameters in the lower Platte and tributary contributions
Status: Ongoing; annual water quality monitoring for temperature, turbidity, dissolved oxygen, and specific conductivity in both the central and lower Platte continues; sets baseline data on water quality parameters believed to be of importance to pallid sturgeon; will be analyzed in conjunction with additional habitat data

IMRP Task #5 – Periodic evaluation and peer review of information
Status: Ongoing; this assessment, the upcoming workshop, and additional ISAC and other peer review will continue.

Outstanding Issues
With respect to PS-4 and the other tasks linked to habitat selection and use, it is the very issues of habitat definition, selection, and use that need addressed and these issues are expanded upon in the concluding *Technical and Policy Issues to Address* section of this assessment.

Technical and Policy Issues to Address
Based on the preceding material several issues have been identified that should be addressed. These issues are explored individually below, with options for action and estimated costs associated with the actions. In the opinion of the ED Office, Items #1 and #3 are necessary for scientific defensibility.

Peer Review of Stage Change Study

1. If the Governance Committee approves at the June 2010 meeting, then seek **peer review of stage change study.** The Program would contract with three to four independent peer reviewers representing expertise in pallid sturgeon biology, hydrology, and engineering in summer 2010 to provide a peer review of the study's methodology and conclusions.
   Estimated Cost: $20,000
   Funding: Existing funding for this peer review is available in the approved FY 2010 Program budget (line item PD-3: AMP & IMRP Peer Review)

Following from #1 ⇨

2. If the peer review suggests revisions are necessary and the TAC and GC agree, then contract with HDR to **complete stage change study revisions.**
   Estimated Cost: $10,000-$30,000
   Funding: Existing funding for potential study revisions is available in the approved FY 2010 Program budget (line item PS-2: Lower Platte River Stage Change Study)

Habitat Definition, Selection, and Use

To advance the discussion of habitat definition, selection, and use, tapping into the knowledge of pallid sturgeon experts from the Platte River and Missouri River in a workshop setting is recommended. The series of potential actions that could follow is provided below.

3. If the GC approves at the June 2010 meeting, then convene a **lower Platte River pallid sturgeon workshop** in fall 2010 with TAC members, ISAC members, and pallid sturgeon experts from the Platte River and Missouri River. Workshop discussion topics will include:
   - Whether the stage change study reach is representative of the associated habitat below the Elkhorn River confluence for purposes of further applying the study tool.
   - Based on results of the stage change study and additional data, is there potentially a change in lower Platte flow due to Program actions that could be significant to pallid sturgeon (is there a possibility that the Program is violating its "avoid adverse impact" objective for pallid sturgeon?)?
   - If so, assess the extent and scope of necessary habitat selection research.

   Estimated Cost: $25,000
   Funding: Existing funding for this workshop is available in the approved FY 2010 Program budget (line items PD-4: AMP Workshops and PD-11: AMP Reporting).

Following from #3, either #4 or #5 ⇨

4. If consensus at the pallid sturgeon workshop is the study reach is representative of the lower Platte associated habitat and if no revisions are necessary to the study (or after those revisions are complete; see #2 above), then determine logistics of **using the stage change study tool in conjunction with Program water management activities.** ED Office needs to explore how best to utilize the stage change study tool in planning for and operation of Program water management activities.
   Estimated Cost: N/A
   Funding: Existing funding for this work is available as staff time in the approved FY 2010 Program budget.

5. If consensus at the pallid sturgeon workshop is the study reach is not representative of the lower Platte associated habitat, then solicit TAC recommendation and GC approval of contracting with HDR to **revise and update study accordingly.**
   Estimated Cost: Depends on extent of revisions necessary; $25,000-$100,000+
   Funding: Additional funding for this activity would be included in proposed FY 2011 Program budget under line item PS-2; solicit GC approval in December 2010

Following from #3 ⇨

6. Pallid sturgeon have been sampled upstream of the Elkhorn River confluence (Hamel et al., 2010). If consensus at the pallid sturgeon workshop is the lower Platte upstream of the Elkhorn River confluence should be evaluated, then solicit TAC recommendation and

GC approval in fall 2010 to **extend the stage change study** to cover the reach of the lower Platte from the Elkhorn River confluence upstream to the Loup River confluence near Columbus, Nebraska.
Estimated Cost: Phase I (scalability assessment) – $30,000-$50,000; Phase II (perform stage change study based on Phase I assessment) – $200,000
Funding: Additional funding for this activity would be included in proposed FY 2011 Program budget under line item PS-2; solicit GC approval in December 2010

Following from #3 ⇨

7. If consensus at the pallid sturgeon workshop is habitat selection research (telemetry study) should be conducted on the lower Platte, then develop **objectives, scope of work, and schedule; assemble funding partners** to allow Program to be a minor funding partner (in association with other Platte River and Missouri River efforts); and solicit TAC recommendation and GC approval in fall 2010 to **move ahead with research in 2011.**
Estimated Cost: Habitat selection research was estimated to cost roughly $2.6 million (Adaptive Management Plan, 2006) during the First Increment; $650,000 (25% of original estimate)
Funding: Funding for this activity would be included in proposed FY 2011 Program budget under new line item PS-3: Pallid Sturgeon Habitat Selection and Use Research; solicit GC approval in December 2010

References

Adaptive Management Plan. 2006. Final Platte River Recovery Implementation Program. U.S. Department of the Interior, State of Wyoming, State of Nebraska, State of Colorado.

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Peters, E.J. and Parham, J.E. 2008. Ecology and management of sturgeon in the lower Platte River, Nebraska. Nebraska Game and Parks Commission, Neb. Tech. Ser. 18.

Table 01. Sequencing table for PRRIP priority hypotheses related to pallid sturgeon.

Priority Hypotheses	Detectability	Sensitivity	Feasibility	Priority	Sequence	Critical Path Comments
PS-1: Program flow/sediment mgmt. will result in a + species response by pallid sturgeon in the lower Platte River.	Low Low population numbers and low translation of Program flow and sediment to lower Platte make detection difficult	Low Low ability to structure analysis to see pop. responses to flow and sed changes	Low Requires spatially and temporally intensive monitoring	Low	Tier 3 Only assess after all Tier 1 and 2 hypotheses	
PS-2: Program water management will result in measurable changes on flow in the lower Platte River.	Medium Tool developed but central Platte flow largely attenuated	**High** Can use tool to evaluate impacts on PRRIP water mgmt.	**High** Study complete and tool developed	**High**	**Tier 1** Quantify through Stage Change Study by 2010	Stage change study complete; consider extending spatial scale of study to Loup River confluence and defining additional "worse case scenarios" for analysis
PS-4: Flows in the lower Platte will affect pallid sturgeon habitat suitability.	Medium Proper sampling effort should yield useful data	Medium Experience on Missouri suggests telemetry will work with low #s	**High** Partner with Missouri River agencies to maximize effort and technology	**High**	**Tier 1** Assess through habitat selection research; continue through at least 2015	High priority, but low population numbers and large expanse of lower Platte will make this research difficult and expensive
PS-5: Pallid sturgeon habitat suitability is maximized between water temperatures of X and Y in the lower Platte River.	Low Low populations numbers make detection difficult	Medium Could bound habitat use with water temperature	Low Would require spatially and temporally intensive monitoring	Low	Tier 3 Only assess after all Tier 1 and 2 hypotheses	Not feasible unless and until habitat selection research complete; need to include specific measurement of water quality as a variable
PS-6: ↑ flow in the lower Platte will affect pallid sturgeon habitat availability.	Medium Once habitat defined could use stage change study model to evaluate	Medium Tool sensitive to habitat changes over range of flows	Medium Once habitat defined could use stage change tool to evaluate	Medium	Tier 2 Assess after Tier 1 hypotheses	Not feasible unless and until habitat selection research complete
PS-7: ↑ habitat availability in the lower Platte will ↑ pallid sturgeon use.	Medium Small population can be monitored for use	Low Many confounding factors	Low Requires spatially and temporally intensive monitoring	Low	Tier 3 Only assess after all Tier 1 and 2 hypotheses	
PS-9: ↑ Program flow releases will ↓ water temperatures in the lower Platte River.	Low Attenuation and trib inflow make PRRIP water difficult to detect	Low Many confounding factors	Low Requires spatially and temporally intensive monit.	Low	Tier 3 Only assess after all Tier 1 and 2 hypotheses	
PS-11: Non-Program actions (e.g. harvest, stocking, Missouri River conditions) determine the occurrence of pallid sturgeon in the lower Platte River.	Low Too many confounding factors	Low Difficult to assess which factors are controlling	Low Would require substantial effort to develop analysis methodology	Low	Tier 3 Only assess after all Tier 1 and 2 hypotheses	

TO: GOVERNANCE COMMITTEE

FROM: WATER ACTION PLAN SCORING SUBCOMMITTEE

SUBJECT: CNPPID REREGULATING RESERVOIR SCORING RECOMMENDATION

DATE: MAY 12, 2010

The Governance Committee (GC) formed an ad-hoc Scoring Subcommittee to advance discussions[1] raised at the December 2009 GC meeting, related to scoring analyses for proposed Water Action Plan (WAP) projects. The Subcommittee utilized the Central Nebraska Public Power and Irrigation District (CNPPID) Reregulating Reservoir preliminary-feasibility findings to provide a case study, illustrating the criteria and methodologies that may be used to score this particular WAP project, and to identify remaining scoring issues that may need further consideration with other WAP projects. The Executive Director's (ED) Office provided technical support toward this effort, working with members of the Subcommittee. This memorandum provides a summary of the findings and Subcommittee recommendations.

Background

The Water Advisory Committee's (WAC) preferred alternative from the pre-feasibility study[2] is referred to as the *J-2 Alternative 2 Areas 1 and 2*, with a total storage capacity of 14,320 acre-feet. The project water supply would originate from excesses to Nebraska instream flows and Program target flows that are already diverted into CNPPID's system, and would otherwise be returned to the Platte River. Given the source of the water supply and the proximity of the project to the associated habitat, the pre-feasibility yield analyses were completed on a daily basis, which raised certain questions related to the hydrologic analyses in quantifying excesses and shortages to target flows[3]. The scoring case study utilized the pre-feasibility project configuration, size, and location to investigate the ***sensitivity*** of the project yield to these questions, and additional issues identified by the Subcommittee.

The Subcommittee developed an encompassing list of criteria and methodologies that are likely to impact all WAP project yield analyses, shown below in **Table 1**, and then narrowed the list to criteria that are most likely to affect the CNPPID Reregulating project. The ED Office completed multiple spreadsheet[4] sensitivity analyses to bracket the yield that would result through applying various alternatives, which were documented and reviewed in detail by the Subcommittee.

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[1] One of the questions raised at the December 2009 GC meeting was related to the various sets of Program target flows described in the Program Document Attachment 5, Section 11 Water Plan Reference Materials.

[2] Completed by Olsson Associates, February 2010.

[3] Given that one of the primary goals of the pre-feasibility investigation was to screen various design alternatives against one another, it was not critical that all of these questions be resolved for the pre-feasibility hydrologic analyses, as long as the assumptions were consistently applied across the different alternatives.

[4] While the OPStudy Fortran model that was developed in support of the Program EIS was not directly utilized for this exercise, the model input and output data were applied and the model documentation was referenced in attempt to be consistent where possible, and to document differences as identified.

Table 1. Scoring Components

Component	Alternatives	Alternative(s) Used for Case-Study Scoring
Analysis Tool	• OPStudy model • Individual/combined project modeling using other tools (e.g. Excel) • WMC Loss Model for routing	• Excel daily flow spreadsheet • Data from the WMC Loss Model for routing
Analysis Period	• 1947-1994 • Extended period to include recent years • Truncated period (e.g. 1975-1994 used for the Reconnaissance-Level WAP)	• 1947-1994
Time-Step	• Monthly • Daily	• Daily
Hydrology	• Unadjusted historical gage data • Adjusted Present Conditions data with or without Three States Projects	• EIS OPStudy model data (*Adjusted Present Conditions With Three States Projects*) • Unadjusted Phelps Canal data • ED Office estimates to remove EA flows
Calculating Excesses and Shortages to Target Flows	• Applying Appendix A-5 "cfs" (column 4), Appendix A-5 Weighted Monthly "Average cfs" (column 8), or Appendix E Fixed Daily target flow values • Calculating excesses and shortages at Grand Island or Overton gage	• Comparison of applying Appendix A-5 and Appendix E target flow values • Comparison of various combinations of Overton and Grand Island gage data
Routing	• No routing • Routing yield to/through the associated habitat	• Comparison of no routing and routing to Grand Island gage
Scoring Adjustments	• Bonus score for *new* v. retimed water • Bonus score for ability to augment short duration high flows (SDHF) • Bonus score for ability to provide other benefits (e.g. hydrocycling mitigation) • Bonus score for daily operations if a monthly model is used • Discounting score for percent of associated habitat benefited	• No 'bonuses' were incorporated into score • Possibility of bonus score for SDHF augmentation considered

Results

Using daily spreadsheet analyses of hydrologic data from the OPStudy model, the scoring sensitivity analyses showed a range of project yields relative to Program target flows **between 35,836 and 42,480 acre-feet**. This compares to a normal-year yield of 47,480 acre-feet at Overton[5] estimated in the pre-feasibility analysis. Through these sensitivity analyses, the Subcommittee found that yield from this project is most sensitive to the reservoir storage capacity, as well as the inlet and outlet design. This is because the volume of excess flows far exceeds the volume that can be reregulated with the current project storage capacity. The flexibility of daily operations and proximity to the associated habitat also contribute to the ability

[5] For the pre-feasibility study, both excesses and shortages were calculated at Overton. This assumption was made based, in part, on the project's proximity to Overton, anticipating that a real-time operational plan may eventually be developed utilizing the Overton gage. See section *B. Calculating Excesses and Shortages to Target Flows – Grand Island versus Overton* below for more information.

of this project to yield similar volumes regardless of the various criteria and methodologies identified.

Recommendations

Through various analyses and considerations, the Scoring Subcommittee recommends the following methodology[6] be utilized in CNPPID Reregulating Reservoir project scoring and could be the basis for scoring future projects recognizing that adjustments may be required when evaluating future projects:

- Utilize 1947-1994 adjusted Three State hydrology[7] developed in support of the Program EIS, disaggregated into daily data by previous OPStudy modeling efforts.
- Apply target flows from the Water Plan Reference Materials[8] Appendix A-5, column 4
- Calculate excesses and shortages at Grand Island, utilizing the WMC Loss model to route project yields to Grand Island

The scoring methodology should remain the same for this WAP project unless the project concept changes considerably through further feasibility study and final design.

Based on this case study, and assuming no substantial change in the size or operational aspects of this project, the Subcommittee recommends that this project be assigned a preliminary score of **40,000 acre-feet**, and that the GC further considers whether the score needs to be updated once the feasibility findings become available. The Subcommittee believes the process used to develop this recommendation, using multiple sensitivity analyses to explore effects of multiple variables, is similar to the process of scoring the initial Three State projects. The Subcommittee anticipates that additional analyses will likely be needed for other types of WAP projects, and that most will benefit from sensitivity analyses to provide context to the potential ranges of yields likely to result from planning and operational considerations. The Subcommittee recommends the GC consider these issues as they arise.

Through discussions, the Subcommittee also identified several issues that the GC may want to refer to the WAC for further investigation, to provide additional context for scoring projects. These include:

- Effects of operation of the Wood River flood way on the Platte River flows at Grand Island as recorded by this gage
- Potential for using a 2- or 3-day running average to analyze excesses and shortages at

[6] Spreadsheet analyses are sufficient, at least until effects of multiple projects need to be compared.

[7] Hydrology without "pulse flows" (terminology of the OPStudy Model; these are equivalent to "short-duration high flows") should be used and sensitivity analyses similar to those conducted for this case study should be performed to investigate effects of reregulating Environmental Account (EA) flows. There may be times when the Program will want to reregulate EA flows, depending on the project. There are likely certain efficiencies in having the ability to reregulate some of the EA water in J-2 Reregulating Reservoir, due to its proximity to the habitat.

[8] The various target flows provided in the Water Plan Reference Materials provide flexibility in scoring and operating WAP projects; different sets of target flows may be appropriate for different purposes and with different projects. That said, scoring should always reflect the Program's interest in coordinating all Program water projects to achieve common instream-flow objectives.

Grand Island

- Questions related to the OPStudy adjusted Three State hydrology, including Julesburg flows and other issues identified by the ED Office and documented in the case study supporting documents

Enclosures:

Scoring Subcommittee Conference Call Minutes – April 22, 2010
Scoring Subcommittee Conference Call Minutes – March 4, 2010
Water Action Plan Project Scoring Case Study: CNPPID Reregulating Reservoir

PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM
Scoring Subcommittee Conference Call
FINAL Minutes

April 22, 2010

Attendance

Subcommittee Members
John Lawson – Scoring Subcommittee Chair, Bureau of Reclamation
Beorn Courtney – ED Office/Headwaters Corp
Alan Berryman – Northern Colorado WCD
Jon Altenhofen – Northern Colorado WCD
Mike Besson – Wyoming Water Development Commission
Brian Barels – Nebraska Public Power District
Mike Drain – Central Nebraska Public Power and Irrigation District
Jennifer Schellpeper – Nebraska Department of Natural Resources
Don Anderson – Bureau of Reclamation

Other Attendees
Laura Belanger – ED Office/Headwaters Corp
Brock Merrill – Bureau of Reclamation
Greg Wingfield – US Fish and Wildlife Service
Jim Schneider – Nebraska Department of Natural Resources

Introduction

Lawson went through a roll call. He noted that the only comments received since the last meeting were provided by Mike Drain. Lawson reminded the subcommittee that he would like to have a recommendation for the Governance Committee (GC) to consider at their June 8 meeting regarding scoring this particular J-2 Reregulating Reservoir project. He said that this won't necessarily be the same methodology used for other projects, which would likely require additional discussion.

The draft minutes for the March 4, 2010 Subcommittee call were approved with no changes.

Review of Recent Analyses

Courtney went through the additional analyses that the ED Office has completed since the last Scoring Subcommittee (Subcommittee) call. Additional information was added to Table 4 to show how much excess flow (or excesses) was available at Grand Island versus in CNPPID's system and to the project. This information demonstrates that there are a large amount of excess flows available for reregulation and the size of the reservoir is the major driver of the project score. The ED Office also created Attachment D to describe the OPStudy adjusted hydrology

dataset being used.

Courtney said that additional analyses were completed to evaluate the impacts of using Appendix A-5 column 8 (weighted monthly average flows) as compared to column 4 from this same appendix. These results were added to Table 3. She noted that there is little difference in yields between Appendix E and Appendix A-5 column 4. The difference in yields between Appendix A-5 columns 4 and 8 was larger.

Courtney noted that during the last call, there were questions about the dataset being used. In March, the Subcommittee agreed that pulse flows (OPStudy terminology) shouldn't be included in the dataset used for scoring purposes. Pulse flows as used in this document are short duration high flows (i.e not annual pulse flows or peak flows). Since that time, the ED Office located OPStudy output *without* pulse flows. This dataset was used in developing the additional results presented in Table 2. The Subcommittee then discussed how OPStudy disaggregates monthly data to daily. Courtney noted that pulse flows occurred only on specific days within a month and are not disaggregated evenly over the entire month. The Subcommittee has also asked how much EA water was being reregulated. Courtney noted that OPStudy output doesn't identify EA water in the daily output. As a result, the ED Office had to disaggregate monthly EA output as described in Attachment A to the main scoring document. Table 2 includes two analyses completed removing EA water in different ways. In one analysis (Table 2 row 4), all EA water was removed from Grand Island (so not considered when evaluating if excesses or shortages existed) and the project supply (J-2 Return flows). In the other analysis (Table 2 row 3), EA water was left in the Grand Island flows to calculate excesses and shortages, but any EA water in the J-2 Return project supply was removed so could not be stored. Anderson asked why the results in Table 2 in Rows 3 and 4 are so different if EA water was removed from the J-2 Return project supply in both cases. **The ED Office will investigate the differences and provide additional information to the Subcommittee.** Drain noted that the analysis completed in Rows 2 and 4 bracket the Row 3 results. Wingfield noted that we now know the relative significance of taking out pulse flows and EA flows based upon Table 2 and that this is very helpful in considering the implications of retimed EA flows for scoring.

Discussion

Lawson said that ultimately the Fish and Wildlife Service (FWS) needs to agree with whatever the Subcommittee proposes. This is an effort to provide information that FWS can be comfortable with. Lawson noted that he'd like to use Drain's comments as a means to discuss the various topics. Drain reviewed his key points. He recommends that pulse flows shouldn't be included in the dataset used for scoring, noting that the analyses completed shows this doesn't impact the score much. Regarding EA flows, he thinks that there may be times when the Program will want to reregulate EA flows depending on the project. What the ED Office has done in Table 2 provides a sensitivity analysis, rather than a final score. Drain believes that the score should be between Rows 2 and 4 in this table, or approximately 40,000 acre-feet. Lawson noted that there are probably certain efficiencies in having the ability to reregulate some of the EA water in a J-2 Reregulating Reservoir due to its proximity to the habitat. Drain also noted

that the difference in using EA flows or not isn't large enough to spend too much time on.

Regarding target flows, Drain noted that certain projects will operate in different ways, so different targets may be appropriate for different projects. For example, Tamarack I can't be operated daily so shouldn't use the changing daily targets. He noted that the differences in yields developed using Appendix E versus Appendix A-5 column 4 are small.

Regarding the location used to calculate target flows, Drain thinks that either using just Grand Island or just Overton to calculate excesses and shortages makes the most sense. Drain noted that in actual operations, the EA Manager may change the location that he's focused on depending on the specific situation. Drain said that results are very similar for both Grand Island and Overton. He doesn't think it matters much but we should use the same location for excess and shortage calculations.

Drain noted that there are some concerns about the dataset such as if Tamarack I flows were included. There seems to be something strange going on at Julesburg. Drain thinks we should move on, as this probably doesn't impact the score much, though **the ED Office should continue to investigate the dataset**.

Drain also recommended that the Subcommittee pick a round number for a score and not haggle over of few hundred acre-feet (AF) of score.

Lawson then asked the group for their thoughts on Drain's proposal. Besson believes it is reasonable and thanked Drain for his efforts. Wingfield noted that he knows this can be evaluated numerous ways and he's comfortable that at some point this will be a negotiated number. This is consistent with how the three state projects were evaluated. Wingfield said that he is comfortable with Grand Island being the gage that is used. Wingfield also thinks it makes sense for some EA flows to be reregulated by this particular WAP project. He noted that the final score would be decided at a later date once final design information is available, particularly since the analysis is so sensitive to the reservoir capacity.

Wingfield also said that the score would be impacted if the hydrology was extended beyond the OPStudy model period (1947 – 1994) to present. One reason is that completion of the Wood River flood way a few years ago now results in additional flows being returned to the river above Grand Island. This needs to be considered in scoring future projects, as it can impact Grand Island gaging records. Drain noted that the Program needs to be paying attention to any changes occurring in the vicinity of gages.

Lawson said that the Subcommittee needs to have thorough documentation regarding the process, what was considered, and what was determined to score this particular project. This documentation will then serve as a starting point for scoring other projects in the future. Lawson told the Subcommittee that if they can decide on a methodology today, he would like a document describing what was completed and where the group ended up. He recommended using Drain's

memo as a good starting point.

Lawson asked Wingfield to clarify that when a final score was determined for the initial three state projects, the group agreed that the score was 80,000 AF and this won't change. There will be a monitoring program to see how well we achieved our goal but the score won't be changed. Wingfield clarified this and said that his earlier comment that "a final score would be decided at a later date" simply meant that if the design changes as the J-2 Reregulating Reservoir project moves ahead, that the draft project score will need to be adjusted prior to being accepted as an official project score. Drain confirmed that the data in the Scoring Subcommittee memo is based on a preliminary project design and this will change as the project moves through feasibility and final design.

Regarding the location used to calculate excesses and shortages, Anderson thought that it makes sense to use one gage for both calculations and also that it makes sense to use Grand Island. Anderson thought that by focusing solely on Grand Island, because of travel time, there could be days with excess flows at Grand Island but not at Overton. He noted that he understands that this analysis is for scoring and not real-time operations, but he does think there needs to be some correlation between scoring and operations. He proposed that rather than scoring against daily flows, a rolling two or three day running average could be used to evaluate excess flows and shortages. Drain noted that we are assuming that if we're within one day, then we're probably good enough. Anderson noted that it may well be that enough analysis has been completed and that the Subcommittee is close enough with the analyses already done to be able to come to a negotiated score.

Barels suggested that some of the outstanding data questions and final design details can continue to be worked on, but at the same time the Subcommittee can draft a proposal for the GC regarding the methodology for scoring this project. He noted that ultimately, the Subcommittee will have to figure out how to score all WAP projects and that with this current project, the group is changing, to some degree, the methodology laid out in the Program Document. This makes sense because we have more information and know more now. Barels said this all needs to be well documented so it can referred to in the future. Lawson noted that for this project, we will frame the proposed scoring methodology and get it to the GC. The Subcommittee can then describe additional analysis that should be considered by the Water Advisory Committee (WAC), such as looking into what's going on regarding Tamarack I in the model and Anderson's proposal to use a two or three day running averages for analysis. Wingfield noted that if the group is identifying issues to discuss with the WAC, he'd like to include changes to flows at the Grand Island gage as a result of the Wood River flood way return.

Lawson confirmed with the Subcommittee that at this point, it has a proposal regarding how to score this project. Anderson also noted that his two or three day rolling average idea is more of a policy approach that this group should consider, regardless of whether the project design changes. Courtney asked for clarification on how this analysis would work and Anderson said that the daily flow data would be averaged over two or three days, and the daily target flow

compared to the rolling average. Drain then said that he thought you might also want to average the target flow, especially if it's changing. Drain noted that that once we decide how to do the analysis, it could be done fairly quickly but deciding exactly how to do it would take some time. Anderson suggested that it may not be something to bring to the WAC and that perhaps the best way to do this would be for FWS to discuss it with the ED Office. Wingfield doesn't think this is critical and if the ED Office were to complete additional analyses, it would be similar to how the other analyses were completed in the memo, as another sensitivity analysis. It was left that this issue was something the WAC could consider evaluating in the future, as noted earlier.

Lawson asked Wingfield if he thinks we need to do additional analysis at this point. Wingfield said no, if the Subcommittee is ready to go forward and say here's the methodology, then he's okay with that. Lawson said if the Subcommittee can agree that further analysis regarding methodology isn't needed now, then a proposal can be brought to the GC. Separate from this, the WAC can look at other questions to add general knowledge and context. Drain noted that to the extent that projects are considered on a daily basis, in the future the Subcommittee could consider if there is a better mechanism to take travel time of more than a day to Grand Island into consideration.

Lawson said the he will work with the ED Office to put a draft GC recommendation together that will be sent out to the group. Barels noted that one of the items that stimulated the formation of the Subcommittee was whether or not Appendix E or A-5 needed to be modified. He said that the group has learned that scoring can vary, depending on the project, but for this analysis Appendix A-5 column 4 will be used. He suggested that the GC proposal highlight that this can vary depending on the project.

Altenhofen said that he agreed with Drain's memo and the proposal to use Grand Island to calculate excesses and shortages using target flows from Appendix A-5 column 4. He also thought it makes sense to consider EA water at Grand Island when calculating excess flows and shortages but perhaps not storing these in the Reregulating Reservoir. Altenhofen asked about Olsson's next round of project design analysis. Courtney explained that the draft scope proposes that the ED Office continues to update, as necessary, the types of analyses that have been completed for this case study once the next level of CNPPID Reregulating Reservoir feasibility is completed. Olsson will run their models for design regarding reservoir capacity, specific gate sizes, numbers of gates, outflow capacities, etc. Olsson will also likely use historical hydrology and a longer period for their design analysis. Scoring is outside of Olsson's scope and experience. Courtney noted that Olsson will design the reservoir for a combination of uses, including short duration high flows, target flows, and potentially hydrocycling mitigation. Olsson will provide revised capacities to the ED Office, which will then rerun the analyses and update the project score, if necessary.

Lawson agreed that if the reservoir size changes the analysis will need to rerun. Courtney confirmed this and said that the ED Office can redo all of the tables in the case study memo or just specific analyses identified by the Subcommittee. Drain suggested that only the key analysis

the Subcommittee has identified will need to be updated. He also said that once the revised design information is available, the Subcommittee could also consider if the design is similar enough that existing results could be used.

The group thanked the ED Office for the work they've done on this and for major contributions from various Subcommittee members. **Lawson will develop a schedule regarding how to get a proposal to the GC for their June 8 meeting.**

PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM
Scoring Subcommittee Conference Call
FINAL Minutes

March 4, 2010

Attendance

Subcommittee Members
John Lawson – Scoring Subcommittee Chair, Bureau of Reclamation
Beorn Courtney – ED Office/Headwaters Corp
Don Anderson – Bureau of Reclamation
Alan Berryman – Northern Colorado WCD
Jon Altenhofen – Northern Colorado WCD
Mike Purcell – Wyoming Water Development Commission
Mike Besson – Wyoming Water Development Commission
Brian Barels – Nebraska Public Power District
Mike Drain – Central Nebraska Public Power and Irrigation District
Jennifer Schellpeper – Nebraska Department of Natural Resources

Other Attendees
Jerry Kenny – Executive Director, Headwaters Corp
Laura Belanger – ED Office/Headwaters Corp
Greg Wingfield – US Fish and Wildlife Service
Brock Merrill – Bureau of Reclamation
Jim Schneider – Nebraska Department of Natural Resources

Introduction

Courtney reminded the group that per Lawson's direction, the purpose of the case study is to run to ground some of the scoring issues relevant to the CNPPID reregulating reservoir project. It also focuses on issues Anderson could provide unique input, given that his time is limited on this project. Table 1 in the case study memo outlines major scoring issues that have been identified over time and also notes which were addressed in this case study. The case study showed some of the sensitivities of these decisions by presenting a range of scores rather than picking a score. **The following two corrections to Table 1 will be made: (1) the Analysis Period component will be updated to reflect that an extended period could be run as an alternative to the historical 1947-1994 scoring period, and (2) the Hydrology component will be corrected to include an unadjusted and adjusted alternative.**

Discussion

The reregulating reservoir prefeasibility study used daily historical gage data for three representative year types. The case study used OpStudy model output for a continuous daily simulation of 1947-1994. Don Anderson provided the OpStudy model output hydrology, which

was based on "adjusted" OPStudy output for Present Conditions (as of mid-1990's) with full implementation of the initial three State projects. Anderson explained that OPStudy is a monthly timestep model. Late in the EIS process there was a need for daily data (for sediment modeling). Monthly data was disaggregated to daily using the historical daily distribution for that particular month. Berryman asked if in using the OpStudy adjusted hydrology, did we avoid mixing the water already counted toward the three State projects? The OpStudy dataset used for this analysis did include effects of operating the three State projects and the pulse flow releases, and that water was not 'colored' differently so there may have been some double accounting.

The group discussed the Appendix A-5 and E target flows. Table 2, which used Grand Island to calculate excess flows and shortages, shows there is 0.32% difference on average and 0.81% difference in wet years. The bottom line is there's a very small difference in the score – roughly 140 acre-feet on average over the 1947 – 1994 period used in this case study. The issue is that there is a discrepancy between the two appendices in wet years in May and June as described in footnote 3 on page 3 of the case study memo. Altenhofen noted that Tamarack I was scored against Appendix E and Nebraska's Depletions Plan refers to Appendix E. There was discussion regarding the various appendices and when they can/should be used according to the Water Plan Reference Materials (WPRM), which appears to provide some flexibility. Barels referred to page 10 of the WPRM that describes operation of approved Water Plan projects. It provides flexibility and says that the applicable target flows may be expressed in terms of weighted-monthly averages, fixed daily values, or flexible daily values.

The subcommittee will need to decide which appendices will be used for what purposes. Lawson noted that the group needs to come to a conclusion for the scoring of Water Action Plan projects, but not today. Any discussions regarding Tamarack I and Nebraska's Depletions Plan is not under the scope of this subcommittee and is referred to the Water Advisory Committee for discussion and recommendations to the Governance Committee as needed. The subcommittee also needs to decide if a daily spreadsheet can be used for scoring rather than using the monthly OPStudy model. There was some discussion regarding how the initial three State projects were scored and if we do something different, is that a problem? The subcommittee generally supported using the 1947 – 1994 adjusted hydrology as has been used in the past. Drain noted that even when OPStudy was used there were issues with the monthly timestep. The score was increased when there was some benefit to a project being operated on a daily basis. Courtney noted that the ED Office does not currently have the ability to use OPStudy and also was using assumptions from the prefeasibility level project analysis, which was performed on a daily basis. From the pre-feasibility study, we learned that in many cases there are excesses and shortages in the same month so using a monthly model hides this. OPStudy considers a month to either have shortages or excesses, but not both.

Lawson then moved on to Table 3 which used varying gages to evaluate excess flows and shortages. This is something that will have to be resolved, likely through the Fish and Wildlife Service. Anderson explained that all of the scoring is relative to target flows in the Platte River. When there are flows above the target flows (excess flows) water can be stored and retimed.

When flows are below the target flows, there is a shortages and water can be released/retimed to decrease, or reduce, the shortage. OPStudy modeling used the Grand Island gage, using monthly average flows, to determine if there were excesses or shortages in a particular month. The reality is that the FWS wants to protect and improve flows throughout the habitat reach. This raises the question, particularly on a daily basis versus monthly average, if you have different flow conditions at the upper end of the reach and Grand Island, do you need to pay attention only to Grand Island or also Overton (towards the upper end of the reach). The selection of the gage does have a substantial impact on the score as shown in Table 3 in the scoring case study memo. Anderson noted that this needs to be resolved and the FWS needs to determine what they are comfortable with regarding the gage to use to determine excesses and shortages. Drain pointed out that we are assuming that we need to have a rigid set of rules but he believes the Program Document allows for flexibility in the way the individual projects are evaluated. It's ultimately the FWS's decision but the rest of the group can have input. Drain noted that the original score was not exactly what came out of OPStudy. There were some adjustments made for various projects based on other information.

Lawson asked what if the target flow was 1,200 cfs and there is 600 cfs at Overton and 1300 cfs at Grand Island. Courtney explained how Table 3 works; that if Grand Island is to determine excess flows and shortages, 100 cfs of excess flow could be diverted into storage (if there is water in CNPPID's system and capacity to store it). When use the minimum of Grand Island and Overton, there needs to be an excess at both gages, so in this case there are no excesses at Overton so no water could be stored. The same is true for the remaining cases in the table because they use Overton to determine if there are excess flows. In the last case, when Overton is used to determine excesses and shortages, there is a shortage at Overton so if water was available, there could be a release to reduce the shortage. Anderson pointed the group to footnote 4 in the scoring memo which documented the FWS concerns about improving flows throughout the entire reach and Wingfield concurred. The group agreed that scoring is – and should be – separate from real time operations. If both gages had been used in OPStudy, scores would have been lower. The scoring subcommittee ultimately needs to make a recommendation to the FWS. Drain said that the Program Document allows flexibility and the subcommittee can look at ranges of options for projects as they come forward and make a recommendation to the FWS. The Environmental Account (EA) Manager can also choose to operate projects differently from the exact assumptions used for scoring.

Purcell then asked if any EA water resulting from the initial three State projects was being more efficiently reregulated by this project; does this analysis show the benefit of having storage lower in the system? Drain and Anderson confirmed that any EA water that ends up at the habitat would be in the OPStudy data. If EA water arrived during a period of excesses, some EA water could potentially be reregulated. Altenhofen noted that ideally we would run OPStudy with the SDHF turned off as documented in the scoring memo. Courtney noted that the ED Office spent a long time discussing this with Anderson and pointed to Figure A-1 in Attachment A of the scoring case study memo. Looking at all of the excesses that were available in CNPPID's system and that could have been sent down the Phelps Canal for this particular project, there

were a lot of additional excesses available as compared to what was actually scored. For this particular project, the score didn't seem particularly sensitive to this. Purcell noted that double accounting may be appropriate, assuming it's not a large volume, if this reregulating reservoir allows the Program to better optimize use of water. Lawson and Purcell noted that the group may chose to score a project one way, but then asked how will that get used in combination with the three State projects and other projects? Anderson pointed out this is why a model like OPStudy is important because as you begin getting more projects operating, you can model project interactions. Drain said that it may be possible to include additional projects in the daily spreadsheets analysis.

The 80,000 AF score for the initial three State projects used Grand Island to determine excess flows and shortages. The group tended to think that Grand Island is what should be used for scoring as was done with the three State projects. Purcell asked what the assumptions were for the initial three State projects. Courtney responded that we didn't color or track that water so we don't know if we're storing any of this as excess flows. The capacity of these reservoirs is small enough, that if that did happen, we could likely leave that water in the river and grab other excesses on subsequent days. If any EA water was double counted, it could likely have been replaced with other excess water in this particular case. **The ED Office will add information regarding total volumes of excess flows available and how much was stored to Table 3.** Wingfield noted that if EA water stored as excess flows was a significant percentage of what was stored then the group should be concerned but for this particular project, the FWS isn't concerned. Courtney noted that Table A-1 in the scoring memo Attachment A showing Olsson's (the consultant that completed the prefeasibility study) normal year result, which was based on different hydrology and assumptions, was very similar to the average case study score. The reservoir capacity appears to have a larger impact on the score for this project than the dataset used. This may become important for other projects.

Belanger noted that OPStudy did not model the Phelps County Canal. As a result historical, filled data (as described in the scoring memo Attachment A) was used. Drain and Belanger discussed these data and agreed that for this case study they are appropriate.

Altenhofen requested that the daily modeling files be provided to him. Belanger noted the files are large so will need to be posted to an ftp site. **Subcommittee members who would like these files should email her at belangerl@headwaterscorp.com. The ED Office will post the files to Altenhofen's ftp site and will also post them at the Program's ftp site if anyone else is interested.**

Bonus Scoring and Short Duration High Flows

Short Duration High Flow (SDHF) scoring and assumptions were briefly discussed. Courtney noted that it is assumed that the supply for a SDHF can be either EA water routed down and staged immediately prior to an event or excess flows if available. Anderson said that up to now the FWS hasn't considered giving a bonus score for SDHF and that they are concerned that if EA water is being used, the water is being double counted. Belanger noted that if you only use

excess flows for SDHFs you don't score any higher than if you are using a reregulating reservoir solely to meet target flows. The reservoir is more efficient for target flows because water is not held for long periods of time.

Conclusions

Lawson asked the group if it thinks its purpose is only trying to determine how to score this project or is it also thinking about how other projects will be scored in the future? He noted that it may be difficult if the group tries to think about other projects for which specific details are not known. Lawson also said that it seems that this project should be scored on target flow operations and nothing else. The group needs to make a recommendation regarding this project and if it thinks that recommendation conflicts with anything in the Program Document, it will need to address this.

At the subcommittee's request, **the ED Office will run the daily model using the weighted-monthly average target flow values (last column) in Appendix A-5 using the Grand Island gage to determine excesses and shortages. Results will be added to Table 2 of the scoring memo.** This will help address the guidance provided in the WPRM regarding when to apply which appendices.

At the subcommittee's request, **the ED Office will document, using information that can be pulled from the EIS and OPStudy documentation, regarding how the adjusted present condition and three State hydrology that was used to develop the 80,000 acre-foot score for the initial three State projects was developed. The ED Office will also look at available OPStudy output data (possibly requesting additional output data from Anderson or with assistance from Drain) for the adjusted dataset to try to determine when EA releases were made, and compare this to when excesses were stored to estimate the volume of excesses potentially stored under the current case study analysis.**

Lawson asked that each subcommittee member provide him with input regarding how they think this project should be scored. He noted that he is not looking for why certain things won't work but rather what they think will work. **The goal is for this subcommittee to have a recommendation to take to the June 8 GC meeting.** Lawson reiterated that right now, the subcommittee is thinking that the score be based on target flows at Grand Island.

WATER ACTION PLAN PROJECT SCORING CASE STUDY: CNPPID Reregulating Reservoir

I. EXECUTIVE SUMMARY

The Platte River Recovery Implementation Program (Program) Scoring Subcommittee was formed by the Governance Committee (GC) to advance discussions regarding scoring analyses for proposed Water Action Plan (WAP) projects. The Subcommittee Chair, John Lawson, asked the Program Executive Director's Office (ED Office) to utilize the Central Nebraska Public Power and Irrigation District (CNPPID) Reregulating Reservoir pre-feasibility findings to provide a case-study illustrating the criteria and methodologies (see Table 1) that may be used to "score" that particular WAP project, and to highlight remaining unresolved scoring issues. Potential topics that may be relevant for scoring other WAP projects could be identified, but did not have to be evaluated at this time if they were not directly relevant to the reregulating reservoir WAP project. Don Anderson, formerly with the U.S. Fish and Wildlife Service (Service), provided input to this exercise.

This case study utilizes physical parameters from the Water Advisory Committee's preferred CNPPID Reregulating Reservoir pre-feasibility alternative, *J-2 Alternative 2 Areas 1 and 2* with a total storage capacity of 14,320 acre-feet. Using this project configuration, size, and location, **our analysis results in a project score of between 35,836 and 42,480 acre-feet**[1] (see Table 4), depending upon the specific criteria applied to determine the occurrence of excesses or shortages to target flows on a daily basis and not including any scoring adjustment for 'bonus' score (see discussion below). The case study evaluated the options and results for:

- Hydrology – With or Without Environmental Account (EA) Flows;
- Calculating Excesses and Shortages to Target Flows – Applying Appendix A-5 or Appendix E target flows;
- Calculating Excesses and Shortages to Target Flows – Calculating at Grand Island or Overton gage; and
- Potential Scoring Adjustments for Short Duration High Flow (SDHF) Augmentation and other topics.

The scoring methodology and policy issues outlined in this document need to be resolved before a final project score can be assigned. These decisions may also influence feasibility analyses.

II. INTRODUCTION

A project score toward reducing shortages to target flows was estimated by comparing the potential project yield to target flows at a certain location. This approach creates several potential alternatives with respect to the criteria applied and the data utilized in the analysis.

[1] This is a preliminary range based upon the assumptions specified for Table 4. This range may change, depending on the data and assumptions presented in this memo and ultimately selected by the Scoring Subcommittee.

Table 1 provides a list of components that may potentially affect a project score, alternatives to analyzing each component, and the approach applied for this case study analysis. The results for this project are expressed as a range of possible scores, because certain components affecting the score for this (or any) WAP project ultimately depend upon Service and Program policy decisions that have not yet been clarified. It should also be noted that additional scoring issues were not addressed here that may need to be addressed in the future for other WAP projects.

Table 1. Scoring Components

Component	Alternatives	Alternative(s) Used for Case-Study Scoring
Analysis Tool	• OPStudy model • Individual/combined project modeling using other tools (e.g. Excel) • WMC Loss Model for routing	• Excel daily flow spreadsheet • Data from the WMC Loss Model for routing
Analysis Period	• 1947-1994 • Extended period to include recent years • Truncated period (e.g. 1975-1994 used for the Reconnaissance-Level WAP)	• 1947-1994
Time-Step	• Monthly • Daily	• Daily
Hydrology	• Unadjusted historical gage data • Adjusted Present Conditions data with or without Three States Projects	• EIS OPStudy model data (*Adjusted Present Conditions With Three States Projects*) • Unadjusted Phelps Canal data • ED Office estimates to remove EA flows
Calculating Excesses and Shortages to Target Flows	• Applying Appendix A-5 "cfs" (column 4), Appendix A-5 Weighted Monthly "Average cfs" (column 8), or Appendix E Fixed Daily target flow values • Calculating excesses and shortages at Grand Island or Overton gage	• Comparison of applying Appendix A-5 and Appendix E target flow values • Comparison of various combinations of Overton and Grand Island gage data
Routing	• No routing • Routing yield to/through the associated habitat	• Comparison of no routing and routing to Grand Island gage
Scoring Adjustments	• Bonus score for *new* v. retimed water • Bonus score for ability to augment short duration high flows (SDHF) • Bonus score for ability to provide other benefits (e.g. hydrocycling mitigation) • Bonus score for daily operations if a monthly model is used • Discounting score for percent of associated habitat benefited	• No 'bonuses' were incorporated into score • Possibility of bonus score for SDHF augmentation considered

III. PROJECT DESCRIPTION AND PRELIMINARY SCORING RESULTS

This case study utilizes physical parameters from the Water Advisory Committee's preferred pre-feasibility alternative, *J-2 Alternative 2 Areas 1 and 2* with a total storage capacity of 14,320 acre-feet. Using this project configuration, size, and location, **our analysis results in a project score of between 35,836 and 42,480 acre-feet**[2] (see **Table 4**). This compares to a normal-year yield of 47,480 acre-feet at Overton[3] estimated in the pre-feasibility analysis. That figure was not necessarily intended to translate directly into a WAP project score; its purpose was to compare yields between alternatives being evaluated at the pre-feasibility level.[4]

Key differences between this scoring exercise and the pre-feasibility study include:

- Continuous daily hydrologic simulation over 48 years using OPStudy hydrology (pre-feasibility study used a representative normal, wet, and dry year)
- Comparison between applying Appendices A-5 and E from the Water Plan Reference Materials (including different target flows from Appendix A-5) to calculate shortages to target flows (pre-feasibility study used column 4 from Appendix A-5)
- Comparison between using Grand Island or Overton gage data to calculate excesses and shortages to target flows (pre-feasibility study used Overton)

IV. ALTERNATIVES EVALUATED FOR EFFECT ON SCORE

As noted above, the score determined for this project ranged from 35,836 to 42,480 acre-feet, depending upon the specific criteria applied to determine the occurrence of excesses or shortages to target flows on a daily basis and not including any scoring adjustment for 'bonus' score. The following sections describe the options and results for:

- Hydrology – With or Without EA Flows;
- Calculating Excesses and Shortages to Target Flows – Applying Appendix A-5 or Appendix E target flows;
- Calculating Excesses and Shortages to Target Flows – Calculating at Grand Island or Overton gage; and
- Other Possible Scoring Adjustments.

[2] See footnote 1.

[3] For the pre-feasibility study, both excesses and shortages were calculated at Overton. This assumption was made based, in part, on the project's proximity to Overton, anticipating that a real-time operational plan may eventually be developed utilizing the Overton gage. See section *IV.B. Calculating Excesses and Shortages to Target Flows – Grand Island versus Overton* below for more information.

[4] Also, note that project sponsors may wish to reserve a portion of this yield; per the Reconnaissance-Level Water Action Plan, Nebraska indicated it may reserve 2,500 to 4,000 acre-feet of reregulating reservoir project yield to offset depletions.

IV.A. Hydrology – With and Without EA Flows

The majority of the results provided in this case study were generated using daily OPStudy EIS model run output data (*Adjusted Present Conditions With Three States Projects*) provided to the ED Office, which included pulse and EA flows (see **Attachment D** for background information regarding the OPStudy model hydrology). This was the only data readily available when the ED Office performed the initial case study analyses. Upon reviewing the results, the Scoring Subcommittee and the ED Office agreed that ideally pulse flows would not have been included. The ED Office has since identified additional OPStudy model run output data. Rather than rerun all case study scenarios, one simulation was completed *without pulse flows* by applying target flows from Appendix A-5 column 4, and using the Grand Island gage to calculate daily excesses and shortages, to determine the general impact. Results presented in row 2 of **Table 2** show that removing pulse flows had a small impact on excess flows and project yield (approximately a 1% decrease in average annual reductions in shortages to target flows). We recommend that data without pulse flows be used in future project scoring.

The Scoring Subcommittee also requested that the ED Office attempt to gain a better understanding of the extent to which the case study analyses may have reregulated EA flows in the CNPPID reregulating reservoir, and how this may have impacted the project yield[5]. The ED Office used the OPStudy model run output data (without pulse flows) from Grand Island and the J-2 Return to "remove" EA flows from the hydrology data, as described in **Attachment A**[6]. This adjusted data was then utilized in the reregulating reservoir case study analysis, applying target flows from Appendix A-5 column 4, and using the Grand Island gage to calculate daily excesses and shortages. Results are presented in rows 3 and 4 of **Table 2**. Row 3 includes EA flows when determining excesses and shortages at Grand Island, but removes EA flows from the amount of water that can stored in the CNPPID reregulating reservoir. Row 4 is similar to row 3 except that EA flows were not included when determining excesses and shortages at Grand Island. There are limitations with both analyses, as further described in Attachment A; however the ED Office found the approach used to develop row 3 results more representative of the intent for projects to be incrementally scored toward a total 130,000 to 150,000 AFY. As compared to the simulation with only pulse flows removed (row 2), removing the pulse *and* EA flows (row 4) has the largest effect on the project yield, with a decreased average annual reduction to shortages by approximately 7%. This shows that under this scenario, on average, less than 3,000 acre-feet per year of the reregulated flows may have been EA water.

[5] The *Adjusted Present Conditions With Three States Projects* OPStudy dataset includes Lake McConaughy EA releases that served to reduce shortages to target flows and were counted toward the initial Program score. These releases were included in the data used throughout this case study to determine excesses and shortages. To the extent that EA flows were reregulated in the CNPPID reregulating reservoir, there is potential that the score was "double counted".

[6] The adjustments were made to estimate the yield if no EA water is reregulated. The ED Office analyses to remove EA flows should be considered preliminary as there are several data issues outlined in Attachment A which may impact EA flow adjustments. The ED Office anticipates any related modifications to the OPStudy hydrology will likely have a minimal impact on the results presented in Table 2.

Table 2: Average Annual Yield Comparison with Various Pulse and EA Flow Hydrology [1]

Row	Grand Island and J-2 Return Hydrology	Average from 1947-1994 Period (acre-feet)					
		Excesses at Grand Island	Excesses in CNPPID's System	Excesses Available for Phelps County Canal	Excesses Stored	Reservoir Releases	Reductions to Shortages [2]
1	With Pulse, With EA Flows	405,734	216,676	169,791	47,758	47,621	42,181
2	Without Pulse, With EA Flows	393,441	207,788	163,300	47,303	47,138	41,556
3	Without Pulse, Without EA Flows in J-2 Return but With EA flows at Grand Island	393,441	206,014	162,156	46,982	46,820	41,295
4	Without Pulse, Without EA Flows	374,459	193,070	150,422	43,596	43,459	38,670

[1] All scenarios in Table 2 were developed by applying target flows from Appendix A-5 column 4, and using the Grand Island gage data from the OPStudy *Adjusted Present Conditions With Three States Projects* dataset (which include pulse and EA flows) to calculate daily excesses and shortages.

[2] Differences between Reservoir Releases and Reductions to Shortages reflect routing effects (transit loss).

IV.B. Calculating Excesses and Shortages to Target Flows – Applying Appendix A-5 or Appendix E

The Subcommittee has discussed the various target flows described in the Water Plan Reference Materials, and how they may be applicable for different purposes (e.g. scoring, depletions plans, etc.). **Table 3** compares the difference in the average annual yield resulting from the use of target flows from Appendix A-5 versus Appendix E. Two sets of target flows from Appendix A-5 were evaluated: "cfs" from column 4 (targets may vary within a month) and Weighted Monthly "Average cfs" from column 8 (targets are constant within a month). Appendix A-5 "cfs" daily targets are the same as the Fixed Daily targets presented in Appendix E with the exception of variations that occur in May and June of wet years[7]. Due to the weighting effect, the Weighted Monthly target flow values in Appendix A-5 column 8 differ more substantially from Appendix A-5 column 4 and the Fixed Daily targets in Appendix E in many months and across all year types. A table including the various target flow alternatives from Appendices A-5 and E is provided in Attachment A.

Table 3 (row 5) shows that there is little difference (less than 0.5% on average) in reduction to shortages between using Appendix A-5 column 4 and Appendix E Fixed Daily target flows.

[7] Appendix A-5 has a target of 4,900 cfs from May 20 through May 26 and 3,400 cfs from May 27 through June 20. Appendix E has a target of 3,700 from May 20 through June 20.

This is not surprising as the targets are the same except in May and June of wet years. However, there is a larger difference (up to 10% on average) in reduction to shortages between using Appendix A-5 column 4 and column 8 (row 4). Using the targets from Appendix A-5 column 8 would reduce the case study average annual yield by approximately 4,000 acre-feet as compared to using the Appendix A-5 column 4 or Appendix E target flow values.

Note that Appendix A-5, column 4 was used to develop the rest of the results presented in this document.

Table 3: Average Annual Yield Comparison with Various Daily Target Flows [1]

Row	Daily Target Flows Used	Average from 1947-1994 Period (acre-feet)		Average of Wet Years Only[2] (acre-feet)	
		Reservoir Releases	Reductions to Shortages[3]	Reservoir Releases	Reductions to Shortages[3]
1	Appendix A-5 (column 4)	47,621	42,181	52,823	49,722
2	Appendix A-5 Weighted Monthly (column 8)	42,956	37,976	NA	NA
3	Appendix E Fixed Daily	47,481	42,046	52,405	49,317
4	Percent Difference Row 1 & 2	9.8%	10.0%	NA	NA
5	Percent Difference Row 1 & 3	0.29%	0.32%	0.79%	0.81%

[1] All scenarios in Table 3 were developed by applying the specified target flows and using the Grand Island gage data from the OPStudy *Adjusted Present Conditions With Three States Projects* dataset (which include pulse and EA flows) to calculate daily excesses and shortages.

[2] The average of wet years only was provided to show the difference between Appendix A-5 column 4 and Appendix E, given that the only difference between these sets of target flows occur in May and June of wet years only.

[3] Differences between Reservoir Releases and Reductions to Shortages reflect routing effects (transit loss).

IV.C. Calculating Excesses and Shortages to Target Flows – Grand Island or Overton

The location at which the target flows are applied and the specific stream gage data affects the case study analysis in terms of determining (a) whether there is an "excess" or "shortage" based on gage data at that location and subsequently (b) whether the reregulating reservoir is in a storage or release mode[8]. **Table 4** presents annual releases and calculated reductions in

[8] For the EIS analysis, all OpStudy simulations considered flows at the Grand Island gage (only) for project simulations and Program scoring. However, the Service wants to improve flow conditions throughout the entire habitat reach, not just at Grand Island. Also, real-time WAP project diversion/release decisions will need to take into account the lag in flow travel time to the Grand Island gage, regardless of the project location.

Table 4: Average Yields Using Varying Gage Locations to Calculate Excess Flows and Shortages to Target Flows[1]

Row	Gage Location Used		Average Annual (acre-feet)					
	Excess Flows	Shortages	Excess Flows at Gage Specified	Excess Flows in CNPPID's System[5]	Excess Flows Available to Phelps Canal[6]	Excess Flows Stored in J-2 Rereg Reservoir	Reservoir Releases	Reductions to Shortages
1	Grand Island	Grand Island	405,734	216,676	169,791	47,758	47,621	42,181*
2	Minimum of Grand Island and Overton[2]	Grand Island	321,792	181,098	143,065	40,628	40,623	35,836*
3	Overton[3]	Grand Island	404,827	222,435	175,118	43,154	43,148	37,614*
4	Overton[4]	Overton	404,827	229,882	181,745	42,492	42,480	42,480**

[1] All scenarios in Table 4 were developed by applying target flows from Appendix A-5 column 4 and using gage data from the OPStudy *Adjusted Present Conditions With Three States Projects* output dataset (which include pulse and EA flows) to calculate daily excesses and shortages.

[2] Excess flows were calculated at Overton and Grand Island. The minimum of the two could be stored (excesses must be available at both locations).

[3]Using Overton to calculate excess flows and Grand Island to calculate shortages leads to days with excesses at Overton and shortages at Grand Island. As to not increase Grand Island shortages on such days, only excess flows at Overton that were greater than shortages at Grand Island could be stored. For example, if there were excess flows of 300 cfs at Overton but a 200 cfs shortage at Grand Island on the same day, only 100 cfs could be stored. This is a rough analysis and if there is interest in using both gages, assumptions for determining when excess flows can be stored should be further evaluated.

[4]It is anticipated that if Overton is used to calculate both excess flows and shortages to target flows, then the project score would be based on the yield at Overton and additional routing to Grand Island would not apply to the score.

[5]Excess flows in CNPPID's system were calculated as the minimum of J-2 Return flows and excess flows at the gage specified.

[6]Excess Flows Available to Phelps Canal were calculated as the minimum of remaining canal capacity (maximum capacity of 1,000 cfs assumed) and Excess Flows in CNPPID's System.

* Reductions to Shortages at Grand Island

** Reductions to Shortages at Overton. Because Overton was used to calculate shortages, no transit loss is applied and reservoir releases equal reductions to shortages at Overton.

shortages to target flows based on different combinations of daily flow data from the Grand Island and Overton gages. Average annual reductions in shortages to target flows range from just under 36,000 acre-feet to nearly 42,500 acre-feet. When only the Grand Island gage is used to calculate both excess flows and shortages to target flows, average annual reductions in shortages to target flows are 42,181 acre-feet after transit losses are applied. Using only the Overton gage to calculate excess flows and shortages resulted in a similar yield of 42,480 acre-feet, although this figure would decrease if routed to Grand Island. Using a combination of the two gages resulted in lower yields and project "scores".

IV.D. Scoring Adjustments

Another purpose of this exercise was to evaluate the potential for adjustments to score that recognize flow benefits provided by a project that are in addition to reducing shortages to target flows. To date, only the ability of a project to reduce shortages to target flows is recognized by the Service and in the Program Agreement as a valid basis for Program "score" relative to the 130,000 to 150,000 acre-foot water objective.

IV.D.1 SDHF Augmentation

An important WAP project benefit may be the enhanced ability to augment SDHFs. For this project, the pre-feasibility study had an objective of augmenting a SDHF with 2,000 cfs (to achieve a total Program and non-Program water flow of 5,000 cfs to 8,000 cfs) for three days (resulting in an augmentation volume of 11,901 acre-feet), with water supply being provided by either excesses to target flows or Environmental Account (EA) water that is routed through the CNPPID system and "staged" in the reregulating reservoir. The pre-feasibility study results showed that the SDHF goal of 5,000 to 8,000 cfs can be achieved in all SDHF years, and the same three-day volume of augmented flow (11,901 acre-feet) would be provided by this reservoir for each SDHF.

While the evaluated reservoir will have the ability to augment SDHFs, it will not be used for this purpose every year. After considering various possible approaches, we conclude that the most straightforward method of assigning a "bonus score" to reflect SDHF-augmentation capability (if any bonus at all is ultimately determined to be appropriate by the Service and by the Program) would be to apply a direct weighting factor to a base figure consisting of the total acre-feet of augmented SDHF flow that the project can supply for three days. Using this case-study as an example, that "base figure" is 11,901 acre-feet. Depending upon the logic applied to weighting that figure, a bonus of 20.8% (2,479 acre-feet) to 100% of that base could be considered as a supplemental score.[9] This range of potential scores was based upon the following examples:

[9] For example, a bonus score might be weighted on the basis of the increased frequency with which SDHFs of suitable magnitude and duration could be achieved as a direct result of the project or were assumed to occur in EIS OPStudy modeling. On the other hand, the Service is concerned that EA water that already counts toward Program score could be inappropriately "double counted" by virtue of simply being re-positioned to more effectively augment SDHFs.

- A bonus score of **11,901 acre-feet** – scaled to the theoretical maximum contribution to SDHFs the project could provide annually (11,901 acre-feet = 2,000 cfs over three days);
- A bonus score of 11,901 * (30/48 years) = **7,438 acre-feet** – scaled to the number of years the Program EIS[10] modeled SDHF-augmentation releases; or
- A bonus score of 11,901 * (10/48 years) = **2,479 acre-feet** – scaled to the number of years OPStudy modeled some amount of Program flow augmentation would be necessary to achieve a minimum SDHF of 6,000 cfs at Overton.[11]
- Some other arbitrary scaling of the 11,901 acre-foot base figure.

IV.D.2 "New" Water and Hydrocycling Attenuation

Additional "bonus score" considerations that have been suggested by Program stakeholders include possible bonuses for:

- Providing new/additional (as opposed to re-timed) water to meet central Platte flow targets; and/or
- Mitigating the effects of hydrocycling by attenuating the amplitude of hydrocycling "waves" downstream.

The Service does not expect to recognize any additional WAP project bonus score for providing either of these benefits. It is our understanding that the Service welcomes projects that attenuate the negative effects of hydrocycling operations on flows and habitat in the central Platte. To date the potential impacts of hydrocycling on Platte target species have been addressed in the context of CNPPID's FERC licensing and mitigation of these impacts has not been considered a responsibility of the Program. Thus a corresponding bonus score will not be recognized for Program purposes.

A substantial portion of the WAP score in the Program EIS analysis was assumed to be derived from "new" water (e.g., water recovered through conservation and/or re-allocated from other uses to instream flow). Though to our knowledge, no specified quantity of new Program water supply was ever explicitly mandated in Program documents, in the Service's opinion a certain portion of new water is implicit in the mix of WAP projects proposed, and was factored into the EIS analysis of Program benefits versus impacts. Thus, to achieve adequate habitat benefits, it is already assumed the Program will implement a similar mix of "new" and re-timed water to reduce shortages to targets. The water supply for this case study is retimed water (or EA water

[10] EIS Table 5-WR-27.—Program Achievement of Target Flows and Short-Duration Bankfull Flows, Platte River Recovery.
Implementation Program Final Environmental Impact Statement, April 2006. The difference in years with pulse releases between the Governance Committee and Present Condition alternatives.

[11] Overton SDHF OPStudy results were not presented in the Program EIS. This information was provided by Don Anderson and 6,000 cfs is identified as a possible scoring threshold because Murphy et al. (2004) proposed that the program generate short-duration near-bankful flows to increase the annual peak discharges equaled or exceeded (on average) in two of three years to 6,000 to 8,000 cfs (measured at Grand Island).

to augment a SDHF), therefore the potential of scoring adjustments for providing "new" water was not considered. However it is our understanding that the Service will not consider a bonus score for "new" water, to the extent such water sources were already anticipated in the Reconnaissance-Level Water Action Plan.

IV.D.3 Mean Daily versus Mean Monthly Target Flows

The Service does consider the ability of a project to reduce shortages to target flows on a mean daily (as opposed to mean monthly) basis to be an appropriate metric for determining score. That daily criterion was applied in this case study. Utilizing a daily spreadsheet analysis found that many months have both days of excess flows and days of shortages. Monthly analysis only allows for months to have excesses *or* shortages, but not both, which eliminates potential opportunities to store and make releases to reduce shortages to target flows. This is worth emphasizing, as our understanding is that the EIS scoring estimate for the reconnaissance-level version of this project evaluated shortages and excesses to target flows on a *mean monthly* basis, and then (somewhat arbitrarily) doubled that score to reflect the added benefit of having daily control over the timing of returns. By explicitly incorporating a daily analysis into the project scoring exercise, as was done for this case study, there is no need to further "adjust" the score for this purpose.

IV.D.4 Portion of Habitat Reach Benefited

The Service's position is that some reduction of score will be necessary in cases where the entire habitat reach (or at least the Overton-to-Duncan portion of that reach) does not benefit from the flow improvements. As the project evaluated for this exercise would return all of its flow *upstream* of the Overton gage, such a score reduction was unnecessary. However, our understanding is that the Service's policy is that any future WAP project providing some or all of its flow benefits only at some distance downstream of Overton will be subject to a corresponding score reduction.

V. CONCLUSIONS

Evaluating only the ability of this project to reduce shortages to target flows results in a potential project score between 35,836 and 42,480 acre-feet[12] (Table 4). Combining a potential SDHF bonus with this range of scores results in a total potential project score of between 38,315 acre-feet (low end of range = 35,836 target flow operations + 2,479 SDHF augmentation) and 54,381 acre-feet (high end of range = 42,480 target flow operations + 11,901 SDHF augmentation).

Before a final score can be assigned, the following remaining scoring methodology and policy issues will need to be resolved:

- Excess Flows and Shortages to Target Flows
    - Scoring Subcommittee recommendation for scoring; and

[12] See footnote 1.

  - Service policy decision regarding acceptable gage(s) and methods to use for determining excess flow availability and shortages.
- SDHF Bonus Score
  - Scoring subcommittee recommendation for scoring; and
  - Service policy decision regarding SDHF bonus score (if any).
- GC decision regarding the use of Appendix A-5 versus Appendix E and, if A-5, which set of target flows from that appendix should be used (column 4 or column 8).

For this initial case study, most of the analyses were completed by applying the Appendix A-5 column 4 target flows and using the OPStudy *Adjusted Present Conditions With Three States Projects* output dataset (which include pulse and EA flows) to calculate daily excesses and shortages, because this was the dataset readily available at the time. Since the initial simulations were completed, data *without pulse flow* impacts and *without EA* water was located, making it possible to provide the additional sensitivity analyses in Section IV.A of this document. The ED Office can easily update other sections of this document to consider different combinations of applying selected target flows with selected hydrology, as recommended by the Scoring Subcommittee. However, at this time we have limited the combinations to those shown to help bracket the various options. If other data issues arise as additional WAP projects are scored in the future, it is important to remember that currently only Don Anderson and Duane Stroup (with the Bureau of Reclamation in California) have experience running the OPStudy model.

VI. ATTACHMENTS

Several attachments are included to provide additional technical detail.

Attachment A – Case Study Assumptions and Rationale - provides a detailed description of assumptions used in this scoring case study for:

- Reservoir Design;
- Analysis Tool and Hydrology;
- Target Flow Operations Modeling;
- Target Flow Operations Scoring Analysis;
- SDHF Qualitative Evaluation; and
- SDHF Scoring Analysis.

In addition, illustrative case study results are included in Attachment A, as well as a description of data developed for this scoring exercise.

Attachment B – Location of Case Study Reservoir Location - shows the reservoir footprint and location (see Areas 1 and 2).

Attachment C – Conceptual Diagram: SDHF Flows and System Component Contributions - includes a conceptual diagram illustrating assumptions in how system components contribute to a SDHF.

Attachment D – OPStudy "Adjusted" Hydrology Background – provides background information regarding the OPStudy hydrology used for the case study analyses.

TO: SCORING SUBCOMMITTEE

FROM: ED OFFICE

SUBJECT: FOLLOW-UP TO APRIL 22, 2010 SCORING CALL QUESTION REGARDING EA FLOW SENSITIVITY

DATE: APRIL 30, 2010

On the April 22, 2010 Scoring Subcommittee conference call, there was a question related to information in Table 2 (Rows 3 and 4) of the Scoring Case Study memo that shows the sensitivity analysis related to including Environmental Account (EA) flows in the J-2 Reregulating Reservoir yield analyses. We reviewed the analysis and believe the information as shown in Table 2 is correct, and are providing the information in this memorandum as follow-up.

There are a couple of things that happen differently in the analysis for Row 3 versus 4. The largest difference is that when EA flows are considered in the excess/shortage calculations at Grand Island (Row 3), there are times when the presence of EA water change the period from one of shortage to one of excess. For example, on 5/1/1947:

- The target flow for this day was 2,400 cfs
- Grand Island flows with EA water (Row 3 scenario) = 2,672 cfs
- Grand Island flows without EA water (Row 4 scenario) = 1,892 cfs

So when EA flows were *not* considered, it was a period of shortage. When EA flows were considered, there was an excess of 272 cfs, all of which was captured in the reregulating reservoir. The total J-2 return flows **did not change** between the two scenarios – they were 1,027 cfs in both cases. However, in the Row 3 case, they could be colored as excess flow and stored in the reregulating reservoir whereas in the Row 4 case, they were not colored as excess flow and therefore were not stored.

The other difference of note between the analysis for Row 3 and Row 4 is that *not* including EA flows at Grand Island (Row 4 scenario) results in more days of shortage, providing additional opportunities to make releases. Then, reservoir capacity becomes available due to the release, which allows additional excess flows to be stored. But overall, considering EA flows at Grand Island (Row 3 scenario) results in higher excess flows at Grand Island and more flows being stored. This is shown in Table 1 below, which compares the average annual total excess flows at Grand Island, shortages at Grand Island, and excess flows stored in the J-2 Reregulating Reservoir.

Table 1: Average Annual Totals Comparison

Average Annual Total (acre-feet)	Without EA Flows in J-2 Return but With EA Flows at Grand Island (Row 3 Scenario)	Without EA Flows in J-2 Return or Grand Island (Row 4 Scenario)
Excess Flows at Grand Island	393,441	374,459
Shortages at Grand Island	316,329	368,734
Excess Flows Stored in J-2 Reservoir	46,982	43,596

It is important to note that flow at the J-2 Return is not equal to flow at Grand Island. Some of the J-2 Return flow can be lost in the Overton to Grand Island reach and some may be diverted by the Kearney Canal. There can also be additional water at Grand Island that came down the river or that was gained below the J-2 Return.

Attachment A
CNPPID Reregulating Reservoir Scoring Case Study Assumptions

Introduction

This attachment was developed with input from Don Anderson, formerly with the U.S. Fish and Wildlife Service (Service). It identifies the assumptions used in the Central Nebraska Public Power and Irrigation District (CNPPID) reregulating reservoir project scoring case study for the following:

- Reservoir Design;
- Analysis Tool and Hydrology;
- Target Flow Operations Modeling;
- Target Flow Operations Scoring Analysis;
- Short Duration High Flow (SDHF) Qualitative Evaluation; and
- SDHF Scoring Analysis.

In addition, illustrative case study results are included when they help explain the potential impacts of selected assumptions. This document concludes with a description of data developed for this scoring exercise (EA adjusted OPStudy daily data, filled Phelps County Canal data and monthly loss values by year type from the WMC Loss Model).

Assumptions and Rationale

The following section describes the assumptions used in the case study analyses, supported by explanatory information to describe the rationale in developing the assumptions.

Reservoir Design

- Case Study Alternative: J-2 Alternative 2, Areas 1 and 2 Combination
- Reservoir Design: Priority is to provide 2,000 cubic feet per second (cfs) of SDHF augmentation flows for three days
- Storage Capacity: 14,320 acre-feet
- Inlet Capacity: 1,000 cfs[1]
- Outlet Capacity: 2,000 cfs
- Water Supply: Excess to target flows ("excess flows" or "excesses") in the J-2 Return that can be routed using remaining Phelps County Canal capacity for target flows, augmented with Lake McConaughy Environmental Account (EA) water for SDHF releases
- Supply Structure: Phelps County Canal to reservoir inlet

[1] The reservoir inlet capacity is limited by Phelps County Canal capacity. The design capacity for the impacted section of the Phelps County Canal is 1,400 cfs but CNPPID has stated that the current safe capacity is 1,000 cfs. Potential for making improvements to this section of the canal to increase it to the design capacity may be investigated in the next phase of project feasibility.

The CNPPID reregulating reservoir project is being used for the case study for several reasons. It will most likely be the first WAP project to advance past pre-feasibility. It can be operated for target flows and to augment SDHF. Due to its location and water supply (excess flows already routed through the CNPPID system that would have been returned to the river through the J-2 Return), it may be operated on a daily basis to store excess flows when available and release them to reduce shortages to target flows within the same month. The J-2 Alternative 2, Areas 1 & 2 combination is being used because it rose to the top as a preferred alternative in the pre-feasibility study due to target flow yields, SDHF augmentation, and project costs. **Attachment B** shows the reservoir location and footprint (see Areas 1 and 2).

Analysis Tool and Hydrology

- Time-step: Daily[2]
- Analysis Tool: Excel daily flows spreadsheet
- Analysis Period: Calendar years 1947 – 1994
- Input Data:
    - Daily OPStudy[3] *Adjusted Present Conditions with Three States Projects* output data for J-2 Return and the Platte River at Grand Island
        - With pulse flows[4] and with EA (this dataset was utilized in all case study scenarios except where noted)
        - Without pulse flows and with EA
        - Without pulse flows and without EA
            - EA water removed from J-2 Return Flows (reservoir supply) but present in Grand Island flows which were used to calculated excesses and shortages
            - EA water removed from J-2 Return Flows and Grand Island flows
    - Historical Phelps County Canal gage data
        - Data for 1947 through 1969 filled with historical daily averages
        - Historical data for all years 1947 - 1994

The benefits of daily operations were considered in this case study. Utilizing a daily spreadsheet analysis found that many months have both days of excess flows and days of shortages. Monthly analysis only allows for months to have excesses or shortages, but not both, which eliminates

[2] When determining WAP project 'score', the Service has agreed to consider the ability of the project to offset shortages to target flows on a mean daily, and not just monthly, basis. Offsets to target flow shortages that occur on a strictly sub-daily basis will not be recognized for Program scoring purposes.

[3] OPStudy is a monthly model with a post-processing subroutine that can disaggregate monthly results to daily values. The daily pattern of river flow within a month can be highly variable, so mean-monthly flow rates cannot be used to accurately compute certain effects. The subroutine uses the historical daily flows and the difference in average monthly flows in cfs to simulate the daily flows that would result with the analyzed alternative.

[4] The OPStudy modeling referred to "pulse flows" rather than "short duration high flows" and OPStudy model output datasets include data labels that reference "pulse flows". This terminology has been used throughout this document when referring to specific OPStudy model results.

potential opportunities to store and make releases to reduce shortages to target flows. The EIS Team doubled the mean-monthly-based OPStudy score for the CNPPID Reregulating Reservoir in the Reconnaissance Level WAP in recognition of the value of daily analysis for this project.

OpStudy *Adjusted Present Conditions With Three States Projects* data for the 1947 – 1994 period was used for case-study scoring hydrology because it provides a consistent set of data with what was originally used in the Program Environmental Impact Statement (EIS) and Biological Opinion (BO). The "Adjusted" dataset was adjusted to reflect 1990's water-development conditions ("Present Conditions") and full implementation of Tamarack I, the Pathfinder Modification account, and the Environmental Account ("Three States Projects"). Daily data and analysis are being used to capture the effects of storing excesses and releasing for shortages in the same month. This was not possible with earlier monthly OPStudy modeling.

It should be noted that while reviewing and adjusting OPStudy output, the ED Office noticed that Tamarack I appears to have only impacted Julesburg flows in the last two months of 1994 (the last year in the 48 year simulation period). This is being further investigated. If contributions from Tamarack I were not included in the OPStudy model run, there may be times when the current case study analyses show the J-2 Reregulating Reservoir meeting a shortage that would have already been met by Tamarack I. In this case, J-2 Reregulating Reservoir water would likely be held in storage for a longer period but still released to meet a shortage at a later date; this may shift the timing of the releases but have a minimal impact on the project score (the difference being related to seepage and evaporation losses due to holding water in storage for a longer period of time). If Tamarack I were to be included in the current case study analyses, there would be times when Tamarack I return flows did not historically get 'counted' toward the initial three state projects score because return flows did not occur during a period of shortage. These Tamarack I return flows occurring during periods of excess could be reregulated by the J-2 Reregulating Reservoir, increasing the overall efficiency. The ED Office is contacting Don Anderson for further assistance in evaluating the OPStudy model run data to assess the potential effects of Tamarack I on this case study.

For this initial case study, most of the analyses were completed by applying the Appendix A-5 column 4 target flows and using the OPStudy *Adjusted Present Conditions With Three States Projects* output dataset (which include pulse and EA flows) to calculate daily excesses and shortages, because this was the dataset readily available at the time the analyses were completed. Since the initial simulations were completed, data *without pulse flow*[5] impacts were located. Rather than rerunning all of the case study scenarios, one scenario using the Grand Island gage to calculate excesses and shortages was rerun to determine the impact on the average yield. The ED Office can easily update other scenarios to consider different combinations of applying selected target flows with selected hydrology, as recommended by the Scoring Subcommittee.

[5] The OPStudy model solves for pulse flows iteratively and output for many locations was provided with and without the impacts of pulse flows.

The Scoring Subcommittee also requested that the ED Office evaluate if EA flows impacted the project yield and if some of these flows may have been reregulated in the CNPPID reregulating reservoir if they arrived at the associated habitat during a time of excess. The ED Office evaluated two different alternatives for adjusting OPStudy output (*without pulse flows*) to remove EA flows[6]. For both alternatives, EA flows were removed from the J-2 Return output which is the supply to the CNPPID reregulating reservoir. In one scenario, EA flows were also removed from Grand Island flows, which are used to calculate excess flows and shortages to targets flows, and in the other scenario EA flows were not removed from Grand Island flows. The process used to remove EA flows is described in more detail below in the "Pulse Flow and EA Flow Adjustments" section.

Short Duration High Flow (SDHF) scoring analysis was completed separately (as described below in the "SDHF Assumptions" section) to provide flexibility in making releases based on more recent pre-feasibility analysis results.

The Phelps County Canal was not modeled in OPStudy but, because the reservoirs are supplied via the canal, remaining canal capacity data is needed to determine potential inflows. Daily historical data, described in more detail in the "Phelps County Canal Data" section below, filled for the 1947 – 1969 period were used for most scenarios presented in the scoring case study document. The exception was one scenario that was run using historical data for the entire 1947 – 1994 period that was located after the other simulations had been completed.

<u>Target Flow Operations Modeling Assumptions</u>

- Daily Target Flows: Column 4 of Appendix A-5 and Appendix E of the Water Plan Reference Materials. Appendix A-5 was use for this case study with the exception of one scenario which used Appendix E, to compare results for the two appendices. Column 4 ("cfs") was used for most Appendix A-5 scenarios, with the exception of one scenario which used column 8 (Weighted Monthly "Average cfs") to compare results using the two target flow columns.
- Excesses and Shortages Gage: Several options for evaluating excess flows and shortages were evaluated:
    - Excess flows and shortages evaluated at Grand Island;
    - Excess flows evaluated at both Grand Island and Overton and set as the minimum of these. Shortages evaluated at Grand Island;
    - Excess flows evaluated at Overton and shortages evaluated at Grand Island; and
    - Excess flows and shortages evaluated at Overton.

[6] The OPStudy hydrology without EA flows developed for this analysis should be considered preliminary as there are several issues, summarized below in the "Pulse Flow and EA Flow Adjustments" section, regarding the data that could impact EA flow adjustments. However, the ED Office believes any additional modifications to the OPStudy hydrology will likely have a minimal impact on the OPStudy hydrology with EA flows removed.

- Excess Flows and Instream Flows: Excess flows calculated as those flows in excess of the maximum of daily Program target flows and the Nebraska Game and Parks Commission (NGPC) and Central Platte NRD instream flows[7].
- Shortages: Shortages were calculated as the difference between gage flows and Daily Program Target Flows
- Routing: Reservoir releases for target flow operations are routed from Overton to Grand Island by applying average percent losses which vary by month and year type from WMC Loss Model (described in additional detail below). No transit losses or gains from Overton to Grand Island are estimated when calculating the volume of excess flows that can be stored. When Overton was used to calculate shortages, releases were not routed.
- Time Lag: No time lag between Overton and Grand Island for purposes of determining real-time excesses and shortages to targets
- Reservoir Loss: No reservoir loss is applied

At the December 2009 meeting, the Governance Committee (GC) discussed whether daily targets flows for Appendix E or Appendix A-5 (column 4) in the Water Plan Reference Materials should be used for daily WAP Project scoring. The Scoring Subcommittee was formed to address scoring issues and bring a recommendation back to the GC. The GC meeting minutes state that the WAC is correct in using Appendix A-5 to score projects at this point. As a result, Appendix A-5 (column 4) was used for this case study with the exception of one scenario which used Appendix E, to compare results for the two appendices. The Scoring Subcommittee also asked if the use of column 8 from Appendix A-5, which lists Weighted Monthly average flow targets, might be appropriate. For comparison purposes, one scenario was developed using the average daily flow targets from this column. Appendix A-5 column 4 daily flows targets may change during the month while the weighted monthly targets in column 8 are constant within a given month. **Table A-1** lists the various target flows used in this case study.

Several variations for evaluating excess flows and shortages were used (as described above) to compare options being considered by the Service as well as assumptions used in the pre-feasibility study for the CNPPID reregulating reservoir project. Evaluating excess flows and shortages at Grand Island reflects earlier OPStudy analyses. However, Overton is located closer to the top of the habitat reach, and the Service's intention is to protect flows through the entire reach. Overton was also used to evaluate this project in the Reconnaissance-Level WAP and in the pre-feasibility analysis to develop yields for the CNPPID reregulating reservoir project, due to its close proximity to the project.

Excess flows are calculated as those flows in excess of the maximum of Program target flows and the Nebraska Game and Parks Commission (NGPC) and Central Platte NRD instream flow rights (minimum instream flows). In average and wet years, Program target flows are always

[7] Nebraska DNR, Total Platte River Instream Flow Needs For Purposes of Water Administration. 2nd Revised edition, November 7, 2007 (utilizing the Grand Island gage quantities)

Table A-1: Appendix E and Appendix A-5 Target Flows from the Water Plan Reference Materials

Appendix E Fixed Daily Targets				Appendix A-5							
				Column 4 ("cfs")				Column 8 (Weighted Monthly "Average cfs")			
Target Flow Period	Hydrologic Condition			Target Flow Period	Hydrologic Condition			Target Flow Period	Hydrologic Condition		
	Wet	Normal	Dry		Wet	Normal	Dry		Wet	Normal	Dry
Jan 1 – Jan 31	1,000	1,000	600	Jan 1 – Jan 31	1,000	1,000	600	Jan	1,000	1,000	600
Feb 1 – Feb 14	1,800	1,800	1,200	Feb 1 – Feb 14	1,800	1,800	1,200	Feb	2,575	2,575	1,725
Feb 15 – Mar 15	3,350	3,350	2,250	Feb 15 – Mar 15	3,350	3,350	2,250	Mar	2,724	2,724	1,853
Mar 16 – Mar 22	1,800	1,800	1,200	Mar 16 – Mar 22	1,800	1,800	1,200	Apr	2,400	2,400	1,700
Mar 23 – May 10	2,400	2,400	1,700	Mar 23 – May 10	2,400	2,400	1,700	May	2,777	2,439	1,090
May 11 – May 19	1,200	1,200	800	May 11 – May 19	1,200	1,200	800	Jun	2,667	2,667	800
May 20 – Jun 20	3,700	3,400	800	May 20 - May 26	4,900	3,400	800	Jul	1,200	1,200	800
				May 27 – June 20	3,400	3,400	800	Aug	1,200	1,200	800
Jun 21 – Sep 15	1,200	1,200	800	June 21 – Sept 15	1,200	1,200	800	Sep	1,100	1,100	700
Sep 16 – Sep 30	1,000	1,000	600	Sept 16 – Sept 30	1,000	1,000	600	Oct	2,400	1,800	1,300
Oct 1 – Nov 15	2,400	1,800	1,300	Oct 1 – Nov 15	2,400	1,800	1,300	Nov	1,700	1,400	950
Nov 16 – Dec 31	1,000	1,000	600	Nov 16 – Dec 31	1,000	1,000	600	Dec	1,000	1,000	600

Shading highlights that Appendix E Fixed Daily targets and the Appendix A-5 column 4 targets are identical except in the months of May and June in wet years.

higher than the minimum instream flows. In dry years, there are periods when minimum instream flows are higher than Program target flows. Only Program target flows are considered when evaluating shortages. No transit losses or gains from Overton to Grand Island were estimated in this case study when calculating the volume of excess flows that could be stored.

Figure A-1 shows the total annual excess flows available in CNNPID's system (using Grand Island to calculate excesses and shortages), constrained by remaining Phelps County Canal capacity, and stored in the reregulating reservoir (constrained by reservoir capacity). This figure demonstrates that excess flows in CNPPID's system potentially available to divert down the Phelps County Canal far exceed the reregulating reservoir's capacity. This suggests that while assumptions used to calculate excess flows may impact the total volume of excess flows available, specific reservoir design characteristics have the most significant impact on the project score. This is supported by **Table A-2**, which evaluated reservoir yields for other, non-preferred alternatives from the pre-feasibility analysis. The average yields developed for this case study are similar to the normal year yields estimated in the pre-feasibility study. Yields also increase or decrease based upon reservoir capacity.

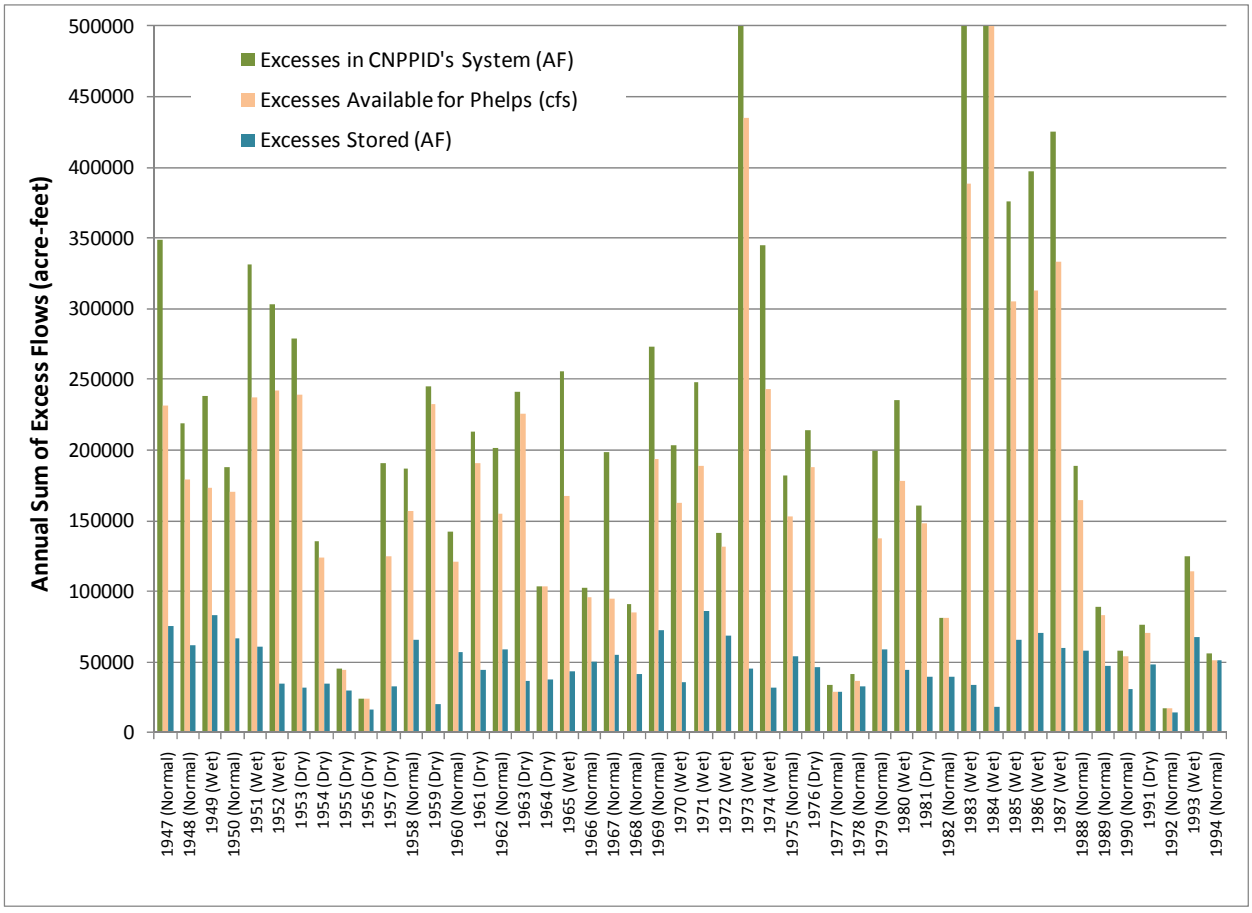


Figure A-1: J-2 Alt 2, Areas 1 & 2 Combination Alternative Annual Excess Flow Totals Using the Grand Island Gage to Calculate Excesses and Shortages

Table A-2: Pre-feasibility Study Normal Year Yields Compared to Scoring Case Study Yields for Various Pre-feasibility Alternatives (using the Grand Island Gage to Calculate Excess Flows and Shortages to Target Flows)

Alternative[1]	Maximum Storage Capacity (acre-feet)	Olsson Pre-feasibility	Scoring Case Study Analysis	
		Normal Year (1975) Yield at Overton[2] (acre-feet)	Average 1947 - 1994 Releases at Overton (acre-feet)	Average 1947 - 1994 Yield at Grand Island (acre-feet)
J-2 Alt 2, Areas 1 & 2	14,320	47,480	47,621	42,181
J-2 Alt 1	3,380	14,660	18,108	16,077
J-2 Alt 2 Area 4	6,137	24,268	27,523	24,438

[1] J-2 Alt 2, Areas 1 & 2 is the preferred alternative discussed throughout most of this document. J-2 Alt 1 is an in-channel alternative below the J-2 Return consisting of four dams. J-2 Alt 2 Area 4 is a reservoir located northwest of the J-2 Return and south of the river.

[2] Olsson's Pre-feasibility analysis used the Overton gage to calculate both excess flows and shortages to target flows. As a result, yields were calculated at Overton with no transit losses assumed between the reservoirs and Overton. However, as described in the Case Study memorandum, if Overton is used to calculate both excess flows and shortages to target flows, then the project score would be based on the yield at Overton and additional routing to Grand Island would not apply the score.

Transit losses (developed using data from the WMC Loss Model, described below in the "Routing from Overton to Grand Island" section) were applied to route water released from the reservoir to Grand Island. By definition, during daily analyses, flows at Grand Island either exceed (excesses) or fall short (shortages) of target flows, with perhaps an occasional day when flows exactly match the target flows. Return flows from the J-2 Return frequently constitute a significant portion of river flows below this point. An analysis by the ED Office found that for the 17,532 days in the simulation period, there were only 25 days when there were excess flows at Grand Island but no flows being returned to the river through CNPPID's J-2 Return. Additionally in dry years, there may be periods[8] when there are neither excess flows nor shortages due to minimum instream flows that are higher than Program target flows. An example of this is on 6/9/1981 where the Program target was 800 cfs, the minimum instream flow was 1,000 cfs and the flow at Grand Island was 976 cfs. Only flows in excess of the maximum of minimum instream flows and Program target flows are considered excesses, so in this case flows are less than 1,000 cfs so there are no excesses. However, there isn't a shortage either because the flows are above the Program target. An ED Office analysis found that for the simulation period, there were only 129 days where this pattern occurred, without either a shortage or excess at Grand Island.

Figure A-2 shows annual releases and reductions in shortages to target flows for the case study reservoir using the Grand Island gage to calculate both excess flows and shortages to target flows. On average, 47,621 acre-feet of retimed excess flows were released on an annual basis.

[8] In dry years, instream flows are higher than Program target flows by 200 cfs from June 1 through July 31 and October 12 through November 10th and by 50 cfs from October 1 through October 10.

After routing this water to Grand Island, average annual reductions to shortages to target flows were 42,181 acre-feet. **Figure A-2** is shown to demonstrate annual variability in project yields.

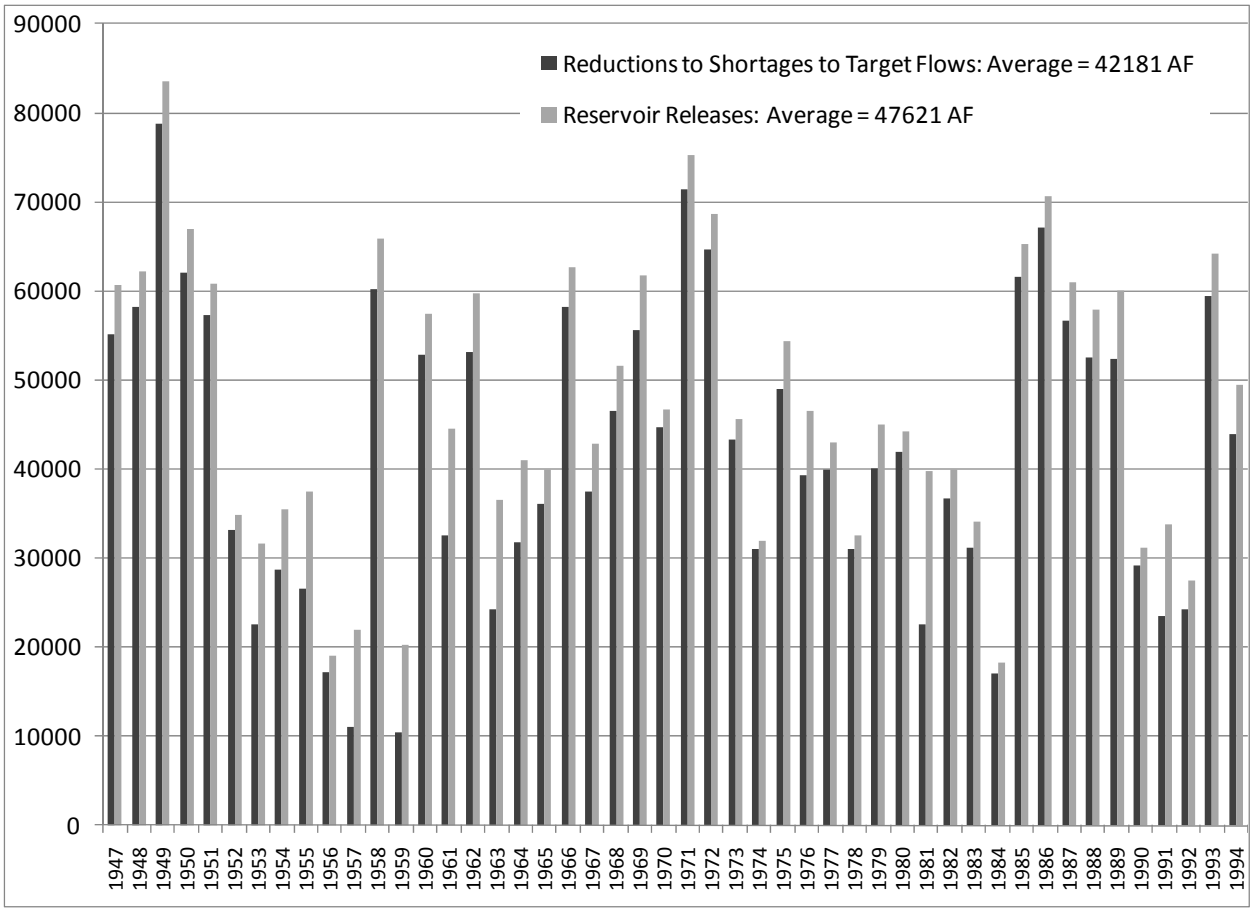


Figure A-2: Annual Reregulating Reservoir Releases (in the vicinity of Overton) and Reductions in Shortages to Target Flows (routed to Grand Island) Using the Grand Island Gage to Calculate Excesses and Shortages for the J-2 Alt 2, Areas 1 & 2 Alternative

Throughout the year, excess flows in CNPPID's system are available to be stored and then released as soon as periods of excess stop and shortages begin. The project score is based on reductions to shortages. This analysis applies no losses to water in storage, which is the equivalent to topping off the reservoir to replace any losses throughout a period of excess until shortages begin. **Figure A-3** uses an example year to demonstrate how the reservoir frequently fills (in this year note that the reservoir started the year full with carryover storage from the previous year), and then remains full (while excess flows continue to be available) until a period of shortages. Most of the time, when the reservoir is "maintained" full in this analysis because evaporation and seepage losses are not assessed, losses could have been replaced with additional excess flows, ensuring the reservoir full when shortages begin. Additionally, the case study assumed that the reservoir filled as early as possible in the winter and then was maintained full

until the first period of shortages (typically in early spring). Actual operations likely wouldn't maintain the reservoir full all winter. If the reservoir does not fill completely, such as in July/August and September/October of this year, it is because it fills for several days (in this case: 14 days in July/August and 4 days in September/October) and then immediately begins releasing when shortages start. In this case, water is in storage only for a very short period, so evaporation and seepage would be minimal.

Additionally, the J-2 Alternative 2 Areas 1 and 2 are located adjacent to the south channel of the Platte River. As a result, at least a portion of reservoir seepage may accrue to the river, though this only counts as a "score" when it accrues during a period of shortage to target flows. This analysis did not attempt to score reservoir seepage.

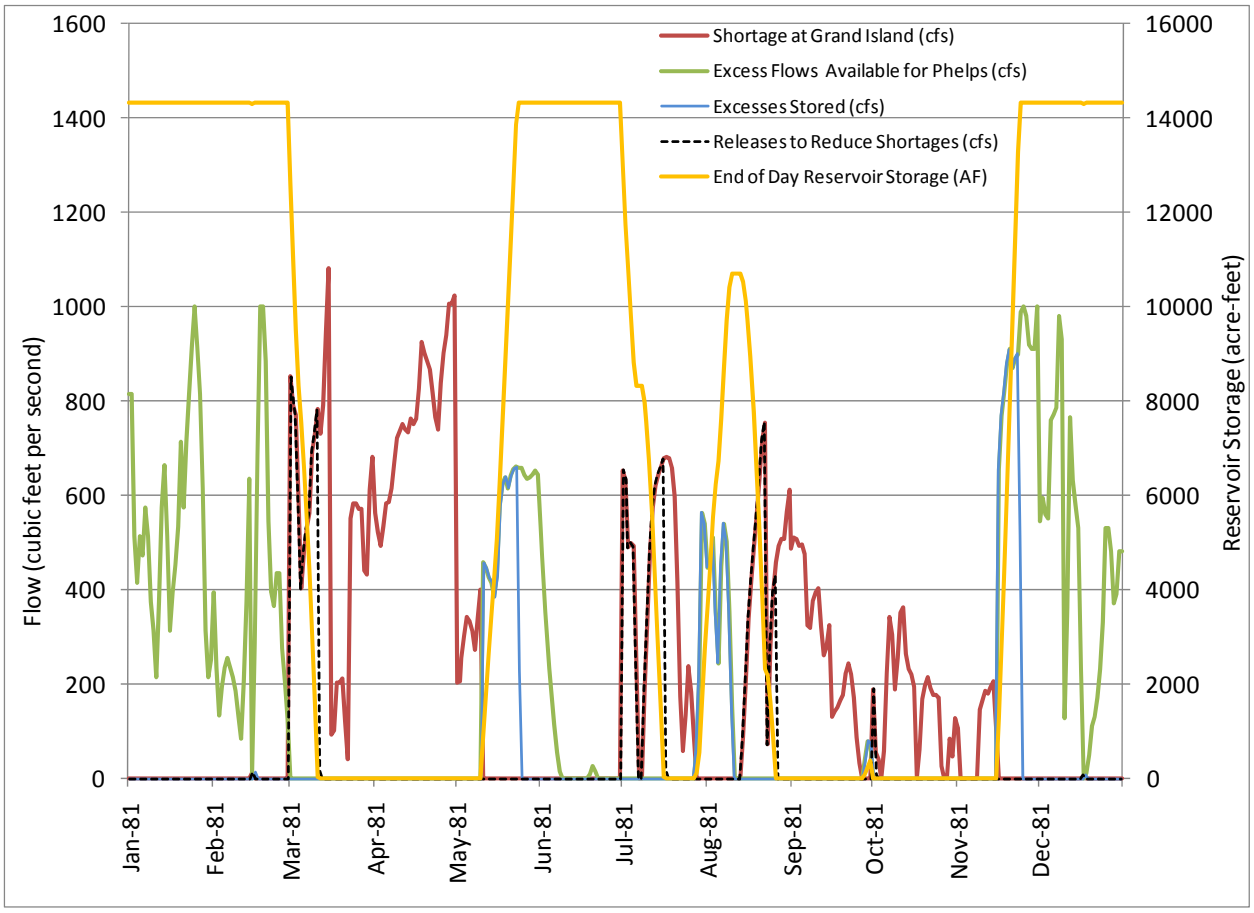


Figure A-3: Dry Year 1981 Results Illustrating the Availability of Excess Flows and Reservoir Storing and Releasing Using the Grand Island Gage to Calculate Excesses and Shortages for the J-2 Alt 2, Areas 1 & 2 Alternative

While reservoir losses were not considered for this case study and may not have a large impact on the project score, losses will need to be evaluated for this project at some time prior to

applying a final score to determine any new depletions that must be offset. The timing of reservoir seepage to the reservoir may also be further evaluated to estimate water returning to the river during periods of shortages.

Target Flow Operations Scoring Analysis Assumptions

- Target Flow Operations: Score is based on modeled reservoir releases during periods of shortages, routed to Grand Island. The exception of this is the case when Overton was used to calculate shortages. No routing occurred for this scenario.
- Nebraska and Project Sponsor Portion of Yield: The yield estimates provided do not account for water that may be reserved towards Nebraska's Depletions Plan or by any other project sponsor. Per the Reconnaissance-Level Water Action Plan, Nebraska may wish to reserve 2,500 to 4,000 acre-feet of reregulating reservoir project yield to offset depletions.
- Scoring Exercise: Scoring is a separate exercise from the project feasibility analyses[9].

Target flow operations are scored based on the volume of water released from reservoir storage to reduce shortages to target flows and then routed to Grand Island in all cases except when Overton was used to calculate shortages. When Overton is used, no routing losses were applied to the project score. The daily analysis is performed over the 1947-1994 period, using assumptions documented above. The average annual acre-feet reduction in shortages to target flows is counted toward the proj**e**ct "score".

SDHF Qualitative Evaluation Assumptions

- SDHF Analysis: Was not modeled but was evaluated qualitatively
- SDHF Goal: 5,000 – 8,000 cfs for three[10] days
- SDHF without Reregulating Reservoir: at least 4,700 cfs for three days in most years
- Reservoir SDHF Augmentation: 2,000 cfs for three days
- Total SDHF Flow at Overton with reservoir: at least 6,700 cfs for three days in most years
- SDHF: Evaluated at Overton
- Water Supply: Lake McConaughy EA water routed and staged immediately before a SDHF event or excess flows if available during the filling period
- Analysis Period: Nine days (six days to fill and three days to release) during the non-irrigation season
- Routing: No routing necessary for SDHF releases

[9] Scoring should use adjusted hydrology for the 1947-1994 period but feasibility studies may use more recent hydrology and other assumptions to more precisely evaluate design and operational impacts.

[10] Water Plan Reference Materials refer to SDHF goal of 5,000 – 8,000 cfs (total flow including non-Program water) for 3 to 5 days. For this case study and project feasibility, a 3 day goal is being used. However, with lower reservoir augmentation flows over five days (1,444 cfs for 5 days versus 2,000 cfs for 3 days) the 5,000 – 8,000 goal may still be met. In both cases, the total reservoir SDHF augmentation volume does not exceed the reservoir capacity of 14,320 acre-feet.

- Reservoir Loss: No reservoir loss applied

Information gained during the 2009 Flow Routing Test and pre-feasibility analysis has resulted in the assumption that 4,700 cfs can be provided for three days at Overton for SDHF events without the use of a reregulating reservoir in all but the driest of years. This assumes that the Program can utilize NPPD's and CNPPID's systems at or close to capacity to route water for a SDHF and that the safe-conveyance capacity of the North Platte choke point is restored to at least 3,000 cfs.

Attachment C illustrates the contributions of the various Central Platte system components towards a SDHF. This also assumes that peak flows from the various system components are correctly timed to arrive at Overton, and that losses and attenuation downstream of CNPPID's headgates will be no greater than illustrated in Attachment C. The addition of a reregulating reservoir capable of providing 2,000 cfs of augmentation flow results in SDHF flows of 6,700 cfs for three days. The Adaptive Management Plan refers to *"Flows of 5,000 to 8,000 cfs magnitude in the habitat reach for a duration of three days at Overton on an annual or near-annual basis"*. Because the SDHF goal of 5,000 – 8,000 cfs can be met in all SDHF years with the J-2 Alternative 2 Areas 1 & 2 combination, inter-annual variability is evaluated qualitatively rather than modeled. Timing a SDHF event to coincide with a precipitation event would increase the peak flows but would not impact the augmentation volume provided by the reregulating reservoir.

SDHF supply is assumed to be EA water routed down and stored in the reregulating reservoir prior to the event and excess flows if available during the filling period. Excess flows could also potentially be stored over the winter, but EA water may be necessary to top off the reservoir prior to an SDHF. Based upon the pre-feasibility study and this analysis, reservoirs are able to capture and release excess flows throughout the year for target flow operations so SDHFs are not anticipated to result in additional overall project yield.

The reservoir outlet is located below the J-2 Return and above Overton so no routing is necessary. The J-2 Alternative 2 Areas 1 and 2 reservoirs are located adjacent to the south channel of the Platte River. Any reservoir seepage is assumed to accrue to the river. For SDHF events, water will be stored over a period of six days and then released in the three following days. Reservoir evaporation will likely be minimal during the short SDHF period and is not considered in this scoring case study.

SDHF Scoring Analysis Assumptions

- SDHF Augmentation: The Service has not yet determined what, if any, bonus score would be provided for project SDHF-augmentation capacity. If a bonus score is provided, it is proposed the score be calculated proportionally to the project's ability to augment SDHFs for three days at Overton.

The reservoir must be designed around SDHFs to provide the desired volume and release rates. The Service has committed to exploring, through this case study, the potential to award some amount of "bonus" score for a project that provides the capability of augmenting SDHFs. *However*, as of today, the Service has not determined whether such a bonus score should be recognized, or how such a bonus score should be calculated. The Service indicates this is because providing this kind of "bonus score" would represent a major Program scoring policy shift, and the Service considers the burden of proof to be on the Program to first demonstrate that such a policy shift is necessary and justified (for example, because it is clear that achieving both the target flow and the SDHF goals is not feasible within the available budget). Also, the Service is concerned about double-counting yields if EA water is used to fill the reservoir for SDHF purposes. This case-study is considered an ideal opportunity to propose possible SDHF "bonus scoring" alternatives for future consideration by the Service, if and when such bonus scoring is deemed appropriate. After considering various alternatives, the Service proposes that any such bonus be calculated in direct proportion to the ability of the project to augment SDHFs for three days at the Overton stream gage.

Scoring Case Study Data Development

Pulse Flow and EA Flow Adjustments

All analyses, with the exception of one, developed for the scoring case study used OPStudy output data *with pulse flows*. As a result, some pulse flow water could have been captured in the CNPPID reregulating reservoir, which is not the intent of the pulse/SDHF release. After those analyses were completed, daily OPStudy output data *without pulse flows*[11] were located and a sensitivity analysis was completed. Results presented in the case study document show that reregulating pulse flows had a minimal effect on the overall project yield. We recommend that data *without pulse flows* be used in future project scoring.

All of the initial case study analyses performed with the *Adjusted Present Conditions With Three States Projects* OPStudy daily output data included the impacts of EA releases. To investigate the extent to which the initial case study analyses may have reregulated EA flows in the CNPPID reregulating reservoir, the ED Office used available OPStudy output to "adjust" the data to develop a daily dataset with EA flows removed at Grand Island (to determine excesses and shortages to target flows) and within the J-2 Return flows (to determine excess flows that could be stored in the CNPPID reregulating reservoir). There were two challenges with this: (1) while the OPStudy model reported monthly EA flows at many locations, it did not report the monthly EA flows separately at the J-2 Return; and (2) the OPStudy post-processing that disaggregated monthly model output into daily data did not report the EA flows at any location. EA flows were included in the total reported daily flows (note that the post-processor did report daily data with and without pulse flows at a given location).

[11] The OPStudy model solves for pulse flows iteratively and output for many locations is provided with and without the impacts of pulse flows.

To address the first issue, where monthly EA flows at Grand Island were available from the OPStudy model output but EA flows in the J-2 Return were not, the EA portion of the monthly J-2 Return flows were estimated by the ED Office as the difference between monthly EA flows at Overton and at Cozad. This was based on an assumption that the difference in flow was related to EA water that was routed through CNPPID's system and was returned to the river via the J-2 Return.

To address the second issue, the ED Office disaggregated monthly EA flow volumes into daily EA flow rates. According to the OPStudy Technical Documentation and Users Guide (Platte River EIS Office, 2006): *The OPSTUDY model calculates daily flows from monthly values. The daily flows are assumed to have the same pattern as the historic daily flows, but are adjusted up or down based on the monthly volumes*. To disaggregate monthly EA flow volumes into daily EA flow rates at the J-2 Return and at Grand Island, the ED Office applied a similar method as follows:

- Using daily OPStudy output, sum daily gage flows to get total monthly flow;
- For each day determine the percentage daily flow was of the total monthly flow;
- Multiply that percentage by the total EA flow at that location for that month; and
- Subtract that value (daily portion of the total monthly EA) from the daily flow, not allowing flows to go to zero.

While the ED Office methodology is not identical to the way monthly output data was disaggregated into daily data in the OPStudy model, it is generally consistent the OPStudy methodology.

Analyses included the project yields for the following alternatives:

- EA flows removed from Grand Island and J-2 Return flows; and
- EA flows left in Grand Island flows but removed from J-2 Return flows.

In our attempt to replicate this method, we found that OPStudy monthly output data did not always match the OPStudy model daily output data (if the daily data were summed to monthly). This issue was isolated to locations below the J-2 Return, including Overton and Grand Island and we believe it may be related to specific model adjustments made to represent flows moving through the CNPPID system however we were not able to exactly replicate the adjustment. To avoid flows going negative, there were a few months (in one month at Grand Island and in four months in the J-2 Return) over the analysis period when the full EA flow volume was not removed in the adjustment process. Over the entire 48 year modeling period, out of 3,473,000 acre-feet of EA water at Grand Island, 15.4 acre-feet were not removed from Grand Island flows to avoid negative flows (this occurred in September 1972). This issue was more significant when dealing with J-2 Return flows. Out of 1,479,700 acre-feet of EA water in the J-2 Return, 5,788 acre-feet were not removed (this occurred over four months: May 1995, May 1956, June 1956, and September 1960). This will likely have a minimal, if any, impact on results and is the impact of existing differences in available OPStudy output.

Phelps County Canal Data

According to Cory Steinke with CNPPID, Phelps County Canal operations haven't changed much during the 1947 through 1994 period. The exception to this is that in the first few years of the canal's operations it was used only in the fall after irrigation season, to fill the subsoil profile for the following year. After this initial period CNPPID began using the canal during the irrigation season. Historical Phelps County Canal diversion data that was available when the scenarios in the initial case study analyses were completed was missing 1948, part of 1949, and 1950 through 1969. Historical data for 1970 through 1994 were available and were used, unadjusted, for these years. For the 1947 through 1969 period, the ED Office developed daily average Phelps County Canal diversions using 1970 through 2004 data (1947 and partial 1948 data were replaced with filled data because these early operations were not representative of later operations). Because the canal is used to route excess flows to the reregulating reservoir, higher diversions leave less remaining capacity available to route excess flows to fill the project reservoir. The 1970 through 2004 period was selected to be conservative because diversions were slightly higher than for the 1970 through 1994 period. The period was ended in 2004 for developing the daily averages because CNPPID began allocations in 2005, which decreased diversions. The daily average diversions were then applied to the entire 1947 – 1969 period as shown in **Figure A-4**. In considering if Phelps County Canal historical gage needs to be adjusted to reflect the *Adjusted Present Conditions with Three States Projects* dataset, CNNPID indicated that Phelps County Canal operations will not change as a result of full implementation of the initial three state projects or for "Present Conditions".

After all the scoring scenarios were performed, CNPPID located the complete historical dataset (note that the 1970 historical data was slightly different through April of that year than in the first dataset provided) . Historical Phelps County Canal diversions for the 1947 – 1994 period are also show in **Figure A-4**. Historical diversions were lower than the filled dataset for the first several years of the simulation period and then generally higher than the filled data from 1955 through 1969.

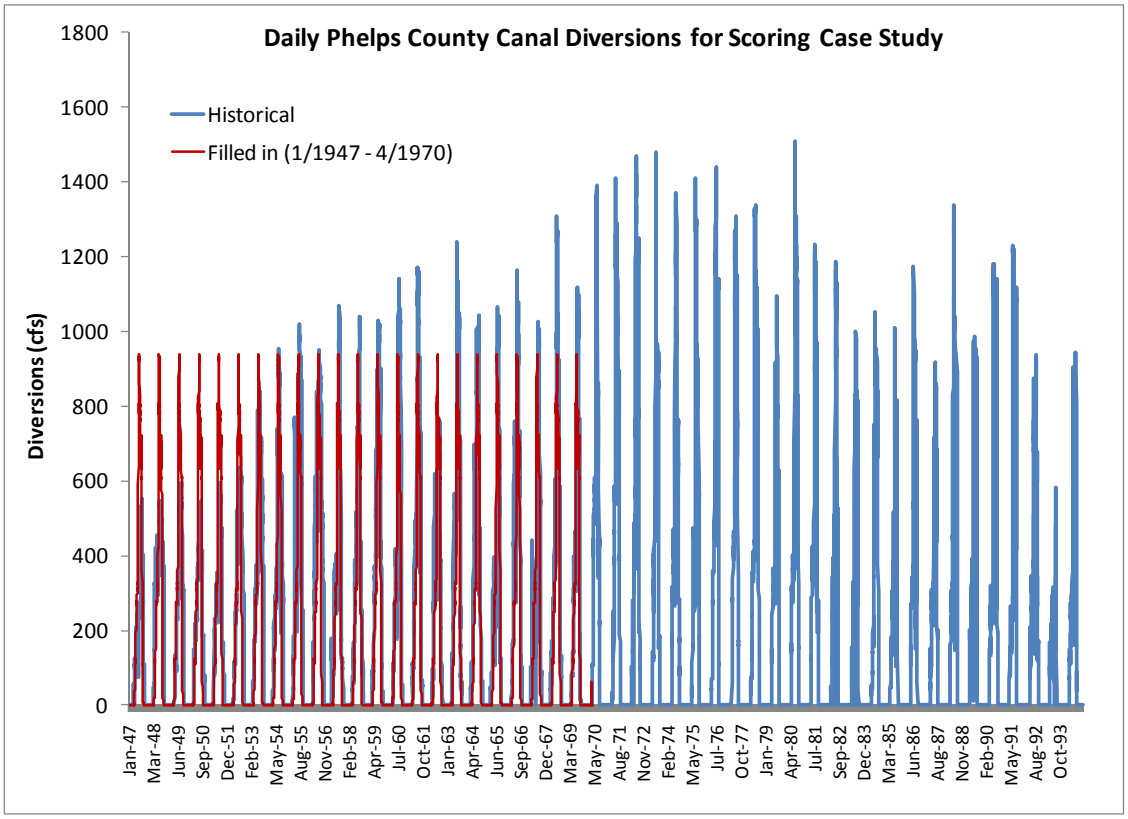


Figure A-4: Daily Phelps County Canal Diversions (filled and historical data)

To evaluate the impacts of using this dataset (unadjusted) as compared to the filled data for the years 1947 – 1969, the ED Office reran the scenario applying column 4 of Appendix A-5 target flows and using Grand Island to calculate excesses and shortages and (without pulse flows and with EA flows). The results are provided in **Table A-3**. Using the historical rather than filled Phelps dataset had a minimal impact on average annual project yield, increasing it by around 300 AF. Based upon these results, using the filled Phelps County Canal data appears sufficient for this scoring exercise, and slightly conservative as it tended to slightly decrease the remaining capacity available to route excess flows to the J-2 reregulating reservoir. We recommend that historical Phelps County Canal data be used for the entire 1947 – 1994 period for future project scoring.

Table A-3: Impact of Using Historical versus Filled Phelps County Canal Data

Phelps Data Used	Average from 1947-1994 Period (acre-feet)					
	Excesses at Grand Island	Excesses in CNPPID's System	Excesses Available for Phelps County Canal	Excesses Stored	Reservoir Releases	Reductions to Shortages[1]
Historical with 1947 - 1969 Filled with Daily Averages	405,734	216,676	169,791	47,758	47,621	42,181
Historical for Entire Period	405,734	216,676	173,803	48,161	48,024	42,497

[1] Differences between Reservoir Releases and Reductions to Shortages reflect routing effects (transit loss).

Routing from Overton to Grand Island

The WMC Loss Model estimates the percent loss per mile for each month for water years 1975 – 2006 for 19 reaches. The ED Office routed 100 cfs from the Overton to Odessa and Odessa to Grand Island reaches to develop loss percentages which were then averaged by month and year type as shown in **A-4**. These losses were applied to daily reregulating reservoir releases to route the water to Grand Island during periods of shortage. This analysis assumed that releases were protected from diversions.

Table A-4: Average Percent Loss from Overton to Grand Island by Month and Year Type

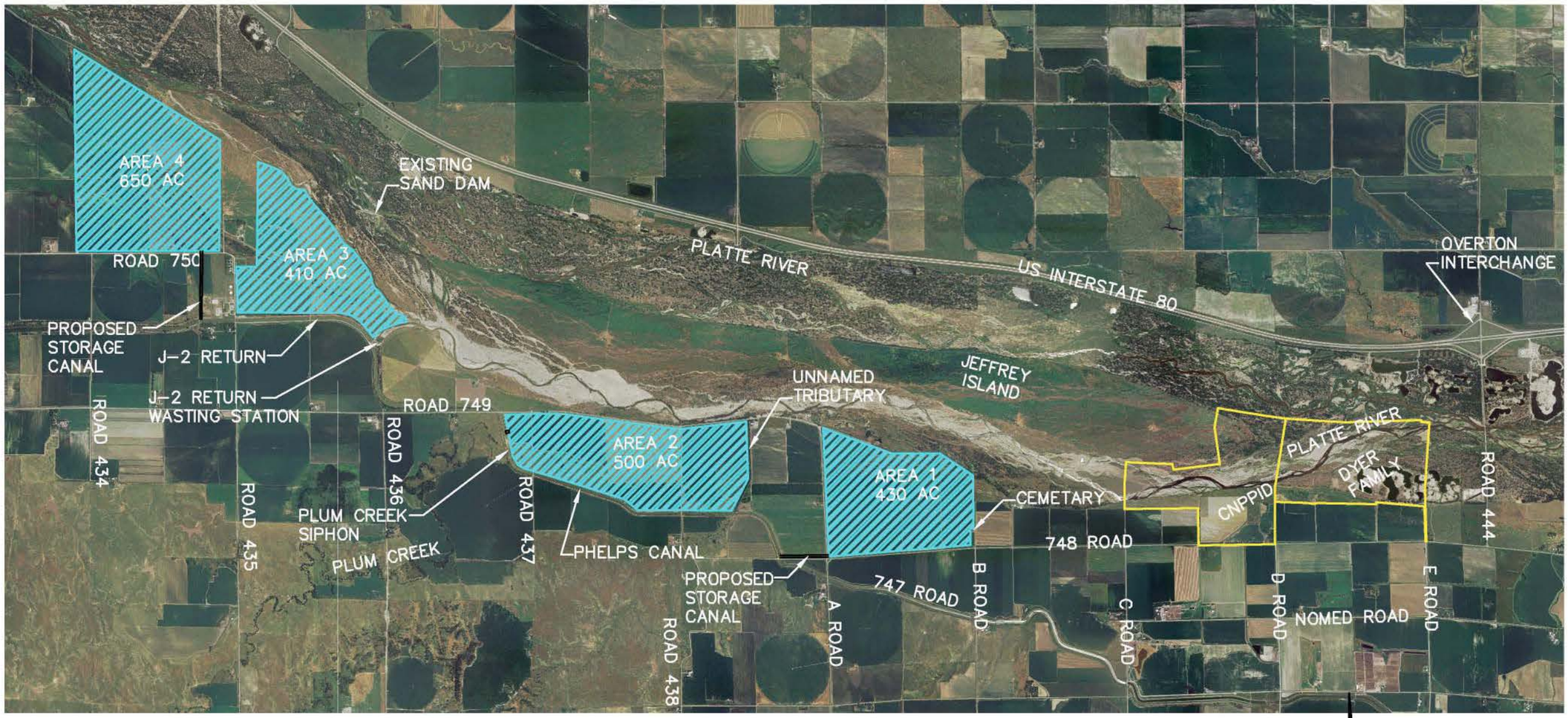
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wet	11%	8%	2%	4%	3%	4%	4%	12%	16%	9%	8%	8%
Normal	11%	7%	3%	3%	5%	7%	21%	23%	26%	16%	13%	12%
Dry	15%	9%	5%	5%	6%	32%	59%	73%	64%	46%	26%	15%

References

Platte River EIS Office, 2006. Central Platte River Model (OPSTUDY8) Technical Documentation and Users Guide, Platte River EIS Office, Lakewood, Colorado, February 2006

Attachment B

CNPPID Reregulating Reservoir Scoring Case Study
Reservoir Location (see Areas 1 and 2)



LEGEND

PROGRAM LAND BOUNDARY

EXCAVATION AREA BOUNDARY

PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM

PROJECT: 09-1466 DRAWN BY: CRL DATE: 10.8.09	J-2 RETURN ALTERNATIVE 2 GOSPER AND PHELPS COUNTY, NEBRASKA	OLSSON ASSOCIATES	PROPOSED EXCAVATION	FIGURE 2.1

DWG: F:\Projects\009-1466\Alternative 2\009-1466_StageStorageCover.dwg USER: cluttrell
DATE: Dec 10, 2009 9:55am XREFS: 09_1466_Pbase J2_TOPO 009-1466_SectionTownship 09_1466_LowResolutionAerials TitleBlock

Attachment C

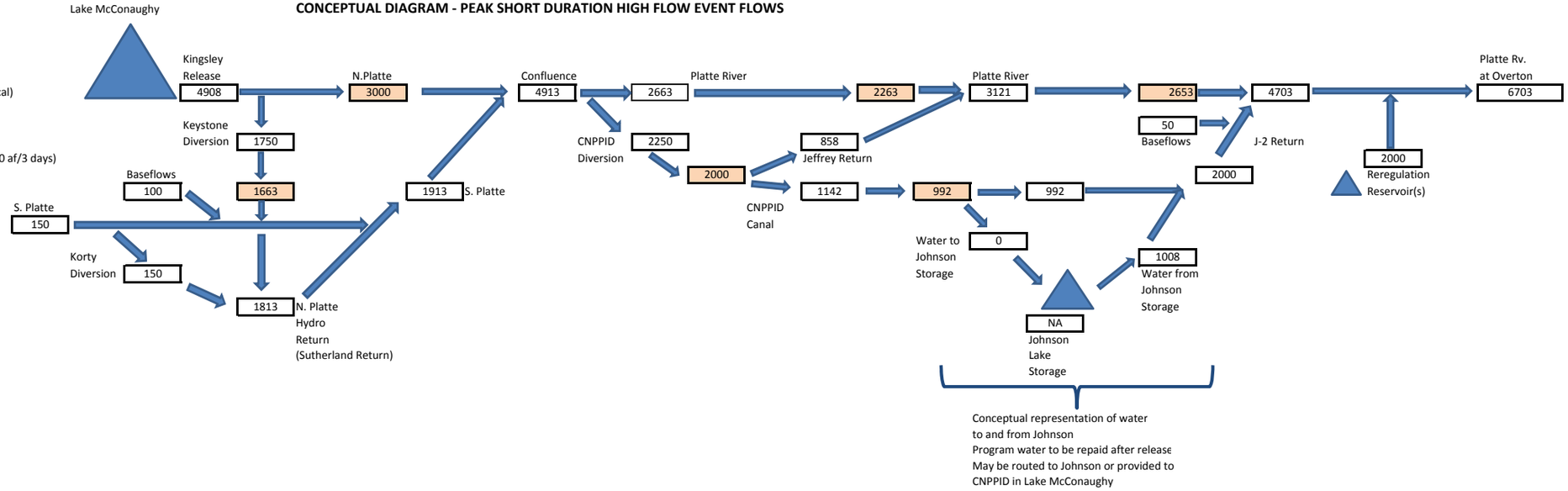
CNPPID Reregulating Reservoir Scoring Case Study Conceptual Diagram: SDHF Flows and System Component Contributions

CNPPID Percent Loss per Reach	5%	
Mainstem Percent Loss per Reach	15%	
Loss to Jeffrey Reservoir	250	cfs
Loss Jeffrey to Johnson	150	cfs
N. Platte Choke Pt Capacity =	3000	cfs
Kingsley Diversion Capacity =	1750	cfs
S. Platte Flows =	150	cfs (typical)
Sutherland Return Capacity =	1900	cfs
CNPPID Diversion Capacity =	2250	cfs
Jeffrey Return Capacity =	1250	cfs
Water to Johnson Storage =	0	cfs (6,000 af/3 days)
Johnson Release Max =	1008	cfs
J-2 Hydro Capacity =	2000	cfs
Reregulation Res. Release =	2000	cfs

No Phelps Canal diversions off of J-2 Return

[ ] = Loss Applied to get this flow

CONCEPTUAL DIAGRAM - PEAK SHORT DURATION HIGH FLOW EVENT FLOWS



Attachment D
OPStudy "Adjusted" Hydrology Background

Case Study Hydrology

OPStudy *Adjusted Present Conditions With Three States Projects* data[1] for the 1947 – 1994 period was used for the CNPPID Reregulating Reservoir scoring case study because it provides a consistent set of data with what was originally used in the Platte River Recovery Implementation Program (Program) Environmental Impact Statement (EIS) and Biological Opinion (BO). The "Adjusted" dataset reflects 1990's water-development conditions ("Present Conditions") and full implementation of Tamarack I, the Pathfinder Modification account, and the Environmental Account ("Three States Projects").

The following information provides background on the development of this dataset and is primarily taken from the Program EIS and the OPStudy Technical Documentation, with minor modifications by the Program Executive Director's Office (ED Office).

EIS Modeling

Multiple models were used to support the Program EIS. Output data from the North Platte River EIS Model the South Platte River EIS Model provided input data for the Central Platte OPStudy Model for EIS alternative analyses.

North Platte River EIS Model (NPREIS)
The NPREIS model is a monthly water balance model developed to simulate the operation of US Bureau of Reclamation projects on the North Platte River. The monthly NPREIS model output flows at Lewellen, Nebraska are provided as input to the Central Platte River OPStudy model.

South Platte River EIS Model (SPREIS)
The SPREIS model was designed to estimate South Platte River flows at Julesburg, Colorado under current conditions and with various EIS alternatives superimposed upon current conditions, for the EIS. The monthly SPREIS model output flows at Julesburg are provided as input to the Central Platte River OPStudy model.

Central Platte River Model (OPStudy)
The Central Platte River OPStudy model representation of the system begins near the lower end of the South Platte river (near Julesburg, Colorado) and the North Platte River above Lake McConaughy (near Lewellen, Nebraska), and continues through central Nebraska to Duncan,

[1] The pulse flow (or SDHF) option was turned on in the *Adjusted Present Conditions With Three States Projects* OPStudy model run which generated the daily data being used for this case study. However, because the model iteratively solves, output for many gage locations is provided "with" and "without" the pulse flows. It is anticipated that OPStudy output without pulse flows will be used for water project scoring.

Nebraska. The NPREIS model and SPREIS model were run independently to provide monthly input data to OPStudy.

Adjusted Present Condition Modeling Hydrology

In the EIS, an *Adjusted Present Condition* or "Reference Condition" was defined for purposes of comparing results of various model runs against a standardized baseline. The "Present Condition" scenario is intended to reflect the "current" level of water storage and diversion facilities, water demands, and operating criteria on the Central Platte River system, applied as if those same conditions had existed throughout the 1947 - 1994 modeling period. For example, although the Gerald Gentleman power generation facility was not completed until the 1980's, the *Present Condition* scenario accounts for water in the river system as if this facility had existed throughout the 48-year model period. In addition, the *Present Condition* scenario assumes that the NPPD and CNPPID facilities on the river system are relicensed on the same terms as their past licenses.

The OPStudy model documentation describes that ideally, July 1, 1997 is considered the baseline date" for *Present Condition*. However, because many river system facilities and operations are implemented gradually over a long period of time, it may be more realistic to think of the "baseline date" as being the general time frame of the mid- to late-1990s. Changes that occurred below Lake McConaughy during the 1947-1994 modeling period that are included as "Present Condition" features in the Central Platte River OPStudy model are described in the EIS hydrologic analysis. The following provides a general overview of some of the "adjustments" to present conditions that were made in each of the EIS models.

<u>North Platte River EIS Model (NPREIS)</u>
The following changes to the North Platte River are included in the NPREIS model, to reflect construction of new facilities and changes in operation of existing facilities within the 1947 - 1994 period:

- Construction of Glendo Reservoir
- Construction of Alcova Reservoir
- Construction of Gray Reef Reservoir
- Construction of Kortes Reservoir
- Construction of Gray Rocks Reservoir
- Construction of Fremont Canyon Power Plant
- Construction of Glendo Reservoir minimum flow bypass
- Excess to Ownership operations (varied historically)
- Increasing Kendrick and Glendo irrigation use

If an item has been included in the NPREIS model, it is operated as if it had existed for the entire period of record. For example, construction of Glendo Reservoir was not completed until 1958, but the reservoir is included in the NPREIS model for the entire period of record. Other items are not as easy to visualize because they involve changes in the physical environment that

have occurred over time (i.e., irrigation demand changes or adjusted river gains or inflows) or changes in how existing facilities are operated (i.e., Excess to Ownership operations).

South Platte River EIS Model (SPREIS)

Development of the SPREIS model relied upon three existing point flow studies of the South Platte River. Point flow studies are mass-balance analyses performed on specific river segments defined by stream gages at their upper and lower ends. These point flow studies were used to initially configure the SPREIS model to represent the historical operation of the South Platte River mainstem over the 1947 – 1994 period. This historical representation was then modified to account for current conditions with respect to major trends that occurred over the modeled period: growth in transbasin imports; growth in municipal water use along the Front Range, and associated changes in water rights and water use patterns; increased use of alluvial wells; and development of recharge projects.

Central Platte River Model (OPStudy)

All of the changes in the North Platte River above Lake McConaughy and in the South Platte River above Julesburg are reflected in the modified Lewellen and Julesburg inflow data sets that are used for the Central Platte River OPStudy model. The following changes to the Central Platte River are included in the OPStudy model, to reflect construction of new facilities and changes in operation of existing facilities within the 1947 – 1994 period:

- Construction of Gerald Gentleman Station
- Maximum/minimum canal diversion requirements
- Sutherland Reservoir operation changes
- FERC elevation limits
- Irrigation demand changes
- Construction of Elwood Reservoir (old fill pattern)
- Construction of Kingsley Hydro
- Adjusted river gains (addressed, not necessarily agreed upon)
- Howel-Bunger valve operations
- Korty diversion operations
- Present condition Julesburg flows
- CNPPID and NPPD contract changes

If an item has been included in the OPStudy model, it is operated as if it had existed for the entire period of record. For example, construction of the Howel-Bunger valve was not completed until the 1980's, but the operation is included in the OPStudy model for the entire period of record. Other items are not as easy to visualize because they involve changes in the physical environment that have occurred over time (i.e., irrigation demand changes or adjusted river gains or inflows) or changes in how existing facilities are operated (i.e., CNPPID and NPPD contract changes).

Three States Projects Modeling Hydrology

The EIS modeling of the initial "Three States Projects" was based on data that was previously adjusted for the "Present Conditions". The following briefly describes how the model input data for each of the initial three projects were developed.

Colorado: Tamarack I

The Tamarack Plan involves the use of wells and other water facilities in Colorado to reregulate excess flows in Colorado in a manner that is consistent with the flow-related goals of the Program. The Tamarack project was modeled using SDFView[2], which determines the rate of return for the water pumped from the South Platte River. Because the Tamarack project only removes water from the river when flows at Grand Island are in excess of Program instream flow targets, SDFView requires the flows at Grand Island. Therefore, OPStudy is first operated with all features *except* Tamarack being simulated. This provides the flows at Grand Island that are necessary for the operation of SDFView. Augmented flows to the South Platte River at Julesburg resulting from Tamarack are included in South Platte River at Julesburg flows which are input to the OPStudy model. OPStudy is then reoperated with the Tamarack project being simulated. Tamarack EA water at Julesburg was not exchanged for EA water at Lake McConaughy in the *Three States Projects* OPStudy run, though the model has this capability.

Wyoming: Pathfinder Modification

The Pathfinder Modification Project includes a 34,000 acre-feet increase in capacity for an environmental account operated for the benefit of endangered species and habitat in central Nebraska. Contributions to the Lake McConaughy EA account from the state of Wyoming are included in Lewellen flows from the NPREIS model which are input into the OPStudy model.

Nebraska: Lake McConaughy Environmental Account

An environmental account (EA) was established in Lake McConaughy, Nebraska. Water contributed to the EA, regardless of its source, loses any separate identity upon entering Lake McConaughy or other approved storage facility, and simply becomes part of the EA. Water is allocated to the EA on the first of October of each year. The allocation is based upon the combined total of the reservoir level as of the beginning of October and the expected inflows from that date through April 30 of the following year. Contributions to the account from CNPPID and NPPD are based on 10% of the "storable natural inflows" to Lake McConaughy from October through April, up to a 100 thousand acre-feet annual limit, and a 200 thousand acre-feet total limit.

[2] *OPStudy Technical Documentation:* SDF View is a software product of the Integrated Decision Support Group at Colorado State University. SDF View uses the "SDF method" developed by the U.S. Geological Survey to quantify the rate, volume, and timing of depletive/accretive effects of pumping from or recharging to wells in unconfined alluvial river aquifers, such as those in the Tamarack project area.

References

Central Platte River Model (OPSTUDY8) Technical Documentation and Users Guide, Platte River EIS Office, Lakewood, Colorado, February 2006.

Platte River Recovery Implementation Program Final EIS. US Department of the Interior. April 2006. Volume 3 - Water Resources and Water Quality CD.

LEASE

THIS LEASE IS ENTERED INTO between **Terry L. Broadfoot**, a single person, whose mailing address is 716 Second Avenue, Kearney, Nebraska 68845, and telephone number is (308) 236-5301, and **Broadfoot Sand and Gravel, Inc.**, a Nebraska Corporation (hereinafter referred to as the "**Owner**"), and **Platte River Recovery Implementation Foundation, Trustee** (hereinafter referred to as the "**Tenant**").

1. **DESCRIPTION OF PROPERTY.** The **Owner** hereby leases to the **Tenant** real estate owned by **Terry L. Broadfoot** and located in the Northwest Quarter (NW1/4) of Section 14, Township 8 North, Range 16 West of the 6th P.M., Buffalo County, Nebraska, consisting of approximately fifteen (15) acres, together with an ingress-egress easement on, over and across an existing roadway on real estate owned by **Broadfoot Sand and Gravel, Inc.**, and located in the Northeast Quarter (NE1/4) of Section 14, Township 8 North, Range 16 West of the 6th P.M., Buffalo County, Nebraska, all of which is shown more particularly on the attached Exhibit "A" that is made a part hereof by this reference (hereinafter referred to as "the property").

2. **TERM OF LEASE.** The term of this lease shall be from April 15, 2010 to October 1, 2019; provided, however, at any time during the term of this lease, the **Owner** may terminate this lease upon two (2) months written notice to the **Tenant** along with the repayment to the **Tenant** of that portion of the up front cash rent payment prorated on a monthly basis for remaining term of this lease. Any extension of this lease must be in writing and attached to this lease. Both parties agree that the failure to execute an extension at least two (2) months before the end of the current term shall be constructive notice of the intent to allow this lease to expire.

3. **USE AND OCCUPANCY.** The property herein leased shall be used and occupied by the **Tenant**, and its employees, agents, contractors, invitees, and guests, exclusively for bird nesting studies and to clear vegetation from the peninsula area only. The **Tenant** shall have the right and ability to fence off the neck of the peninsula to prevent predator access with the fence being an electric low wire with solar battery. The **Tenant** may stabilize the peninsula shoreline with approved methods of the MSHA in order to protect individuals and equipment used to remove vegetation and to make the area safe for its intended usage by all parties. Any expense to stabilize banks on the property will be borne by the **Tenant** and all stabilization work will be coordinated with the **Owner**. The **Tenant** covenants and agrees to comply with all statutes, rules, orders, regulations and requirements of federal, state, county, and city government regulating the use by the **Tenant** of the premises and warrants that all of the **Tenant's** employees, agents, and contractors shall be MSHA trained. Any and all fines, costs and expenses as a result of any work done or not done on the property by the **Tenant** during the term of this lease as required by the MSHA shall be paid by the **Tenant** and the **Tenant** agrees to indemnify and hold harmless the **Owner** against all liability, loss, cost, damage, or expense sustained by the **Owner** related to such fines, costs and expenses.

4. **CASH RENTAL.** Cash rent during the term of this lease shall consist of a onetime up front payment of Thirty-seven Thousand Five Hundred Dollars ($37,500) due and payable on or before July 15, 2010.

5. **TENANT'S AGREEMENTS.** The **Tenant** agrees that:

(a) Removal of Personal Property. Upon termination of this lease or any extension or renewal thereof, the **Tenant** shall have thirty (30) days to remove any and all personal property of the **Tenant**, even though said property may be attached to the realty; provided, the **Tenant** shall repair all damages to the property caused by the installation and removal. Failure or refusal of the **Tenant** to remove any or all of the personal property within such time period shall cause the **Tenant** to forfeit all rights in and to such personal property and such personal property shall become the property of the **Owner**.

(b) Indemnification of Owner. The **Tenant** agrees to indemnify and hold harmless the **Owner** against all liability, loss, cost, damage, or expense sustained by the **Owner** arising out of, directly or indirectly, or due to the **Tenant**'s use of the property or due to any accident or other occurrence causing injury to any person or persons or damage to property resulting from the **Tenant**'s use of the property. The **Tenant** shall keep in force **Tenant**'s own liability insurance policies as will fully protect the **Tenant** and the **Owner** against claims against any and all persons for personal injury, death, or property damage occurring in or about the property.

(j) Delivery of Possession. The **Tenant** agrees to yield possession of the property to the **Owner** and vacate the property at the expiration of the term of this lease without further notice.

6. **OWNER'S AGREEMENTS.** The **Owner** agrees that:

(a) Real Estate Taxes. The **Owner** will pay all real estate taxes on the property.

(b) Sale of Property. If the **Owner** should sell or otherwise transfer the property, the **Owner** will do so subject to the provisions of this lease or by making repayment as provided in paragraph 2 of this lease.

(c) Quiet Enjoyment. The **Owner** warrants that the **Owner** has the right to lease the property, and will defend the **Tenant**'s possession against any and all persons whomsoever.

7. **SUB-LEASE AND ASSIGNMENT.** The **Tenant** shall not sublet nor assign this lease or any portion thereof without the expressed written consent of the **Owner**. Such consent shall be in the absolute discretion of the **Owner**.

8. **RELATIONSHIP OF THE PARTIES.** The relationship of the parties is that of landlord and tenant. This lease shall not be deemed to give rise to a partnership relation, and neither party shall have the authority to obligate the other without written consent, except as specifically provided in this lease.

9. **REMEDIES ON DEFAULT.** The failure or delay of the **Owner** or the **Tenant** to exercise any of their respective rights or privileges under this provision of the lease, or any other terms of this agreement, shall not be held a waiver of any of the terms, covenants, or conditions of said instrument, nor of any of the respective rights or privileges of either party under the same. Any act of either the **Owner** or the **Tenant** waiving, or which may be held to have waived, any specific default of the other party shall not be construed or held to be a waiver of any future default.

If the **Tenant** fails to perform any term, condition, or covenant of this lease, the **Owner** may terminate this lease by giving written notice of termination to the **Tenant** and may regain possession of the property in the manner then provided by the law of the State of Nebraska. The right to terminate this lease shall be in addition to any other rights or remedies then provided by the law of the State of Nebraska for breach of this lease by the **Tenant**.

10. **BINDING EFFECT.** All provisions of this lease shall be binding upon and inure to the benefit of the parties hereto, their heirs, personal representatives, successors, and assigns.

11. **TIME OF ESSENCE.** Time is of the essence of this lease and in the performance of the terms hereof.

12. **COUNTERPARTS.** This lease may be executed in any one or number of counterparts, each of which shall be deemed an original and which, together, shall constitute one and the same instrument.

13. **COPIES AND/OR FACSIMILES.** A facsimile or photocopy of a properly executed counterpart of this lease shall be as legally binding and valid as the original.

IN WITNESS WHEREOF, the parties have signed this lease on the date(s) hereinafter set forth.

OWNER:

_____

Terry L. Broadfoot
Dated: April ___, 2010

Broadfoot Sand and Gravel, Inc., a Nebraska Corporation

By:_____
Terry L. Broadfoot, President

TENANT:
Platte River Recovery Implementation Foundation, Trustee

By:_____
Diane Wilson, Executive Director
Dated: _____, 2010

Dated: April ___, 2010

STATE OF NEBRASKA)
) ss:
COUNTY OF BUFFALO)

The foregoing instrument was acknowledged before me on April ___, 2010, by **Terry L. Broadfoot**, individually, and as President of **Broadfoot Sand and Gravel, Inc.**, a Nebraska Corporation.

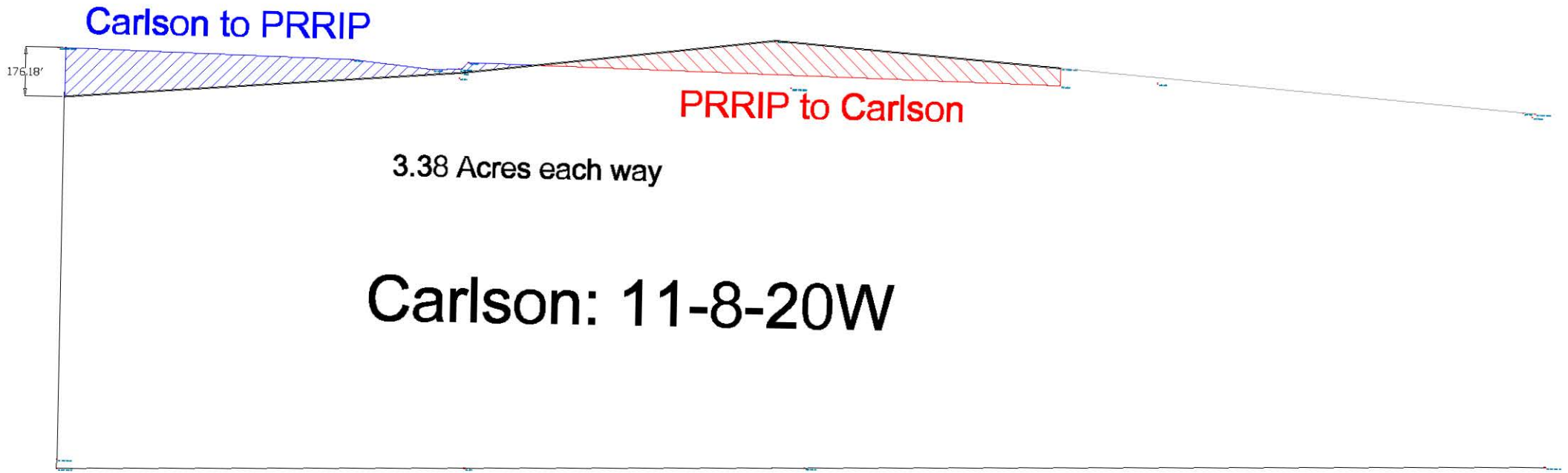
_____
Notary Public

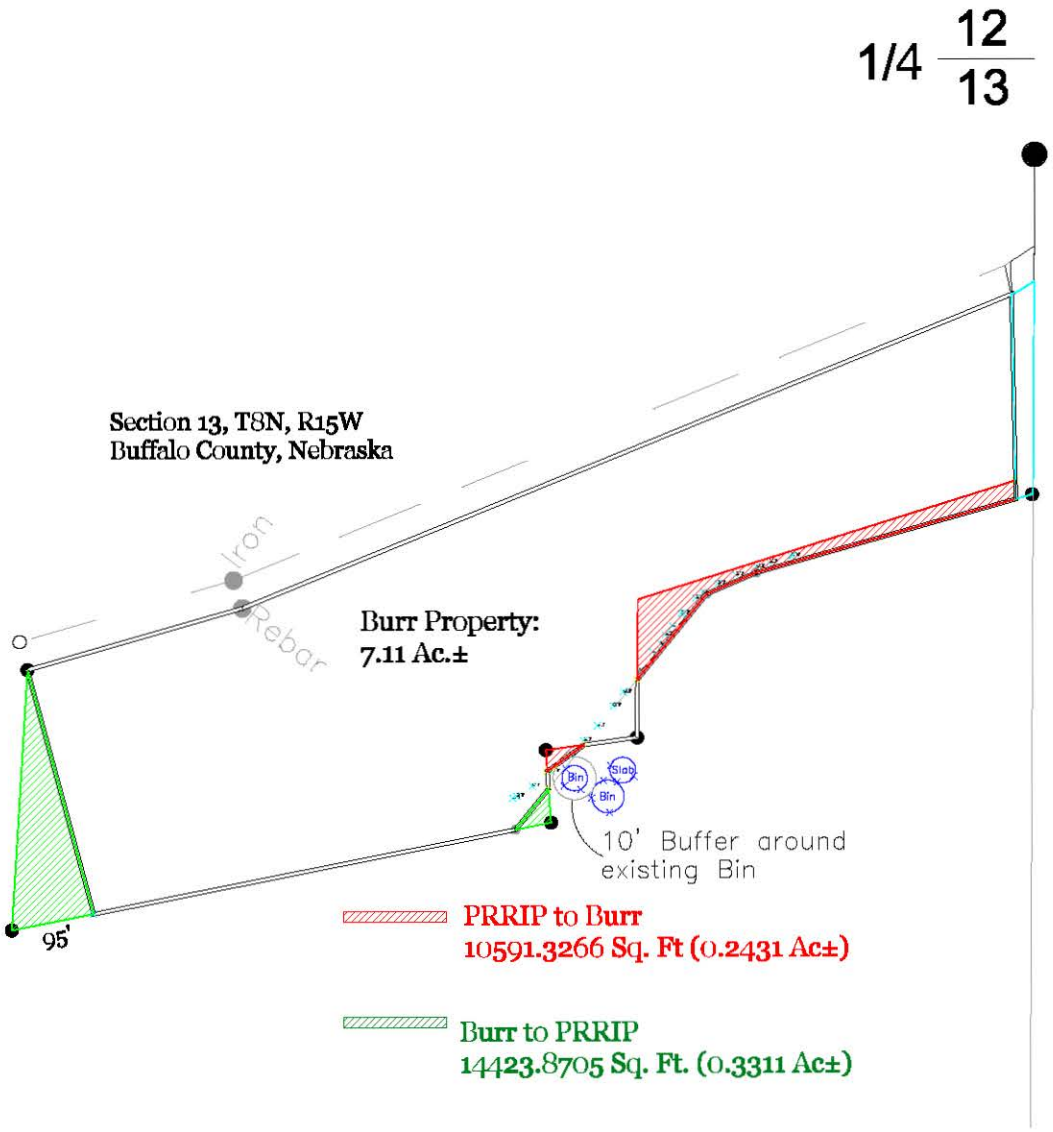
STATE OF NEBRASKA)
) ss:
COUNTY OF _____)

The foregoing instrument was acknowledged before me on _____, 2010, by **Diane Wilson**, Executive Director of the **Platte River Recovery Implementation Foundation, Trustee**.

_____
Notary Public


15 Acre lease
Ingress and egress points


Carlson to PRRIP
176.18'
PRRIP to Carlson
3.38 Acres each way
Carlson: 11-8-20W


1/4 12/13
Section 13, T8N, R15W
Buffalo County, Nebraska
Iron
Rebar
Burr Property:
7.11 Ac.±
Bin
Slab
Bin
10' Buffer around
existing Bin
95'
PRRIP to Burr
10591.3266 Sq. Ft (0.2431 Ac±)
Burr to PRRIP
14423.8705 Sq. Ft. (0.3311 Ac±)


North