RESOURCE AND ENGINEERING PLANNING COMMITTEE

MINUTES

September 2, 2021

A meeting of the Resource and Engineering Planning Committee was held on Thursday, September 2, 2021, at 10:01 a.m. at the District Office, 31717 United Avenue, Pueblo, Colorado and via Zoom virtual meeting.

Chairman Mitchell announced a quorum was present.

COMMITTEE MEMBERS PRESENT:
Curtis Mitchell – Chairman, Seth Clayton (via Zoom) – Vice Chairman, Andy Colosimo, Pat Edelmann, Tom Goodwin, Bill Long, and James Broderick.

COMMITTEE MEMBERS ABSENT AND EXCUSED:
None

OTHERS PRESENT:
Kevin Karney, Southeastern Colorado Water Conservancy District Director; Warren Paul, Patrick McLaughlin and John Dawson, Mott MacDonald; Jenny Bishop, Colorado Springs Utilities; Garrett Markus, Margie Medina, Leann Noga, and Chris Woodka, District staff.

Via Zoom
Alan Hamel, Bub Miller, Ann Nichols, and Mark Pifher Southeastern Colorado Water Conservancy District Directors; Bill McDonald, McDonald Water Policy Consulting, LLC; Ben Figa, Burns, Figa & Will, P.C.; Lee Miller, Kevin Meador, Patty Rivas, District staff.

APPROVAL OF MINUTES:
Chairman Mitchell asked for approval of the Joint Allocation and Resource and Engineering Planning Committee minutes for July 1, 2021, and if there were any corrections or additions. Hearing none, Tom Goodwin moved, seconded by Andy Colosimo to approve the minutes. Motion passed unanimously.

PRESENTATIONS:
JAMES W. BRODERICK HYDROPOWER PLANT UPDATE (JWBHP)
The James W. Broderick Hydropower Plant (JWBHP) generated at 84% percent of full rated capacity in August 2021 compared to an average expected generation of 31% percent.

The average daily generation in August was 84 percent, at 37 percent of maximum generation. 2,560 MWhrs Power Generated compared to scheduled Power at 2,610 MWhrs. Revenue generated in August 2021 is estimated at $131,805

FRYINGPAN-ARKANSAS STORAGE RECOVERY STUDY PHASE II, TASK 1 DRAFT FINAL REPORT
John Dawson and Patrick McLaughlin reported on Phase II Scope of Work Overview Goals & Objectives:

- Assess the impacts of Pueblo Reservoir storage capacity loss on District storage and operations, storage contracts, and provides estimates as to when storage loss becomes critical to limiting Fryingpan-Arkansas operations.
- Can be used by the District and its Storage Recovery Committee and Mott MacDonald team to facilitate the development of future storage recovery tasks.
- Provides updated information for the District and its Storage Recovery Committee to communicate with stakeholders and make proactive decisions for mitigating future storage loss within Pueblo Reservoir.
- Phase II (Part 1) – *This scope of work* – addresses the first part of the Board's action. Future phases of work include obtaining an updated survey, numerical modelling, and assessing impacts from the Upper Arkansas River Basin
- Achieves its scheduled completion date.

Task Outline:

1. Project Management
    - Purpose: To successfully execute and deliver the Phase II storage recovery study on time, within budget, and in accordance with District goals and objectives.
    - Deliverables: Updated Project Management Plan (PMP), Scheduled Progress Update Meetings Minutes (5 in total).
    - **Task Start Date:** April 19, 2021 (NTP); **Task End Date:** July 23, 2021.
2. Project Initiation Workshop
    - **Purpose:** For the Study Team to gain alignment with District and Committee objectives, PMP, study SOW and assumptions.
    - **Deliverables:** Project Initiation Workshop Minutes and Presentation
    - **Meeting Date:** May 7, 2021
3. Data Collection:
    - **In coordination with the District, Mott MacDonald requested the following data from the Bureau:**
        i. 1993 and 1974 survey data (Not received)
        ii. 2012 contour data (Received)
4. Engineering Assessment Work Plan
   Work Items:
    - **Operations**:
        - Use USBR data to develop seasonal water surface elevation statistics.
        - Use this data in combination with bathymetry data to develop reservoir capacity projections.
    - **Sedimentation:**
        - Use 1974 (range line), 1993 (range line), and 2012 (contours) bathymetry data to develop historical bathy elevations.
        - For years in between survey datasets, use linear interpolation to estimate bathymetry depth.

- **Storage:**
  - Using yearly bathymetry data developed in sedimentation subtask, and water level data processed in operations subtask – develop an updated historical record of reservoir storage levels.
  - Use regression curve fit to project future allocations storage allocation capacities. **This will have +/- confidence bounds that will be used in future storage projection.**
  - Compare projected available to storage contracts to identify risks for District.

Regression Analysis

1. Regression used to predict future sedimentation based on past reservoir elevations.
   - Use 1974, 1993, and 2012 to develop linear regression fits throughout reservoir.
   - Spatially varying results used to project future elevations throughout reservoir.
2. Use curves to project future sedimentation and reservoir elevations.
   - Forecast reservoir elevations to 2046.
3. Process repeated at 74,000 points within reservoir to develop projected bottom elevations

Survey Data Analysis (1974, 1993, and 2012)

- 1974 & 1993 Range line Data was conducted by the Bureau of Reclamation, used to calculate area and capacity of the reservoir
- 31 range lines, extending from .5 thru 12.5 miles north of dam, range lines were digitized and selectively merged with 2012 upland data to create a comprehensive surface

2012 Contour Data from Bureau of Reclamation **c**onducted by USBR in May 2012. Conducted near water surface elevation 4,873 ft. The above-water topography was developed from high altitude aerial photography and bare earth data from 2007 near water surface elevation 4,855 (NAVD88).

Forecasting methodology were discussed. Sedimentation and Storage Capacity results capacity estimates show 10, 50 and 90 percent non-exceedance values. Numerical model simulation was recommended in future phases to refine these projections.

Next Steps & Recommendations

1. Updated Bathymetric & Topographic Surveys: Q4 2021 - Q1 2022
   Purpose: Critical to conduct updated bathymetric and topographic surveying programs
   Uses: Used to refine storage allocation estimates & conduct numerical modeling assessments (See recommendation 2)
2. Numerical Modelling: Q4 2021 – Q1 2022
   Purpose: Numerical modeling recommended to refine the storage capacity estimates.

Uses: Refine storage allocation projections & optimize any storage recovery (dredging) designs to minimize future sedimentation and prolong the useful life of the dredging project.

3. Upper Arkansas River Basin Hydrology & Geomorphology Assessment Q1 2022 – Q2 2022
   Purpose: Quantify sediment load from unregulated tributaries upstream of the Pueblo Reservoir.
   Uses: Used to identify "problem" tributaries and develop sediment sustainability measures

ARKANSAS VALLEY CONDUIT (AVC) FINANCIAL MODEL
Kevin Meador presented an overview of the financial model to describe the overall methodology to determine the repayments and AVC costs to the Participants.

AVC background and Update
A map of the AVC was provided showing the segments 1-4, spur and trunk lines. AVC cost history was shown from 2016 thru 2021 indicating total cost and trunk, and spurs/delivery line costs. The background and purpose of the model was to determine repayment amounts and timing for the 35 percent of the total project cost by the Participants. Also, to determine Participant costs for the Project (Debt Service, O&M Costs, and Storage Costs). The model is a tool to project anticipated costs and reflect actual costs and determine AVC Project repayment.

Model Setup – The basic assumption for the calcs is that each pipeline segment (both trunk and spurs) is constructed with interest accruing during design and construction and capitalized at completion when the segment goes into service. At that time a repayment period starts for the segment. The cases shown are based on an All Equal basis. In other words, all Participants pay a portion of the costs no matter when they get service. We can do a scenario where the Participant(s) that get service pay for the segment, but we will do that later.

Model Analysis Steps (1-6)
Step 1 – Construction Costs address Bureau of Reclamation costs and Non-Reclamation Costs
Step 2 – 35% crediting and amount to be repaid to Reclamation
Step 3 – Repayment to Reclamation after construction of each segment (several repayment periods possible)
Step 4 – Determine Total Annual Debt Service for Participants
Step 5 – Annual Operation, Maintenance, and Replacement Costs
Step 6 – Assess Financial Feasibility/Affordability

The Financial Model Variables considered include:

1. Construction Costs (Actual and Estimated)
2. Loan Terms (interest rates and loan length)
3. Interest During Construction (IDC) Calculations
4. Number of Construction Repayment Segments (1-10)

5. Designated Repayment Percentage (35% of Federal Costs for AVC)
6. Application of Miscellaneous Revenues
7. Inflation (Escalation) Rates
8. Funding Sources/Limits
9. Construction Start/Stop Timeframes
10. Percentage of Grants

Financial model inputs/outputs were provided along with graphs. Participant cost ranges were shown with base cost, reduced spur/delivery line costs and with additional costs providing annual cost, 1000 gallon and tap cost per month.

ACTION ITEMS:
RESTORATION OF YIELD (ROY) PATH TO A HAYNES CREEK RESERVOIR
Garrett Markus reported the ROY Group formed in 2004 to resolve several intergovernmental conflicts among water users on the Arkansas River. Among the issues addressed was the desire of the City of Pueblo to have more consistent flows in the Arkansas River through the City of Pueblo for recreational and amenity purposes. May 2004 six parties, City of Aurora, Colorado Springs Utilities, City of Pueblo, Board of Water Works (Pueblo Water), Southeastern Colorado Water Conservancy District (the District) and City of Fountain, entered into an Intergovernmental Agreement (6-party IGS) that established the Arkansas River Flow Management Program. The original parties have since been joined by the Pueblo West Metropolitan District through a March 2011 letter agreement clarifying the 6-party IGA.

The agreement was that the seven parties would maintain an identified minimum flow through Pueblo and would agree to curtail the use of certain exchange water rights. The curtailment of the exchanges creates foregone exchange water ("Foregone Diversion"), which needs to be recaptures in a downstream reservoir that was to be acquired later (ROY Storage). The 2004 Agreement has operated successfully over the past 16 years in increasing flows in the Arkansas River through the City of Pueblo; however, a lack of efficient ROY storage option contemplated in the 6-party IGA continues to impact the ROY participants ability to efficiently use Foregone Diversions. It is necessary for the ROY Participants to acquire efficient long-term storage to be utilized for the purposes of storing the Foregone Diversion for the long-term operation of the Restoration of Yield program (ROY Storage Project).

In 2014 the ROY Planning Sub-Committee undertook a comprehensive screening study to identify potential water storage sites. The list was narrowed down to four sites, it was determined that a site identified as PA-6N (later renamed Haynes Creek) has the potential to meet the ROY participants' storage needs and be a ROY Storage Project.

Key points regarding the Haynes Creek Reservoir concept:

- The reservoir will be located near Boone, Colorado. Foregone Diversions will be diverted at the Colorado Canal headgate on the Arkansas River and delivered to the reservoir via the Colorado Canal (at a maximum inflow are of 800 cfs) pursuant to a to be negotiated carriage agreement
- Preliminary design shows the potential for maximum of 4,300 acre-feet of above ground storage

- Dam would likely be classified as "Low Hazard" by SEO Dam Safety Branch
- Stored water released upstream of the High Line Canal headgate (minimum outflow rate of 400 cfs)
- Stored water released from the reservoir would be exchanged up to Pueblo Reservoir via Case No. 06CW120 Roy exchange decree Pueblo Water currently has an option to purchase the Haynes Creek Reservoir property (expires 12/31/2021)
- Total cost to acquire the property is $2,850,000
- Cost to individual participants to acquire the property = total cost x level of participation (i.e. 2,850,000 x 5% participation = $142,500)

Tom Goodwin moved, seconded by Pat Edelmann that the Resource and Engineering Planning Committee recommend the Southeastern Colorado Water Activity Enterprise to approve the, *Draft Fossel Property Purchase IGA*, or a form of agreement that is substantially similar, on behalf of Southeastern Colorado Water Activity Enterprise within the Restoration of Yield Partners. Motion passed unanimously.

INFORMATION ITEMS:
None

OTHER BUSINESS
None

NEXT MEETING
Next meeting will be October 7, 2021 at 10:00 a.m.

ADJOURN
Chairman Mitchell adjourned the meeting at 12:19 p.m.

Respectfully submitted,

Garrett J. Markus, P.E.
Water Resources Engineer