**Republican River Compact Accounting (RRCA): 2021 Non-Federal Reservoir (NFR) Evaporation Procedures**

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**2021 Procedures Overview**

In late 2012, NeDNR’s Dam Safety Division invested significant resources in updating the dams database within the Republican River Basin using the best readily available data, including aerial imagery, Light Detection and Ranging (LiDAR) data, and more than 50 field surveys of reservoirs.

Each year and on a rotating basis (by Basin) the NeDNR Dam Safety Division utilizes aerial imagery and field investigations to update their database. Updates may include additions or removals to the database as the result of new or removed dams, dam breaches, etc.

Since the 2013 NFR evaluation, the NeDNR has been able to estimate evaporation using the presumptive average annual surface area described in the RRCA accounting procedures and reporting requirements. As such, this is the method that NeDNR implements for reservoirs with a storage capacity of less than 200 AF. For reservoirs with a storage capacity of 200 AF or greater, NeDNR uses field observations to estimate the average annual surface area. The results of field observations and area representations that were used for NFR calculations in 2021 are listed in Table 1.

**2021 Data Package Description**

The data package for the 2021 RRCA NFR Evaporation Assessment includes the following files:

1. **NFR2021.gdb\NFR2021\_DamPoints**-a GIS layer containing dam points for 2021 non-federal reservoirs 15 AF or greater (455 features).

2. **2021SummariesBySubbasin.xlsx**-A table summarizing total evaporation by Republican River subbasin.

3. **Data2021 (folder)-**contains Excel spreadsheets of federal reservoir pan evaporation and precipitation measurements obtained by the Bureau of Reclamation.

4. **2021NFR\_AddedReservoirs.xlsx-**A table summarizing the name and location of new non-federal reservoirs within the Republican River Basin. There were no NFR reservoirs removed in 2021.

5. **2021FederalReservoirEvapCalcs.xlsx**-A table showing precipitation and pan evaporation measurements for Federal Reservoirs used in NFR analysis, and calculated evaporation.

6**. 2021NRFprocedures.docx**-this document, which outlines procedures and summarizes field observations.

Table 1: Summary of field investigation results for reservoirs 200 AF or greater, and area reservoir representations used in the 2021 NFR analysis.

