**Republican River Compact Accounting (RRCA): 2017 Non-Federal Reservoir (NFR) Evaporation Procedures**

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**2017 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 2017 are listed in Table 1.

**2017 Data Package Description**

The data package for the 2017 RRCA NFR Evaporation Assessment includes the following files:

1. **NFR2017.gdb\NFR2017** -a GIS layer containing dam points for 2017 non-federal reservoirs 15 AF or greater (420 features).

2. **2017NFR\_EvapBySubbasin**-A table summarizing total evaporation by Republican River subbasins.

3. **USBRData2017 (folder)-**contains Excel spreadsheets of federal reservoir pan evaporation and precipitation measurements obtained by the Bureau of Reclamation.

3. **2017FederalReservoirEvapCalcs.xlsx**-A table showing precipitation and pan evaporation measurements for Federal Reservoirs used in NFR analysis, and calculated evaporation.

4**. 2017NRFprocedures.docx**-this document, which outlines procedures and summarizes field observations.

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| **Dam ID** | **Dam Name** | **Right ID** | **Field investigation results** | **Field observed area representation used for NFR analysis** |
| 270 | Ohmstede Dam | 1784 | 2/28/2017 | Partially Full no current inflow |
| 322 | Wellfleet Dam | 1209 | 2/27/2017 | Reservoir is full |
| 611 | Rock Creek Dam | 955 | 2/27/2017 | Reservoir is full and has approximately 25cfs inflow, water flowing out of drop inlet at approximately 25cfs |
| 709 | Imperial Dam | 1036 | 2/27/2017 | Partially Full no current inflow |
| 1328 | Ziebell Dam | 12489 | 2/28/2017 | Partially Full no current inflow |
| 1355 | Whaley Reynolds Dam # 1 | 12528 | 2/28/2017 | Partially Full no current inflow |
| 1467 | Hayes Center Special Use Dam | 1132 | 2/27/2017 | Reservoir is full and has approximately 15 cfs inflow and outflow |

Table 1: Summary of field investigation results for reservoirs 200 AF or greater, and area reservoir representations used in the 2017 NFR analysis.