

Hendrix Wai Engineering, Inc.

Water Resources, Water Rights and GIS/Computer Modeling

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To: Board of Directors – Republican River Water Conservation District
From: Randy L. Hendrix P.E., Ayrton M. Hendrix P.E.
Date: November 19, 2024
Subject: Engineering Report for the November 2024 Quarterly Board Meeting

This memorandum describes the pertinent engineering issues relating to the work performed on behalf of the Republican River Water Conservation District (District) by Hendrix Wai Engineering, Inc. (HWE) since the last quarterly board meeting.

Compact Compliance Pipeline Estimate 2024

The September Compact Compliance Pipeline projected delivery estimate was prepared on September 9, 2024 for the remainder of the calendar year. The projected delivery was reduced from 11,000 acre-feet per the initial estimate to 10,000 acre-feet. Since the District had already delivered 6,004 acre-feet from January to April this left an additional 4,000 acre-feet needed before the end of the year.

HWE prepared the projected delivery memorandum and resume operations on October 25th for the remainder of the year. Based on that recommendation we projected that the CCP would deliver the following for a total of 10,021 acre-feet in 2024, assuming 30 cfs per day for October to December:

- January to April – 6,004 acre-feet (delivered)
- October to December – 4,017 acre-feet (projected delivery)

Fee Evaluation Committee

HWE prepared for and participated in a committee meeting in September to discuss the proposal of a fee structure that would include a target of a set amount of pumping within the District and pumping. Based on that information we assisted Reon in modifying the fee dashboard to incorporate those changes to assess how that fee proposal would look like by District, individual well, GWMD, and County. HWE still expects further refinement to the dashboard based on our limited data set that has provided unique situations that will still need to be addressed.

PTAC Committee

HWE reviewed and provided feedback to Hahn Water Resource / McGrane Water Engineering (Hahn/McGrane) regarding their presentation to the District Board prior to the last quarterly meeting. HWE also monitored the progress being made to the rehabilitation to well A8 to make sure that the well was tested and back online prior to October 25th (the start of the fall pumping for the CCP. HWE also reviewed the summary report from Hahn/McGrane regarding the rehabilitation of well A8 (Deb Daniel and PTAC committee have a copy of that report).

Hahn/McGrane have recommended that the next 2 wells that the District should rehabilitate are wells A6 and A3. They have recommended a similar rehabilitation of the wells as A8 and adding additional 20 feet of column pipe to A6 and 30 feet to A3.

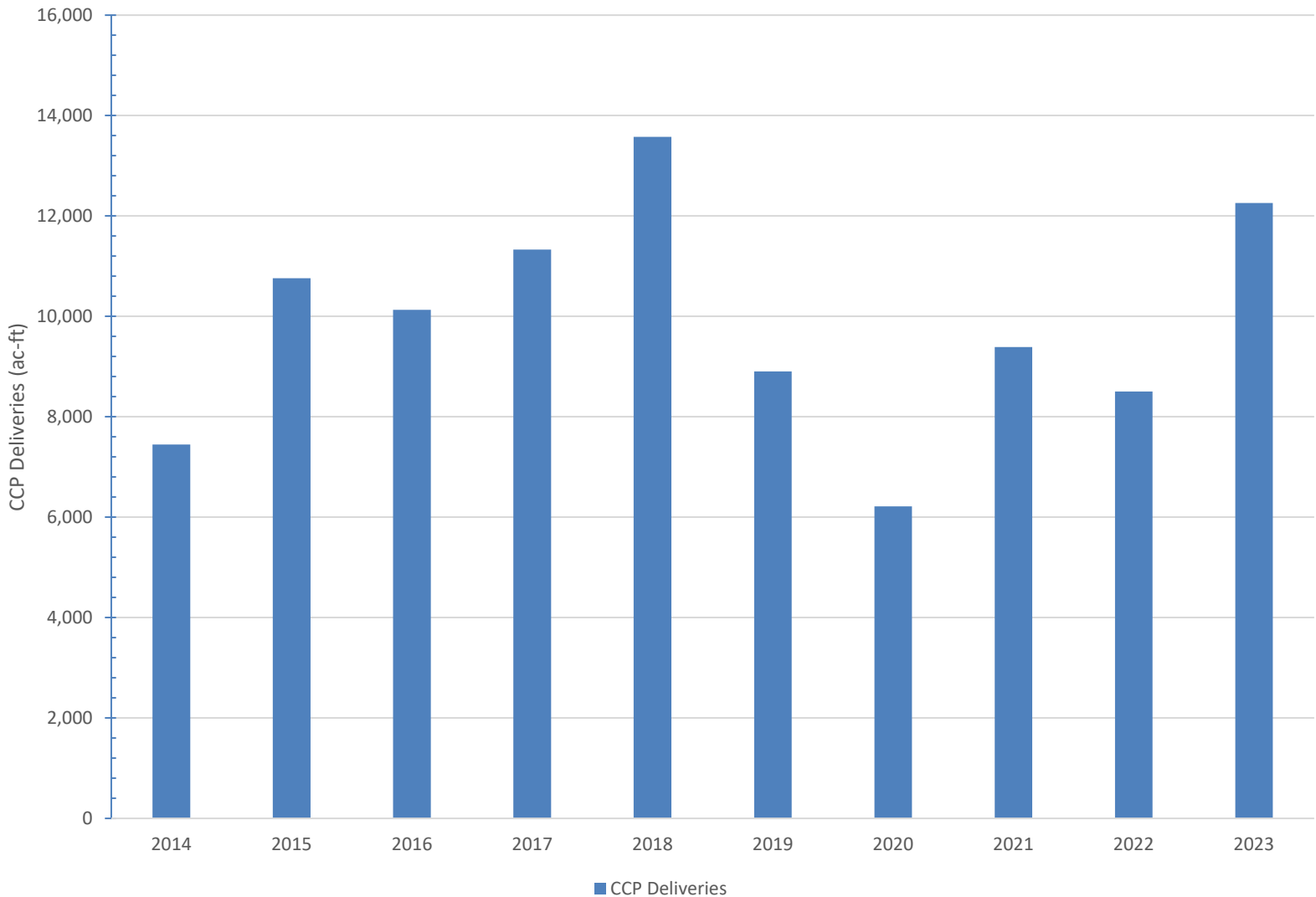
South Fork Focus Zone Dry-Up Acres Mapping

HWE, along with RRWCD’s general manager and staff worked on changes to the current online mapping of the acres retired within the South Fork Focus Zone (SFFZ) to document the parcels associated with the various contracts. A final GIS coverage was prepared of the acres retired. HWE also participated in a meeting with Tracy Kosloff and the State Engineer’s Office GIS team to discuss the State’s GIS dataset to be presented at the RRCA.

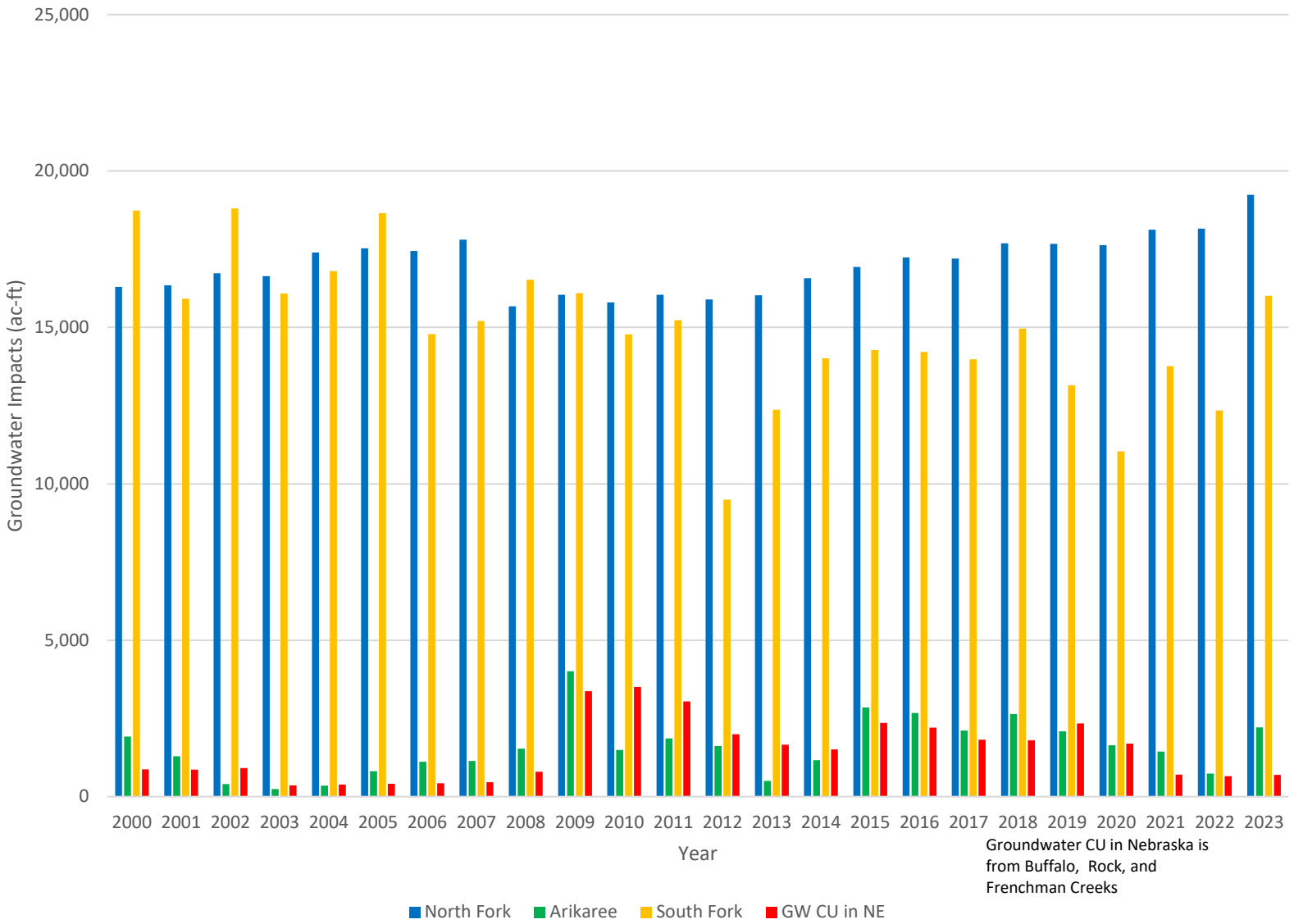
General Engineering Thoughts

We have kept the graphs in this section from the previous quarterly meeting reports and will update these graphs to include 2024 when the data becomes available.

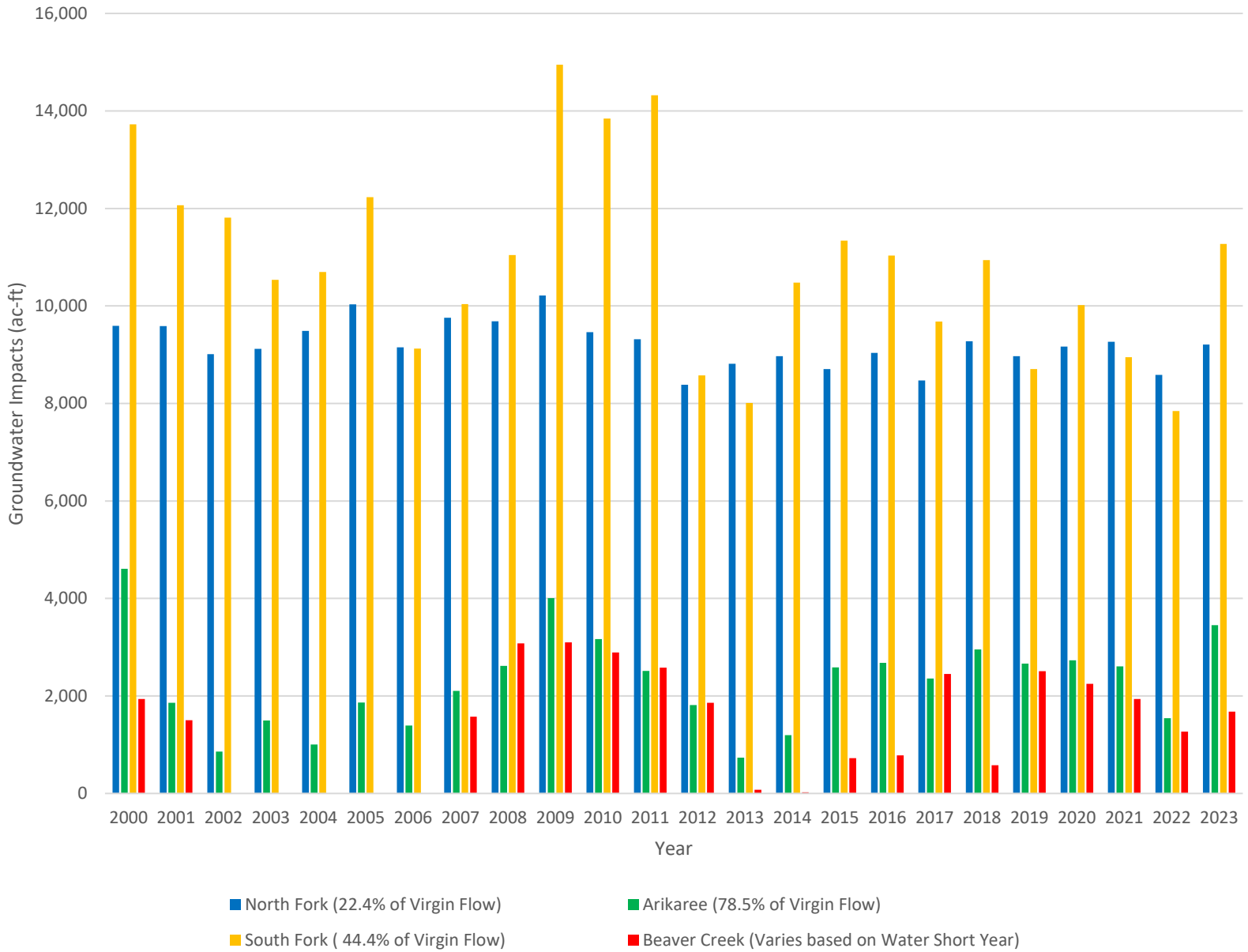
CCP Deliveries (2014 to 2023)



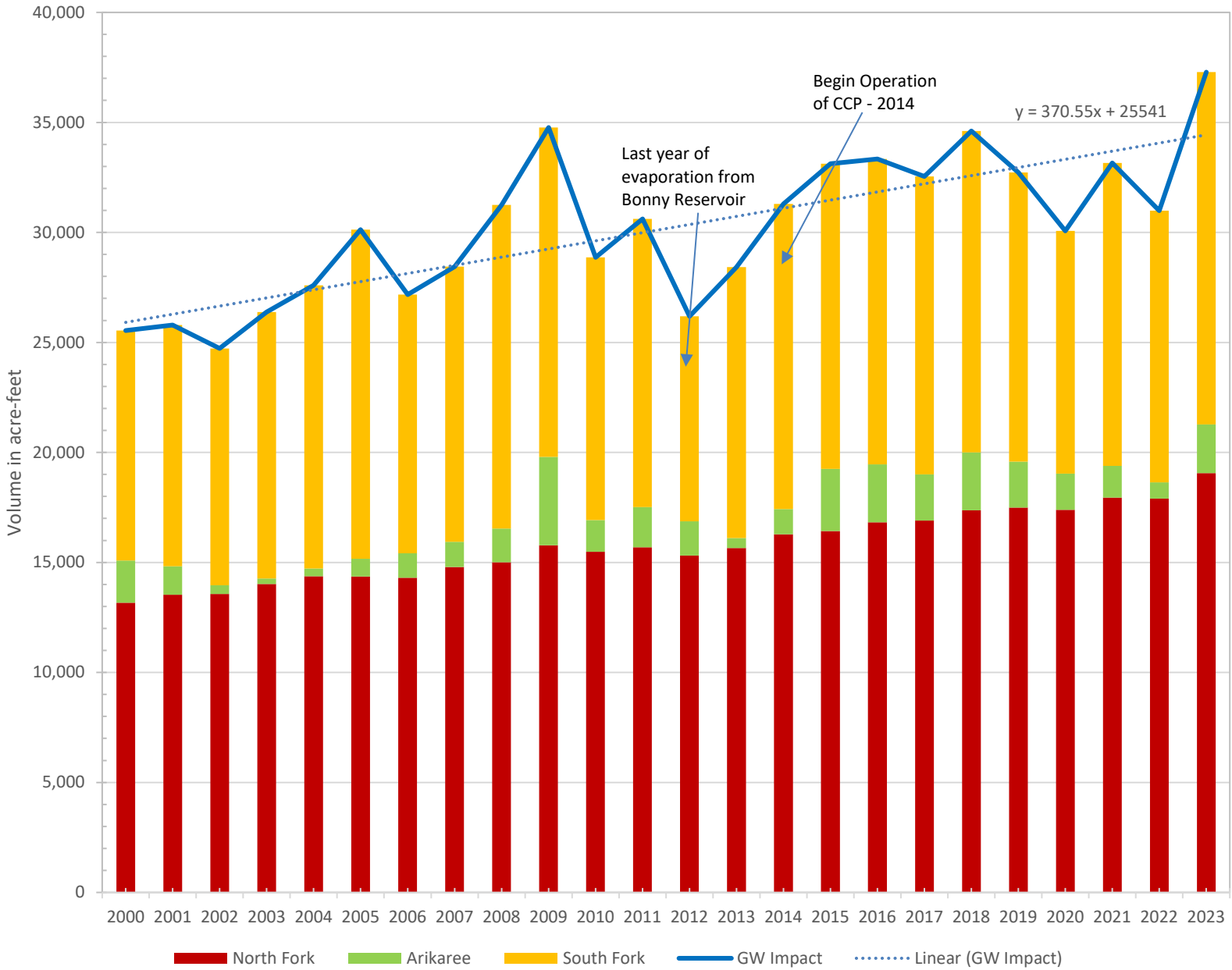
Colorado Total Computed Beneficial Consumptive Use within CCP Accounting



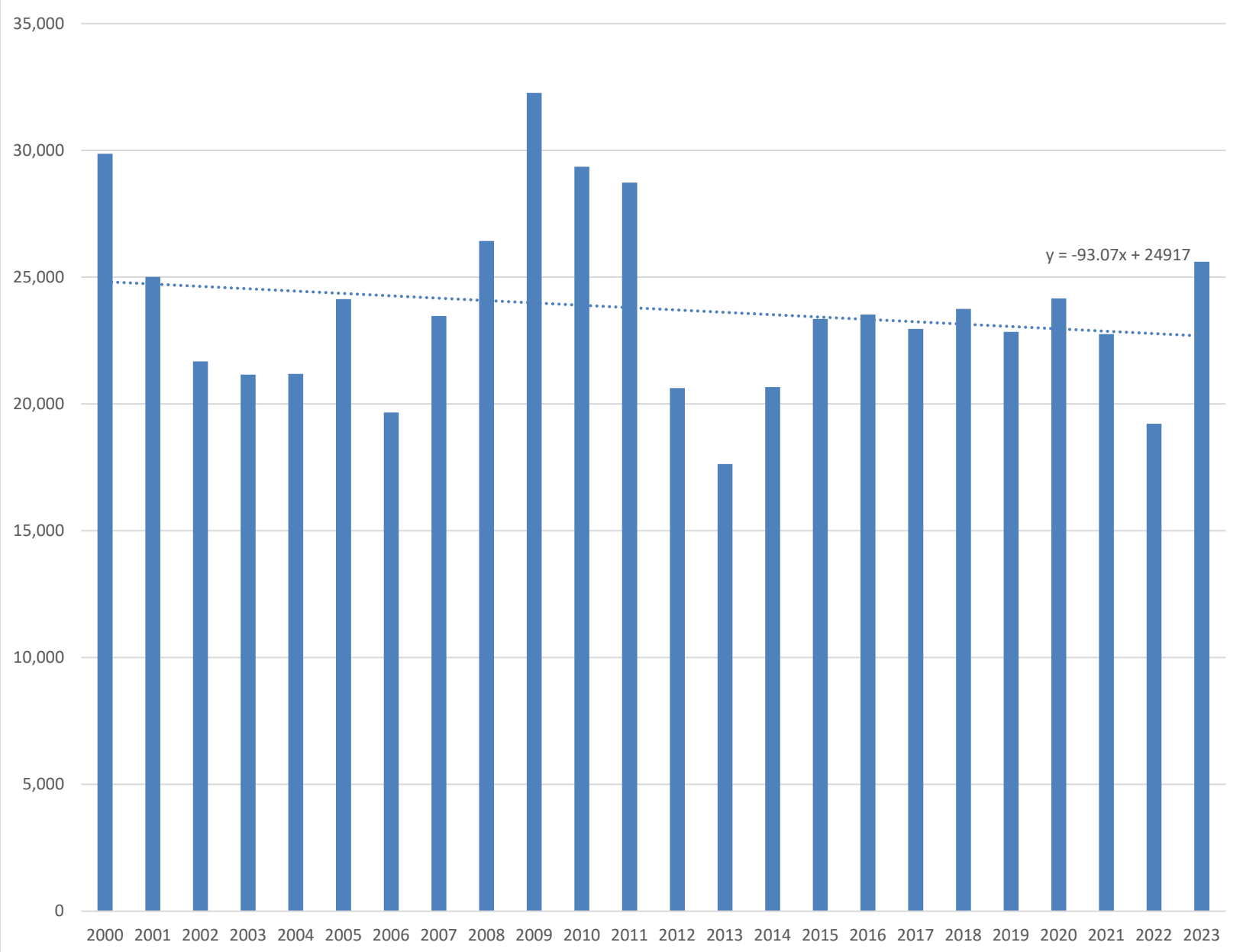
Colorado Total Compact Allocation within CCP Accounting



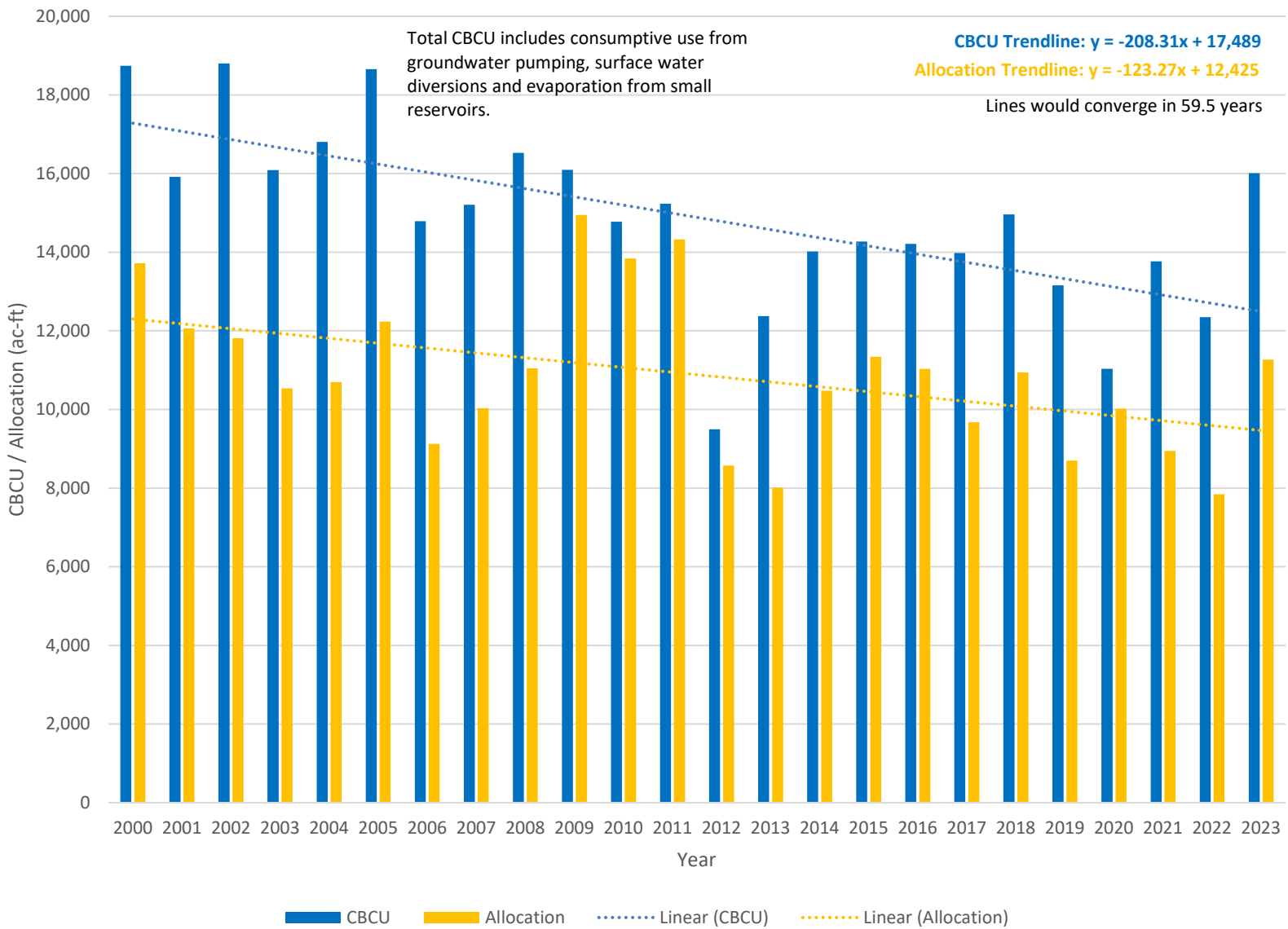
Total Groundwater Impacts to CBCU - 2000 to 2023



Total Colorado Allocation - 2000 to 2023



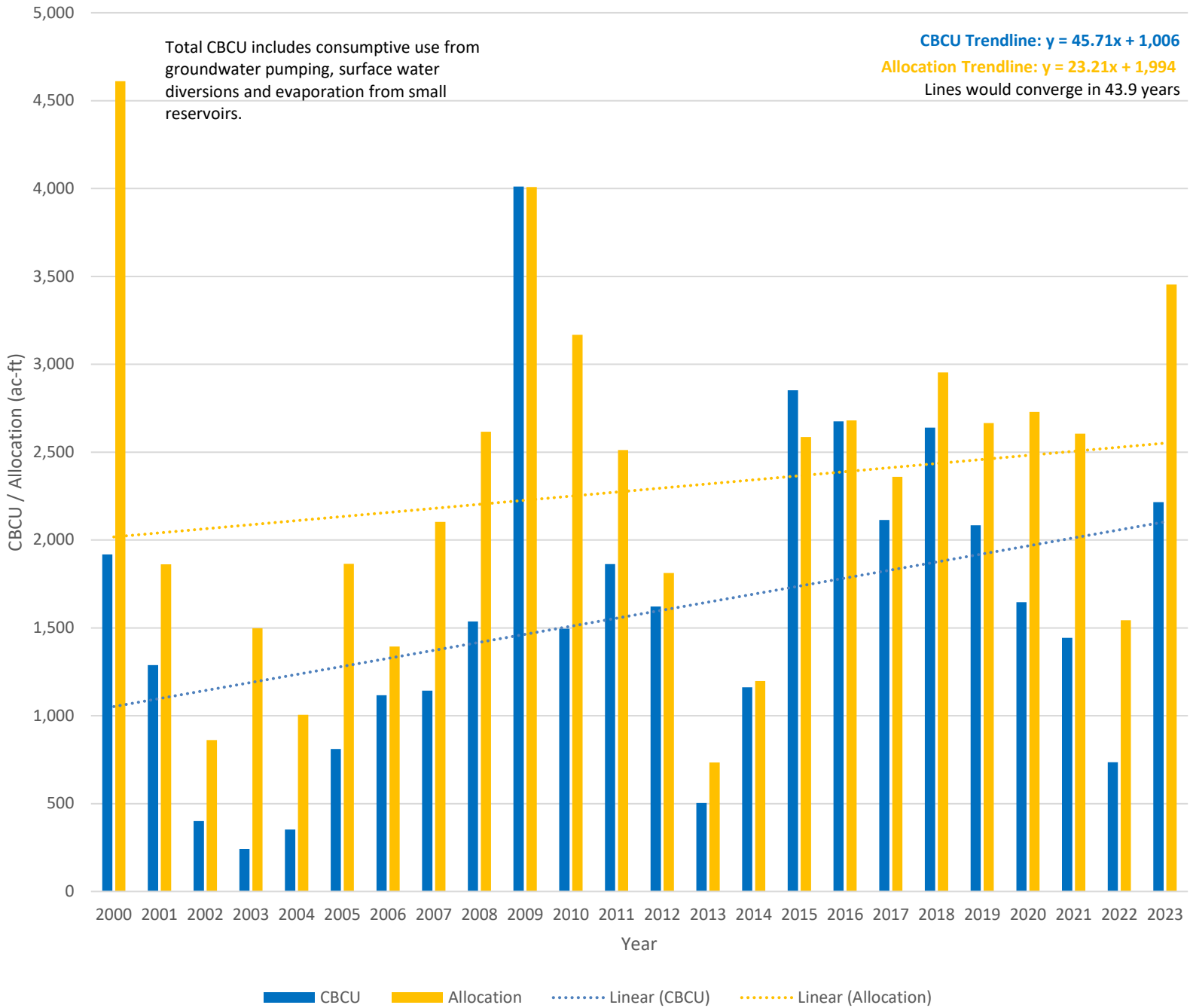
South Fork Total CBCU versus South Fork Allocation within CCP Accounting



Arikaree Total CBCU versus Arikaree Allocation within CCP Accounting

Total CBCU includes consumptive use from groundwater pumping, surface water diversions and evaporation from small reservoirs.

CBCU Trendline: $y = 45.71x + 1,006$
Allocation Trendline: $y = 23.21x + 1,994$
 Lines would converge in 43.9 years



North Fork Total CBCU versus North Fork Allocation within CCP Accounting

Total CBCU includes consumptive use from groundwater pumping, surface water diversions and evaporation from small reservoirs.

CBCU Trendline: $y = 69.35x + 16,138$

Allocation Trendline: $y = -31.18x + 9,609$

Lines would not converge

