

Engineering Committee Report
Republican River Compact Administration
August 28, 2025

EXECUTIVE SUMMARY

This document reports the activities of the Republican River Compact Administration (RRCA) Engineering Committee (EC) from the August 28, 2024, RRCA Annual Meeting to the August 28, 2025, RRCA Annual Meeting. The EC met five times since the August 28, 2024, RRCA Annual Meeting and completed the six tasks it was assigned and the additional task assigned at the December 2024 RRCA special meeting. The following tasks were completed: 1) hold quarterly meetings; 2) complete the 2024 compact accounting including: exchange information listed in Section V of the RRCA Accounting Procedures and Reporting Requirements, including all required data and documentation, and finalize 2024 accounting; 3) continue to develop and maintain the summary of historical changes to the RRCA Accounting Procedures, the RRCA administrative website, and accounting tools developed by the committee; 4) identify a mutually agreeable verification process with criteria so that the Compact commissioners can verify that Colorado met its obligation of retiring 10,000 acres, and so such verification can take place before the end of 2024; 5) (added December 2024) propose an annual monitoring program to track progress toward and continued completion of the retirement of 25,000 acres from irrigation in the South Fork Republican River basin by Colorado, as required under the South Fork Resolution and its amendments¹; 6) provide updates on the progress of new and ongoing management strategies for maintaining Compact compliance; 7) prepare the RRCA 63rd annual meeting report (for the Year 2023).

Attachment 1: Agendas and Minutes of the meetings of the EC

Attachment 2: Accounting Inputs and Accounting Tables from the RRCA Accounting for 2024 recommended by the EC for approval by the RRCA (Task 2)

Attachment 3: South Fork Focus Zone irrigated acreage retirement documentation submitted in support of December 16, 2024 Resolution

COMMITTEE ASSIGNMENTS AND RELATED WORK ACTIVITIES

1. Meet quarterly to review the tasks assigned to the committee.
 - a. The EC met September 19, 2024 (Special Meeting); October 31, 2024; January 16, 2025; April 17, 2025; and July 10, 2025. See Attachment 1 for the approved minutes of these meetings.
2. Complete the 2024 compact accounting:
 - a. Exchange by April 15, 2025, the information listed in Section V of the RRCA Accounting Procedures and Reporting Requirements, and other data required by that document, including all necessary documentation. By July 15, 2025, the states will exchange any updates to these data.

¹ RESOLUTION BY THE REPUBLICAN RIVER COMPACT ADMINISTRATION APPROVING OPERATION AND ACCOUNTING FOR THE COLORADO COMPACT COMPLIANCE PIPELINE AND COLORADO'S COMPLIANCE EFFORTS IN THE SOUTH FORK REPUBLICAN RIVER BASIN, 24 August 2016, and First Amendment to Resolution Regarding Accounting for the Colorado Compact Compliance Pipeline in the SF Republican River, November 6, 2018.

- Nebraska posted its data on April 15, 2025, and provided an update on July 9, 2025.
 - Kansas posted its data on April 13, 2025, and provided an update to the data on July 15, 2025.
 - Colorado posted its data on April 4, 2025, along with the Crop Irrigation Requirement (CIR) data. There were no changes to the data posted in April.
- b. Finalize the 2024 accounting and recommend it for approval by the RRCA.
- Colorado, Kansas, and Nebraska accounting data for 2024 are final and the EC hereby recommends approval of the accounting by the RRCA. The applicable summary accounting tables are presented in Attachment 2.
3. Continue to develop and maintain:
- a. *Summary of Historical Changes to the RRCA's Accounting Procedures and Reporting Requirements*, as necessary.
- There have been no actions requiring updates to the document since the 2024 annual meeting.
- b. Continue efforts to develop and publish an administrative website that would be an informational page for the public.
- In coordination with the EC, state staff have maintained and updated the website, which is accessible to the public.
- c. Continue work and provide future updates on improving accounting tools developed by the Engineering Committee.
- The EC continues to use the website accounting tool developed and maintained by Principia Mathematica (Willem Schreüder) to validate the accounting spreadsheet results.
4. Identify a mutually agreeable verification process with criteria so that the Compact commissioners can verify that Colorado met its obligation of retiring 10,000 acres, and so such verification can take place before the end of 2024.
- a. Colorado provided redacted contracts between irrigators and the Republican River Water Conservation District. At Kansas' and Nebraska's request, Colorado provided GIS files mapping the legal descriptions of land areas from the contracts and containing a data field of the number of acres retired. Colorado further transmitted an information package comprised of a summary memo, summary table, and report containing NDVI (Normalized Difference Vegetation Index) analysis and aerial photos. The summary table also included additional information related to dry-up that Colorado had available for particular contracts, such as links to site visit photos. A summary of the information package is included herein as Attachment 3. The entire information package is available on the Republican River Compact Administration website at: republicanriver.org.
- b. The RRCA held a special meeting December 16, 2025, where the commissioners approved the "Resolution By The Republican River Compact Administration

Regarding Verification of Colorado's Retirement of Irrigated Acreage In The South Fork Republican River Basin And Second Amendment To The 2016 Resolution".

5. (Added December 2024) Propose an annual monitoring program to track progress toward and continued completion of the retirement of 25,000 acres from irrigation in the South Fork Republican River basin by Colorado, as required under the 2016 South Fork Resolution and its amendments.
 - a. Colorado agreed to provide certain data by the second quarterly meeting of the EC each year for the states' review, including:
 - Redacted versions of new retirement contracts and any updates to existing contracts;
 - An updated shapefile mapping the legal descriptions of land areas from all contracts and containing a data field of the number of acres retired; and
 - An information package updated with new contracts added and any corrections or other new information added since the 2024 information package.
 - b. The EC proposes that the states review these provided data and discuss at subsequent EC meetings.
 - c. The EC proposes to include in their annual report a summary of the provided data, discussion regarding review, and any unresolved issues.
 - d. The EC recognizes that monitoring and review of these data will not formally confirm the achievement of South Fork Resolution requirements but rather will provide the RRCA with updated progress information toward the South Fork Resolution requirements.
6. Provide respective state updates on the progress of new and ongoing management strategies for maintaining compact compliance.
 - a. Kansas had no updates.
 - b. Colorado reported plans to pump roughly 11,000 acre-feet from the Colorado Compliance Pipeline (CCP) in 2025.
 - c. Nebraska:
 - Informed the states that 2025 is a Compact Call Year under Nebraska's Integrated Management Plans and reiterated Nebraska's ability to take management actions in 2025 to maintain compact compliance, if necessary.
 - Reported on American Rescue Plan Act (ARPA) funds being used for transducers and remote metering.
7. Prepare the RRCA 63rd annual meeting report (for the Year 2023).
 - a. The annual report was prepared by Kansas and reviewed by the states. The final report is submitted to the commissioners for their approval at the 2025 annual meeting.
 - b. The annual reports for the years 2019-2023 will be sent to the state governors and office of the president, via email, following the 2025 annual meeting.

ITEMS FOR RRCA DISCUSSION & ACTION

1. The EC recommends the proposed 2024 accounting presented in Attachment 2 and in the spreadsheet titled “RRCA Accounting 2024 Final.xlsx” for approval by the RRCA. Upon approval of the accounting, the above-mentioned spreadsheet file will be placed on the public website.
2. In addition to any other assignments from the Administration, the EC recommends that Principia Mathematica continue in Compact year 2025 to maintain the web-based accounting tool and perform periodic model and accounting updates at the same level of service as in 2024.
3. The EC offers the following list of recommended assignments to work on in the coming compact year and to report on at the 2026 annual meeting of the RRCA.

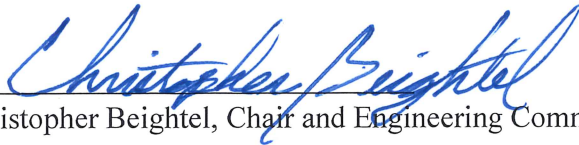
RECOMMENDED ASSIGNMENTS FOR THE COMING YEAR

1. Meet quarterly to review the tasks assigned to the committee.
2. Complete the 2025 compact accounting:
 - a. Exchange by April 15, 2026, the information listed in Section V of the RRCA Accounting Procedures and Reporting Requirements, and other data required by that document, including all necessary documentation.
 - b. Exchange by July 15, 2026, any updates to these data.
 - c. Finalize the 2025 accounting and recommend it for approval by the RRCA.
3. Continue to develop and maintain:
 - a. *Summary of Historical Changes to the RRCA’s Accounting Procedures and Reporting Requirements*, as necessary.
 - b. the RRCA administrative website that serves as an informational page for the public
 - c. accounting tools developed by the Engineering Committee.
4. Track and monitor Colorado’s progress toward permanent retirement of 25,000 acres from irrigation in the South Fork Republican River basin, as required under the 2016 South Fork Resolution and its amendments.
5. Provide respective state updates on the progress of new and ongoing management strategies for maintaining compact compliance
6. Prepare the 64th RRCA annual meeting report (for the year 2024) for approval by the RRCA at the 2026 annual meeting.

The Engineering Committee Report and the exchanged data will be posted on the web at

<http://republicanriver.org/>

SUBMITTED TO THE RRCA BY


Christopher Beightel, Chair and Engineering Committee Member for Kansas


Kari Burgert, Engineering Committee Member for Nebraska


Ivan Franco, Engineering Committee Member for Colorado

MINUTES of the
**SPECIAL MEETING of the
ENGINEERING COMMITTEE of the
REPUBLICAN RIVER COMPACT ADMINISTRATION**
September 19, 2024 2:00 pm Central Time

1. Introductions
 - a. Kansas – Chris Beightel, Chelsea Erickson
 - b. Colorado – Ivan Franco, Tracy Kosloff, Marie Sullivan
 - c. Nebraska – Kari Burgert, Sam Capps, Stefan Remund, Elizabeth Esseks
2. Review/Modify Agenda
 - a. Nebraska proposed editing the wording of committee task list assignment number four to more accurately describe the direction given at the annual working session.
 - b. Nebraska requested adding a discussion on the editorial change to the approved 2023 accounting, according to Nebraska's request.
3. Review and Update Progress on Select Engineering Committee Tasks (Below agenda items)
4. Editorial change to the approved 2023 accounting, according to Nebraska's request
 - a. Kari noted that she has sent a version of the 2023 accounting spreadsheet revised from the version the EC reviewed before the annual meeting. She stated that there should be a "1" indicating Compact Call Year on the RWS_CWSA tab rather than a "0". She stated that this Compact Call Year flag is not included in the printed 2024 final EC report but proposes it be updated in the electronic version of the 2023 accounting spreadsheet.
 - b. Kansas responded by email they agreed to the revision.
 - c. Colorado requested additional review time.
 - d. Chris inquired if this should be considered for the EC report going into the future. Kari and Ivan concurred that it should be considered in future EC reports.
5. Summary of Meeting Actions/Assignments
 - a. The EC will continue work on the assignment to verify retired acres in the South Fork Focus Zone.
 - i. NE and KS will supply questions to CO for follow up, such as confirming the acre retirement program conditions and NDVI threshold information.
 - b. Kansas will suggest dates for the EC first quarterly meeting, as well as a December special meeting.
 - c. Colorado will respond to Nebraska's 2023 accounting spreadsheet revision suggestion.
6. Future Meetings
 - a. A discussion was held regarding potential dates for the first quarter Engineering Committee meeting and a RRCA special meeting in December.
7. Adjourn

EC Task 4: Identify a mutually agreeable verification process with criteria so that the Compact commissioners can verify that Colorado met its obligation of retiring 10,000 acres, and so such verification can take place before the end of 2024.

- a. Chris Beightel reported on the progress that Kansas has made in reviewing the data presented by Colorado, including the GIS coverage and irrigated acres file.
 - i. Chris mentioned he did a preliminary analysis of the retired acres coverage and parsed that into contract years. OpenET was used to analyze from 2012 to end of 2023 to see what evapotranspiration (ET) looked like before and after the contracts. The result showed a minimal difference.
 1. Ivan Franco noted that some of the programs allow a year of irrigation to establish a cover crop.
 - ii. Chris asked if there are plans for the RRWCD or CO DWR to do any visual inspections of the retired acres in the contracts.
 1. Tracy noted that the District and Division staff are in those areas regularly and make observations about those acres, but there is no specific field review planned.
 2. Chris followed up by asking if there are any objections to KS staff reviewing those acres from the county roads and Tracy commented that is no problem.
- b. Kari Burgert reported that Nebraska has also reviewed the documents provided by Colorado and has several follow up questions for the Division and the District.
 - i. Kari asked: what will the product be to bring to the commissioners at a special meeting of the RRCA by the end of 2024?
 1. After a brief discussion, the EC decided that the process should be each state completing their own analysis and bring the findings to the next regular EC meeting to discuss along with any further questions.
 - ii. Kari asked for verification of when irrigation was required to stop for each type of contract. She provided the following observations from the data. Tracy responded that the observations seem close to right, but Nebraska should email this question to be forwarded to the District.
 1. CREP – irrigation for 12 months to establish coverage
 2. EQIP – irrigation is finished immediately
 3. OAI – irrigation allowed through the following December
 4. RAMP – irrigation is finished immediately (?)
 - iii. Kari asked Tracy Kosloff what NDVI threshold was used to identify irrigation for the 2016 irrigated parcels layer that was provided by Colorado.
 1. Tracy remarked that the information utilized the USDA crop data layer, and pumping records, along with the NDVI threshold because the NDVI is subject to weather interference. Tracy said she would check with Colorado's GIS team on the NDVI threshold.
 - iv. Kari wanted to verify which of the two “acres” attributes in the retired parcels layer provided by Colorado to use for the number of retired acres, the one

named “Acres_Cont” or “GIS_Acres”?

1. Tracy confirmed that the contract acres, “Acres_Cont”, is the accurate attribute field to use.
- c. Tracy made an inquiry as to whether the retired acres review could be completed by the end of the year. Tracy asked if Kansas and Nebraska would be agreeable to verifying that the contracts exist rather than the dry-ups having occurred since, given the terms of the contracts, the dry-ups might not occur until later. She suggested drafting the resolution in this manner to confirm that contracts are in place for the required 10,000 acres.
 - i. Chris & Kari both commented that they would take this proposal to their respective commissioners for review.
- d. The EC discussed the timing of a Special RRCA meeting, as well as the next EC quarterly meeting to review all the information and questions that were presented at this meeting. Late-October was mentioned as a possibility because of the need for time between the EC meeting and the RRCA special meeting for additional review.

MINUTES of the
**QUARTERLY MEETING of the
ENGINEERING COMMITTEE of the
REPUBLICAN RIVER COMPACT ADMINISTRATION**
October 31, 2024 2:00 pm Central Time

1. Introductions
 - a. Kansas – Chris Beightel, Chelsea Erickson, Hongsheng Cao
 - b. Colorado – Ivan Franco, Willem Schreuder
 - c. Nebraska – Kari Burgert, Sam Capps, Stefan Remund, Elizabeth Esseks
2. Review/Modify Agenda
 - a. Nebraska proposed editing the wording of committee task list assignment number four to more accurately describe the direction given at the annual working session.
3. Review and Update Progress on Engineering Committee Task List (Below agenda items)
4. Summary of Meeting Actions/Assignments
 - a. The EC will work on the South Fork retirement assignment, and Colorado will provide a draft of a possible resolution for the upcoming Special Meeting.
 - b. Kansas will continue work on the 2024 annual report once the transcript is edited by all the states.
5. Future Meetings
 - a. The next meetings of the RRCA Engineering Committee will be January 16, April 17, and July 10, 2025, at 2:00pm central time. Chris will send out invites to the EC with a Zoom link.
 - b. A discussion was held regarding a possible date for the December Special Meeting. The topic of a court reporter was also discussed and found that past meeting did have a reporter present. Kansas committed to providing that service, if necessary.
6. Adjourn

ENGINEERING COMMITTEE TASK LIST

1. Meet quarterly to review the tasks assigned to the committee.
 - a. The quarterly meetings have been scheduled; today's meeting was the Q1 meeting.
2. Complete the 2024 compact accounting:
 - a. Exchange by April 15, 2025, the information listed in Section V of the RRCA Accounting Procedures and Reporting Requirements, and other data required by that document, including all necessary documentation.
 - i. This task is in progress, but few updates are available at this time.
 - ii. Willem mentioned that he did a model run in the middle of October because NOAA was getting their data center back up and running again, but there were no significant changes to the predictions. He mentioned that the Colorado Compliance Pipeline (CCP) started at noon on October 25 and will run through the end of 2024. Willem plans to do another model run on November 1.
 - b. Exchange by July 15, 2025, any updates to these data.
 - i. No update to report.
 - c. Finalize the 2024 accounting and recommend it for approval by the RRCA.
 - i. No update to report
3. Continue to develop and maintain:
 - a. Summary of Historical Changes to the RRCA's Accounting Procedures and Reporting Requirements as necessary.
 - i. There were no updates to the document.
 - b. The RRCA administrative website that serves as an informational page for the public.
 - i. Chelsea reported that the website is up to date with current information. She asked that the states send updates if there are changes to the commissioners in the near future.
 - c. Accounting tools developed by the Engineering Committee.
 - i. There were no updates for accounting tools.
4. Identify a mutually agreeable verification process with criteria so that the Compact commissioners can verify that Colorado met its obligation of retiring 10,000 acres, and so such verification can take place before the end of 2024.
 - a. Chris reported that Kansas staff had reviewed the NDVI analysis on past years and identified a few parcels that looked like there could have been irrigation after the contract, but in 2024 there was no irrigation on those parcels now.
 - b. Kari mentioned that Nebraska staff had reviewed the data and additional verification provided by Colorado, but they will need to discuss everything with the interim director of Natural Resources. Kari commented that a draft of the resolution would help focus the issues.
 - c. Ivan mentioned that Tracy Kosloff was planning to answer questions posed by Nebraska, as well as provide a draft resolution by about mid-November.
 - d. Kari asked if there are any well meter records for 2024 yet to show that the newly

retired lands did not have pumping. Ivan replied that the 2024 meter data are not available until after the end of the year. Chris asked if Colorado provides meter readings in their annual exchange data, and Willem replied that those are included in the yearly spreadsheet. The question was raised is that spreadsheet can be traced back to a specific point of diversion and Willem responded that it is possible with the WDID of the well.

- e. Kari mentioned that Nebraska wanted to review a few parcels that were not clear what acres were dried up versus still under irrigation.
5. Provide respective state updates on the progress of new and ongoing management strategies for maintaining compact compliance.
- a. Willem reported that the Colorado pipeline projection is that it will run 10,000 acre-feet in 2024 total and then 11,000 acre-feet in 2025.
 - b. There were no other updates for new or ongoing management strategies.
6. Prepare the 2024 RRCA annual meeting report for approval by the RRCA at the 2025 annual meeting.
- a. Chris mentioned that the transcript for the annual meeting in August is being circulated to the states. Ivan reported that he would finish his review soon and provide those comments back to Kansas.
 - b. Chelsea reported that the various reports from the annual meeting are collected, and she will begin creating a summary of the meeting in order to finalize the 2024 annual report.

MINUTES of the
**QUARTERLY MEETING of the
ENGINEERING COMMITTEE of the
REPUBLICAN RIVER COMPACT ADMINISTRATION**
January 16, 2025 2:00 pm Central Time

1. Introductions
 - a. KS – Chris Beightel
 - b. CO – Ivan Franco, Marie Sullivan
 - c. NE – Kari Burgert, Sam Capps, Elizabeth Esseks, Stefan Remund
2. Review/Modify Agenda
 - a. There were no modifications to the agenda.
 - b. Keep task list item #4 wording as presented on the agenda.
3. Review and Update Progress on Engineering Committee Task List (Below agenda items)
4. Summary of Meeting Actions/Assignments
 - a. Finalize the annual meeting transcript to share with the states.
 - b. Review the special meeting transcript.
 - c. Continue to review the South Fork basin retirement acres using the Colorado template.
Marie will look into potentially providing shapefiles that can be used for that review.
5. Proposed EC Meetings
 - a. April 17, 2025 2:00 central
 - b. July 10, 2025 2:00 central
6. Adjourn

ENGINEERING COMMITTEE TASK LIST

1. Meet quarterly to review the tasks assigned to the committee.
 - a. The EC met October 31, 2024.
 - b. The EC upcoming meetings are April 17 and July 10, 2025.
2. Complete the 2024 compact accounting:
 - a. Exchange by April 15, 2025, the information listed in Section V of the RRCA Accounting Procedures and Reporting Requirements, and other data required by that document, including all necessary documentation.
 - i. Efforts are underway to produce and gather information for the data exchange. Request for information was sent to the U.S. Bureau of Reclamation.
 - ii. Chris reported that Kansas metering information is being collected now.
 - b. Exchange by July 15, 2025, any updates to these data.
 - i. No update to report.
 - c. Finalize the 2024 accounting and recommend it for approval by the RRCA.
 - i. No update to report.
3. Continue to develop and maintain:
 - a. Summary of Historical Changes to the RRCA's Accounting Procedures and Reporting Requirements as necessary.
 - i. There were no updates to the document.
 - b. The RRCA administrative website that serves as an informational page for the public
 - i. Chris relayed that Chelsea had updated the website with the signed resolution from the Special Meeting in December.
 - ii. Ivan mentioned that the website committee reviewed the website and found a broken link, which was removed.
 - c. Accounting tools developed by the Engineering Committee.
 - i. There were no updates for accounting tools.
4. Identify a mutually agreeable verification process with criteria so that the Compact commissioners can verify that Colorado met its obligation of retiring 10,000 acres, and so such verification can take place before the end of 2024.
 - a. The EC agreed to keep the wording of this task as written, reporting as complete, and citing progress leading to the Special Meeting.
5. Propose an annual monitoring program to track progress toward and continued completion of the retirement of 25,000 acres from irrigation in the South Fork Republican River basin by Colorado, as required under the South Fork Resolution and its amendments.
 - a. Marie Sullivan mentioned that Colorado was thinking about following the same process as the NDVI packet to keep providing data for current parcels and then add additional parcels when available.
 - b. Kari noted that what Colorado provided with the NDVI for aerial images and notes on infrastructure removal was very helpful. One question is at what frequency the parcel information is updated. Marie noted that the information is not consistently reported,

- but rather based on funding for the acre retirements. Once a year the state reviews all the information and could potentially deliver that analysis by late-November each year. Kari mentioned reviewing that information by the second quarterly EC meeting would be helpful to stay on top of the review process.
- c. Chris mentioned that it would be helpful to get a shapefile that has the new acres that are retired each year and Marie said she would consult with Tracy Kosloff on that request.
 - d. There was a discussion about how to preserve the acre retirement verification process in the EC and RRCA annual reports. It was noted that the Special Meeting would be part of the 2025 annual report. Kari mentioned that getting a printed image or figure of the aerial map would be a helpful addition to the EC final report for 2025.
6. Provide respective state updates on the progress of new and ongoing management strategies for maintaining compact compliance.
- a. Kansas had no update to report.
 - b. Nebraska
 - i. Kari mentioned that Nebraska sent a letter that designated 2025 as a Compact Call Year under Nebraska's Integrated Management Plans. The NRDs will report how they plan to maintain compliance with the Compact. The state will evaluate those plans soon.
 - ii. Nebraska will meet with Kansas before October 1, 2025, to discuss Kansas water needs.
 - iii. Sam Capps reported on ARPA funds being used for transducers and remote metering.
 - 1. Chris asked about the remote metering program status.
 - 2. Sam Capps replied that the Middle Republican NRD is furthest along in the process, but there are varying stages of progress with the other Republican River NRDs.
 - 3. Chris asked how often the meters are recording data; Sam believes it is real-time, but will check and share her findings.
 - c. Colorado had no update to report.
7. Prepare the 2024 RRCA annual meeting report for approval by the RRCA at the 2025 annual meeting.
- a. The status of the annual meeting transcript is that Chelsea is working with the court reporter to get a final copy to the states.
 - b. Chris reported that the RRCA Special Meeting transcript is prepared and will be shared with the EC soon.
 - c. Chelsea is still working on preparing the October 31, 2024, EC meeting minutes and will share those once completed.

MINUTES of the
**QUARTERLY MEETING of the
ENGINEERING COMMITTEE of the
REPUBLICAN RIVER COMPACT ADMINISTRATION**
April 17, 2025 2:00 pm Central Time

1. Introductions
 - a. KS – Chris Beightel, Chelsea Erickson
 - b. CO – Ivan Franco, Tracy Kosloff, Marie Sullivan
 - c. NE – Kari Burgert, Sam Capps, Elizabeth Esseks, Stefan Remund
2. Review/Modify Agenda
 - a. No modifications were offered to the agenda.
3. Status of the EC minutes
 - a. Chelsea Erickson reported that the minutes are reviewed, with the exception of the September 19, 2024, special engineering committee meeting, which should be finalized soon.
4. Review and Update Progress on Engineering Committee Task List (Below agenda items)
5. Summary of Meeting Actions/Assignments
 - a. Kansas will continue to finalize the outstanding EC minutes.
 - b. Kansas will begin developing a draft of the annual report.
 - c. The committee will think about how to memorialize the monitoring program for the South Fork retirement acres.
 - d. Chris will follow up with Willem to confirm that Colorado's April 15 data is fully submitted.
 - e. Nebraska will get their list of concerning dryup parcels to Colorado for review.
6. Proposed EC Meetings
 - a. July 10, 2025, 2:00 central
 - b. August 28, 2025, annual meeting in Concordia. Hotel reservation information will be sent shortly.
7. Adjourn

ENGINEERING COMMITTEE TASK LIST

1. Meet quarterly to review the tasks assigned to the committee.
 - a. The EC held two meetings in 2024 and two in 2025, along with the final EC meeting upcoming July 10.
2. Complete the 2024 Compact accounting:
 - a. Exchange by April 15, 2025, the information listed in Section V of the RRCA Accounting Procedures and Reporting Requirements, and other data required by that document, including all necessary documentation.
 - i. Kansas submitted data on April 3, 2025.
 - ii. Nebraska submitted data on April 15, 2025.
 - iii. Colorado submitted data on April 4, 2025.
 1. There was a discussion regarding the preliminary data from Colorado sent by Willem Schreuder on April 4, 2025. It was clarified that the preliminary surface water data and final or nearly finalized pumping data from Colorado were incorporated.
 2. Chris mentioned Sam Perkins using the pumping data for regression analysis related to climate pumping predictions.
 3. Ivan Franco noted the absence of a separate Excel file for the 2024 pumping data in the Colorado data folder, although the data appeared to be in the model data.
 4. Chris Beightel agreed to email Willem to clarify the data submission.
 - iv. Kari Burgert raised the issue that the stream gage data had not been finalized yet, as she had contacted John Miller (USGS) but had not yet received a response.
 - v. Kari also informed the committee that the NAS survey harvested acre data had not yet been published this year, with only a few crops to be included. Nebraska uses this for reporting CIR but will likely use an average from previous years. Colorado also does the same with the NAS data.
 - b. Exchange by July 15, 2025, any updates to the data.
 - i. No update to report.
 - c. Finalize the 2024 accounting and recommend it for approval by the RRCA.
 - i. No update to report.
3. Continue to develop and maintain:
 - a. Summary of Historical Changes to the RRCA's Accounting Procedures and Reporting Requirements as necessary.
 - i. There were no updates to the document.
 - b. The RRCA administrative website that serves as an informational page for the public
 - i. Chelsea reported that Kansas is getting close to announcing the annual meeting details (August 28 in Concordia). Once the location is finalized, she will contact the website committee to update the three-states website. No other documents

are ready for the website yet.

- c. Accounting tools developed by the Engineering Committee.
 - i. There were no updates for accounting tools.
- 4. Identify a mutually agreeable verification process with criteria so that the Compact commissioners can verify that Colorado met its obligation of retiring 10,000 acres, and so such verification can take place before the end of 2024.
 - a. Chris recalled that the committee previously agreed to leave this on the task list for historical purposes as the task was completed. This was confirmed by Kari and Ivan.
- 5. Propose an annual monitoring program to track progress toward and continued completion of the retirement of 25,000 acres from irrigation in the South Fork Republican River basin by Colorado, as required under the South Fork Resolution and its amendments.
 - a. Chris summarized the previous discussion, noting that requests for a shapefile for newly added retired acres and maintenance of a shapefile of recorded retired acres, with Colorado to confirm the ability to obtain such a shapefile.
 - b. Tracy Kosloff provided an update, clarifying that Colorado provides legal descriptions from the landowner's contracts, which may cover a larger area than the actual dryup acres. Coordination with the Republican River Water Conservation District revealed similar limitations in their geographic data.
 - c. Tracy explained that for the previous year's report (provided in 2024), Colorado provided the 2016 irrigated lands shapefile overlaid with legal descriptions and NDVI data for both. Tracy does not believe they can provide a more precise shapefile of the actual dryup acres.
 - d. Starting in 2025, Colorado plans to add new contracts and shapefile information for the new dryup lands each year and update the data (aerial photos, NDVI) for previously submitted parcels for continued monitoring of those parcel's dryup status.
 - e. Tracy asked for feedback on how to make the provided information more useful and invited specific questions about parcels, which Nebraska and Kansas agreed to provide any questions to Colorado. An informal meeting to review the report was also offered as a possibility.
 - f. Kari mentioned having a list of parcels in question that they plan to provide to Colorado for clarification on the acres. Kari suggested that during the fall EC meeting, Colorado could step through the information on any new parcels, which would help address potential questions on the added acreage. Tracy explained that NDVI data for the year 2025 irrigation (May-October) is not available until late-October, with the full report including NDVI available in November.
 - g. Tracy further described the NDVI process (reading from November 25, 2025, email to Earl Lewis and Jesse Bradley), which involves compiling satellite data from May to October, finding the maximum NDVI for each 30x30 meter grid cell, and then calculating the mean of these maximums across both the entire legal description and the 2016 irrigated lands within the legal description.
 - h. Kari asked about analysis or research regarding NDVI that represents irrigation. Tracy reported that Colorado uses a threshold of 130 NDVI as an indication of potential irrigation but that method is not considered definitive of irrigation, so additional

information like aerial photos and field photos (when available) are also provided. Information about removed center pivots is also considered.

6. Provide respective state updates on the progress of new and ongoing management strategies for maintaining Compact compliance.
 - a. Kansas had no update to report.
 - b. Nebraska reported sending the required letter under the FSS regarding Nebraska's ability to take management actions this year if needed.
 - c. Colorado's update concerned the Compact Compliance Pipeline (CCP) operation. Predictions for 2025 indicate pumping of around 11,000 acre-feet with approximately 1,000 acre-feet pumping in April. The projected delivery report from Hendrix Wai Engineering has more detail.
7. Prepare the 2024 RRCA annual meeting report for approval by the RRCA at the 2025 annual meeting.
 - a. Chelsea reported that all edits and final transcripts are collected, and compilation of the report will begin. A summary will be shared for the state's review, with the goal of having the report completed before the annual meeting.
 - b. There was a brief discussion about how to memorialize the monitoring program in the EC report. There is a write-up (2024 SFFZ Irrigated Acreage Retirement Data, November 25, 2024) that Colorado provided that could be included in the EC report (assignment #5). It was decided to revisit this in the next meeting when putting together the final EC report.

MINUTES for the
**QUARTERLY MEETING of the
ENGINEERING COMMITTEE of the
REPUBLICAN RIVER COMPACT ADMINISTRATION**
July 10, 2025 2:00 Central Time

1. Introductions
 - a. KS – Chris Beightel, Chelsea Erickson, Hongsheng Cao
 - b. CO – Ivan Franco, Willem Schreuder, Marie Sullivan
 - c. NE – Kari Burgert, Sam Capps, Stefan Remund
2. Review/Modify Agenda
 - a. No modifications were offered to the agenda.
3. Status of the EC minutes
 - a. Chelsea Erickson reported that the minutes are reviewed and will be finalized and sent to Chris Beightel for inclusion in the final EC report.
4. Review and Update Progress on Engineering Committee Task List (Below agenda items)
5. Annual Meeting Preparations
 - a. Logistics for the August 28th, 2025, annual meeting in Concordia at the COOP meeting room were discussed.
 - b. Willem Schreuder noted that he will not be in attendance because his school obligations start the week before.
 - c. Kari mentioned adding an agenda item for updating the RRCA Rules to reflect Nebraska's departmental restructuring.
 - i. Chris wondered about establishing a legal committee, if necessary, to update the Rules and Regs. Kari suggested that with the minimal changes she expected that the commissioners could review a draft that Nebraska could circulate soon.
6. Summary of Meeting Actions/Assignments
 - a. Kansas will submit final data by the July 15th deadline.
 - b. Nebraska will draft the Excel Accounting Spreadsheet and send it to the states for review.
 - c. Chris will complete the first draft of the Engineering Committee report for 2025 before the first week in August.
 - i. The November 25th memo from Colorado will be added to EC task 4 to complete the assignment. Then task 5 will likely list the items that Colorado agrees to provide for verifying dryup acres.
 - d. The website committee will update the site with annual meeting information and Nebraska department name and commissioner change.
 - e. Kansas will provide a draft agenda and meeting notice for the annual meeting for review.
 - f. Chelsea will finalize the annual report draft and circulate for review by the states.
 - g. Nebraska will draft the RRCA Rules and Regs change to reflect the departmental changes.
 - h. Nebraska will share the RRCA letterhead so it can be used to share annual reports with higher elected officials.
 - i. Chelsea will get the July EC minutes out for review and inclusion in the final EC report.
7. Adjourn

ENGINEERING COMMITTEE TASK LIST

1. Meet quarterly to review the tasks assigned to the committee.
 - a. This July meeting concludes the assignment for the EC to meet quarterly.
2. Complete the 2024 compact accounting:
 - a. Exchange by April 15, 2025, the information listed in Section V of the RRCA Accounting Procedures and Reporting Requirements, and other data required by that document, including all necessary documentation.
 - i. Chris Beightel noted no significant changes to the April data submission by Kansas.
 - b. Exchange by July 15, 2025, any updates to the data.
 - i. Kari noted Nebraska submission of updated data on July 9.
 - ii. Chris confirmed that the Kansas update will be posted by the July 15th deadline.
 - c. Finalize the 2024 accounting and recommend it for approval by the RRCA.
 - i. Chris reviewed the process of data finalization with the committee. Nebraska will take the lead on finalizing the accounting spreadsheet for the EC report. Then the spreadsheet is reviewed by the states and consultant Willem Schreuder.
 - ii. Kari Burgert noted that one of the Nebraska updates was for the Courtland Canal deliveries reported to them by the Bureau of Reclamation as different in two spreadsheets. The EC has seen this issue in previous years and has discussed it with the Bureau. The EC will need to track this issue each year.
 1. Chris asked for details about the Courtland Canal data issue. Kari explained that to her understanding the Bureau prepares one spreadsheet from the monthly information obtained from the district and the other spreadsheet is compiled at the end of the year with more final data, which means when there are data updates, the spreadsheets do not match. Kari noted that the difference is small but needs to be rectified each year.
3. Continue to develop and maintain:
 - a. Summary of Historical Changes to the RRCA's Accounting Procedures and Reporting Requirements as necessary.
 - i. There were no updates to the document.
 - b. The RRCA administrative website that serves as an informational page for the public
 - i. Chelsea reported that the website will be updated soon with the annual meeting information after coordination with the website committee.
 - ii. Kari reported that the Nebraska Department of Natural Resources has merged with the Department of Environment and Energy. The website will need to be updated to reflect the new Department of Water, Energy, and Environment (DWEE). Additionally, the new position of Chief Water Officer is in charge of administering public water supplies and is Nebraska's RRCA commissioner. Stefan Remund will assist Chelsea in bringing the RRCA website up to date

with these changes.

- iii. Ivan asked if the RRCA Rules & Regulations will need to be updated with the definition of the Nebraska commissioner. Sam Capps noted that currently, the rules designate the Director of the Department of Natural Resources as commissioner, so the RRCA will need to update the rules to reflect the change.
- iv. Kari asked if the annual meeting will be the appropriate meeting to change the rules. Chris agreed that it would be appropriate, but if the timing is not right then the RRCA can hold a special meeting later if necessary.
- c. Accounting tools developed by the Engineering Committee.
 - i. There were no updates for accounting tools.
- 4. Identify a mutually agreeable verification process with criteria so that the Compact commissioners can verify that Colorado met its obligation of retiring 10,000 acres, and so such verification can take place before the end of 2024.
 - a. This task is complete.
- 5. Propose an annual monitoring program to track progress toward and continued completion of the retirement of 25,000 acres from irrigation in the South Fork Republican River basin by Colorado, as required under the South Fork Resolution and its amendments.
 - a. Chris inquired about the outcome of the June 18th call between Colorado and Nebraska to address Nebraska's questions about the dryup acres. Kari responded that they are reviewing Colorado's email response about the wells associated with the acres. They are waiting for the irrigated area clarification.
 - b. As follow-up from the previous EC meeting, Kari suggested that the November 25th memo from Colorado could satisfy EC assignment 4 for completion of the verification process assignment.
 - c. Kari suggested that under assignment 5, there are three items that she understands that Colorado has agreed to provide by the first or second quarterly meeting each fall:
 - i. Redacted versions of new retirement contracts and any updates to existing contracts,
 - ii. An updated shapefile that has the legal parcels associated with those contracts and any additional spatial specificity on the historically irrigated acreage towards the Resolution provisions,
 - iii. The data package that was referred to in the November 25th Colorado memo that includes aerial images, NDVI images, and any additional inspections including well decommissioning.
 - d. Marie agreed that the three items Kari listed are very likely what Colorado is able to provide. However, she stated that follow-up with Tracy Kosloff would be needed.
 - e. Chris stated he would confer with Tracy Kosloff before agreeing to final language for the annual monitoring proposal.
 - f. Kari suggested the EC should propose to the Commissioners an on-going assignment to the EC for annual monitoring of the South Fork retirement progress.
- 6. Provide respective state updates on the progress of new and ongoing management strategies for maintaining compact compliance.

- a. Kansas had no update to report.
 - b. Willem noted that the plan is still to pump 11,000 acre-feet with the Colorado Compliance Pipeline (CCP). There is a lot of variability in precipitation, so they won't know until about September where the year stands.
 - c. Ivan asked about the Harlan County numbers and whether 2025 will be a Water Short Year (WSY). Sam Capps responded that Nebraska is waiting on an official letter from the Bureau regarding the WSY, but the project supply is currently 101,200 acre-feet, which is less than the required 119,000 acre-feet.
 - d. Sam Capps stated that if Kansas requests Remaining Compact Compliance Volume prior to October 1 of this Compact Call Year, Nebraska will coordinate with the NRDs BOR, and irrigation districts.
 - e. Kari mentioned that Nebraska will also be providing an email later today (10th of the month) for updated CCV estimate.
7. Prepare the 2024 RRCA annual meeting report for approval by the RRCA at the 2025 annual meeting.
- a. Chelsea reported that the summary for the annual report is almost complete. Then she will compile the final draft and circulate for review by the states. She will provide the draft to both states at the same time to facilitate quicker review.
 - b. Kari noted that Elizabeth Esseks had mentioned to her that the RRCA reports should be sent to the state governors and the office of the president each year and that the last three reports may not have been sent out yet. The RRCA has its own letterhead, so Elizabeth can provide that to Chelsea and after this annual meeting, we will provide a package of four reports in one email. The email will reference the website with the reports.

Calendar Year		2024
Groundwater Data		
North Fork Subbasin	GW CBCU Colorado	19,379
	GW CBCU Kansas	0
	GW CBCU Nebraska	1,347
Arikaree Subbasin	GW CBCU Colorado	2,688
	GW CBCU Kansas	104
	GW CBCU Nebraska	109
Buffalo Subbasin	GW CBCU Colorado	479
	GW CBCU Kansas	0
	GW CBCU Nebraska	3,727
Rock Subbasin	GW CBCU Colorado	100
	GW CBCU Kansas	0
	GW CBCU Nebraska	5,296
South Fork Subbasin	GW CBCU Colorado	14,188
	GW CBCU Kansas	3,839
	GW CBCU Nebraska	604
Frenchman Subbasin	GW CBCU Colorado	180
	GW CBCU Kansas	0
	GW CBCU Nebraska	80,512
Driftwood Subbasin	GW CBCU Colorado	0
	GW CBCU Kansas	0
	GW CBCU Nebraska	961
Red Willow Subbasin	GW CBCU Colorado	0
	GW CBCU Kansas	0
	GW CBCU Nebraska	9,053
Medicine Creek Subbasin	GW CBCU Colorado	0
	GW CBCU Kansas	0
	GW CBCU Nebraska	22,409
Beaver Subbasin	GW CBCU Colorado	0
	GW CBCU Kansas	5,860
	GW CBCU Nebraska	3,872
Sappa Subbasin	GW CBCU Colorado	0
	GW CBCU Kansas	1,086
	GW CBCU Nebraska	1,157
Prairie Dog Subbasin	GW CBCU Colorado	0
	GW CBCU Kansas	4,603
	GW CBCU Nebraska	0
Mainstem Subbasin	GW CBCU Colorado	(3,424)
	GW CBCU Kansas Above Guide Rock	(848)
	GW CBCU Kansas Below Guide Rock	67
	GW CBCU Nebraska Above Guide Rock	60,790
	GW CBCU Nebraska Below Guide Rock	2,674
Import Water Data		
North Fork Subbasin	Imported Water Nebraska	0
Arikaree Subbasin	Imported Water Nebraska	0
Buffalo Subbasin	Imported Water Nebraska	0
Rock Subbasin	Imported Water Nebraska	0
South Fork Subbasin	Imported Water Nebraska	0
Frenchman Subbasin	Imported Water Nebraska	0
Driftwood Subbasin	Imported Water Nebraska	0
Red Willow Subbasin	Imported Water Nebraska	40
Medicine Creek Subbasin	Imported Water Nebraska	10,937
Beaver Subbasin	Imported Water Nebraska	0
Sappa Subbasin	Imported Water Nebraska	11
Prairie Dog Subbasin	Imported Water Nebraska	0
Mainstem Subbasin	Imported Water Nebraska Above Guide Rock	7,300
	Imported Water Nebraska Below Guide Rock	(19)
	Total	18,269
SW Pumping Data		
North Fork Subbasin	SW Diversions - Irrigation -Non-Federal Canals- Colorado	174
	SW Diversions - Irrigation - Small Pumps - Colorado	0
	SW Diversions - M&I - Colorado	0
Arikaree Subbasin	SW Diversions - Irrigation -Non-Federal Canals- Colorado	0
	SW Diversions - Irrigation - Small Pumps - Colorado	0
	SW Diversions - M&I - Colorado	0
	SW Diversions - Irrigation - Non-Federal Canals- Kansas	0
	SW Diversions - Irrigation - Small Pumps - Kansas	0
	SW Diversions - M&I - Kansas	0
	SW Diversions - Irrigation - Non-Federal Canals - Nebraska	0
	SW Diversions - Irrigation - Small Pumps - Nebraska	0
	SW Diversions - M&I - Nebraska	0
		0

Calendar Year		2024
Buffalo Subbasin	SW Diversions - Irrigation -Non-Federal Canals- Colorado	0
	SW Diversions - Irrigation - Small Pumps - Colorado	0
	SW Diversions - M&I - Colorado	0
	SW Diversions - Irrigation - Non-Federal Canals - Nebraska	133
	SW Diversions - Irrigation - Small Pumps - Nebraska	0
	SW Diversions - M&I - Nebraska	0
Rock Subbasin	SW Diversions - Irrigation - Non-Federal Canals - Nebraska	0
	SW Diversions - Irrigation - Small Pumps - Nebraska	0
	SW Diversions - M&I - Nebraska	0
South Fork Subbasin	SW Diversions - Irrigation -Non-Federal Canals- Colorado	0
	SW Diversions - Irrigation - Small Pumps - Colorado	0
	SW Diversions - M&I - Colorado	0
	SW Diversions - Irrigation - Non-Federal Canals- Kansas	0
	SW Diversions - Irrigation - Small Pumps - Kansas	0
	SW Diversions - M&I - Kansas	0
	SW Diversions - Irrigation - Non-Federal Canals - Nebraska	0
	SW Diversions - Irrigation - Small Pumps - Nebraska	0
	SW Diversions - M&I - Nebraska	0
Frenchman Subbasin	SW Diversions - Irrigation - Non-Federal Canals - Nebraska	0
	SW Diversions - Irrigation - Small Pumps - Nebraska	0
	SW Diversions - M&I - Nebraska	0
Driftwood Subbasin	SW Diversions - Irrigation - Non-Federal Canals- Kansas	0
	SW Diversions - Irrigation - Small Pumps - Kansas	0
	SW Diversions - M&I - Kansas	0
	SW Diversions - Irrigation - Non-Federal Canals - Nebraska	0
	SW Diversions - Irrigation - Small Pumps - Nebraska	0
	SW Diversions - M&I - Nebraska	0
Red Willow Subbasin	SW Diversions - Irrigation - Non-Federal Canals - Nebraska	0
	SW Diversions - Irrigation - Small Pumps - Nebraska	17
	SW Diversions - M&I - Nebraska	0
Medicine Creek Subbasin	SW Diversions - Irrigation - Non-Federal Canals - Nebraska - Above Gage	0
	SW Diversions - Irrigation - Small Pumps - Nebraska - Above Gage	0
	SW Diversions - M&I - Nebraska - Above Gage	0
	SW Diversions - Irrigation - Non-Federal Canals - Nebraska -Below Gage	0
	SW Diversions - Irrigation - Small Pumps -Nebraska - Below Gage	33
	SW Diversions - M&I - Nebraska - Below Gage	0
Beaver Subbasin	SW Diversions - Irrigation -Non-Federal Canals- Colorado	0
	SW Diversions - Irrigation - Small Pumps - Colorado	0
	SW Diversions - M&I - Colorado	0
	SW Diversions - Irrigation - Non-Federal Canals- Kansas	0
	SW Diversions - Irrigation - Small Pumps - Kansas	14
	SW Diversions - M&I - Kansas	0
	SW Diversions - Irrigation - Non-Federal Canals - Nebraska - Above Gage	0
	SW Diversions - Irrigation - Small Pumps - Nebraska - Above Gage	0
	SW Diversions - M&I - Nebraska - Above Gage	0
	SW Diversions - Irrigation - Non-Federal Canals - Nebraska -Below Gage	0
	SW Diversions - Irrigation - Small Pumps -Nebraska - Below Gage	0
	SW Diversions - M&I - Nebraska - Below Gage	0
Sappa Subbasin	SW Diversions - Irrigation - Non-Federal Canals- Kansas	0
	SW Diversions - Irrigation - Small Pumps - Kansas	0
	SW Diversions - M&I - Kansas	0
	SW Diversions - Irrigation - Non-Federal Canals - Nebraska - Above Gage	0
	SW Diversions - Irrigation - Small Pumps - Nebraska - Above Gage	0
	SW Diversions - M&I - Nebraska - Above Gage	0
	SW Diversions - Irrigation - Non-Federal Canals - Nebraska -Below Gage	0
	SW Diversions - Irrigation - Small Pumps -Nebraska - Below Gage	0
Prairie Dog Subbasin	SW Diversions - M&I - Nebraska - Below Gage	0
	SW Diversions - Irrigation - Non-Federal Canals- Kansas	0
	SW Diversions - Irrigation - Small Pumps - Kansas	531
	SW Diversions - M&I - Kansas	317
	SW Diversions - Irrigation - Non-Federal Canals - Nebraska -Below Gage	0
	SW Diversions - Irrigation - Small Pumps -Nebraska - Below Gage	132
Mainstem Subbasin	SW Diversions - M&I - Nebraska - Below Gage	0
	SW Diversions - Irrigation - Non-Federal Canals- Kansas	0
	SW Diversions - Irrigation - Small Pumps - Kansas	797
	SW Diversions - M&I - Kansas	0
	SW Diversions - Irrigation - Non-Federal Canals - Nebraska	3,405
	SW Diversions - Irrigation - Small Pumps - Nebraska	1,959
	SW Diversions - M&I - Nebraska	0
	SW Diversions - Irrigation - Non-Federal Canals - Nebraska Below Guide Rock	0
	SW Diversions - Irrigation - Small Pumps - Nebraska Below Guide Rock	944
	SW Diversions - M&I - Nebraska - Below Guide Rock	0

Calendar Year		2024
Non-Federal SW Consumptive Use		
	% Non-Federal Canal Diversion Consumed	60%
	% Small Surface Water Pumps Consumed	75%
	% Municipal And Industrial SW Consumed	50%
Non-Federal Reservoir Evaporation Data		
North Fork Subbasin	Non-Federal Reservoir Evaporation - Colorado	44
Arikaree Subbasin	Non-Federal Reservoir Evaporation - Colorado	0
	Non-Federal Reservoir Evaporation - Kansas	16
	Non-Federal Reservoir Evaporation - Nebraska	0
Buffalo Subbasin	Non-Federal Reservoir Evaporation - Colorado	0
	Non-Federal Reservoir Evaporation - Nebraska	9
Rock Subbasin	Non-Federal Reservoir Evaporation - Nebraska	105
South Fork Subbasin	Non-Federal Reservoir Evaporation - Colorado	0
	Non-Federal Reservoir Evaporation - Kansas	137
	Non-Federal Reservoir Evaporation - Nebraska	0
Frenchman Subbasin	Non-Federal Reservoir Evaporation - Nebraska	83
Driftwood Subbasin	Non-Federal Reservoir Evaporation - Kansas	12
	Non-Federal Reservoir Evaporation - Nebraska	0
Red Willow Subbasin	Non-Federal Reservoir Evaporation - Nebraska	159
Medicine Creek Subbasin	Non-Federal Reservoir Evaporation - Nebraska - Above Gage	181
	Non-Federal Reservoir Evaporation - Nebraska - Below Gage	2
Beaver Subbasin	Non-Federal Reservoir Evaporation - Colorado	0
	Non-Federal Reservoir Evaporation - Kansas	278
	Non-Federal Reservoir Evaporation - Nebraska - Above Gage	106
	Non-Federal Reservoir Evaporation - Nebraska - Below Gage	0
Sappa Subbasin	Non-Federal Reservoir Evaporation - Kansas	299
	Non-Federal Reservoir Evaporation - Nebraska - Above Gage	56
	Non-Federal Reservoir Evaporation - Nebraska - Below Gage	4
Prairie Dog Subbasin	Non-Federal Reservoir Evaporation - Kansas	197
	Non-Federal Reservoir Evaporation - Nebraska	22
Mainstem Subbasin	Non-Federal Reservoir Evaporation - Kansas	108
	Non-Federal Reservoir Evaporation - Nebraska - Above Guide Rock Gage - Whole Basin Value:	1,099
	Non-Federal Reservoir Evaporation - Nebraska - Below Guide Rock Gage - Whole Basin Value:	97

Stream Gage Data		
North Fork Subbasin	North Fork Republican River At Colorado-Nebraska State Line	23,138
Arikaree Subbasin	Arikaree River At Haigler	1,283
Buffalo Subbasin	Buffalo Creek Near Haigler	1,452
Rock Subbasin	Rock Creek At Parks	3,384
South Fork Subbasin	South Fork Republican River Near Benkelman	7
Frenchman Subbasin	Frenchman Creek At Culbertson	19,036
Driftwood Subbasin	Driftwood Creek Near McCook	1,740
Red Willow Subbasin	Red Willow Creek Near Red Willow	3,620
Medicine Creek Subbasin	Medicine Creek Below Harry Strunk	23,536
Beaver Subbasin	Beaver Creek Near Beaver City	519
Sappa Subbasin	Sappa Creek Near Stamford	8,215
Prairie Dog Subbasin	Prairie Dog Creek Near Woodruff	7,586
Mainstem Subbasin	Republican River At Guide Rock	30,975
	Republican River Near Hardy	53,546

Hardy Gage Data	USGS Gage 06853500 Republican River Near Hardy, NE	
Mainstem Subbasin	January	4,682
	February	4,161
	March	7,765
	April	7,547
	May	10,187
	June	8,278
	July	3,805
	August	1,933
	September	917
	October	917
	November	1,474
	December	1,880
	ANNUAL	53,546

Calendar Year		2024
Reservoir Data		
South Fork Subbasin	Bonny Reservoir Evaporation	0
	Bonny Reservoir Change In Storage	0
Frenchman Subbasin	Enders Reservoir Evaporation	1,289
	Enders Reservoir Change In Storage	(64)
Red Willow Subbasin	Hugh Butler Lake Evaporation	850
	Hugh Butler Lake Change In Storage	(2,699)
Medicine Creek Subbasin	Harry Strunk Lake Evaporation	2,025
	Harry Strunk Lake Change In Storage	1,527
Prairie Dog Subbasin	Keith Sebelius Lake Evaporation	1,731
	Keith Sebelius Lake Change In Storage	(2,575)
Mainstem Subbasin	Swanson Lake Evaporation	6,807
	Swanson Lake Change In Storage	(4,592)
	Harlan County Evaporation Subject to Nebraska/Kansas Split	19,649
	Harlan County Evaporation Charged to Kansas	0
	Harlan County Change In Storage	(4,228)
	Lovewell Reservoir Ev charged to the Republican River	3,525

Canal Data		
North Fork Subbasin	Haigler Canal Diversions - Colorado	0
	Haigler Canal Diversions - Nebraska	5,014
	Haigler Canal Diversions	5,014
South Fork Subbasin	Hale Ditch Diversions	0
Frenchman Subbasin	Champion Canal Diversions	0
	Riverside Canal Diversions	0
	Culbertson Canal Diversions	0
	Culbertson Canal Extension Diversions	0
	Culbertson Canal % Return Flow	1
	Culbertson Canal Extension % Return Flow	1
Driftwood Subbasin	Meeker-Driftwood Canal Diversions	15,935
	Meeker-Driftwood Canal % Return Flow	61%
Red Willow Subbasin	Red Willow Canal Diversions	4,251
	Red Willow Canal % Return Flow	68%
Prairie Dog Subbasin	Almena Canal Diversions	2,343
	Almena Canal % Return Flow	56%
Mainstem Subbasin	Bartley Canal Diversion	6,863
	Bartley Canal % Return Flow	69%
	Cambridge Canal Diversion	23,195
	Cambridge Canal % Return Flow	58%
	Naponee Canal Diversion	1,038
	Naponee Canal % Return Flow	54%
	Franklin Canal Diversion	19,075
	Franklin Canal % Return Flow	67%
	Franklin Pump Canal Diversions	1,550
	Franklin Pump Canal % Return Flow	40%
	Superior Canal Diversions	9,450
	Superior Canal % Return Flow	68%
	Courtland Canal Diversions At Headgate	73,124
	Diversions to Nebraska Courtland	1,715
	Nebraska Courtland % Return Flow	28%
	Courtland Canal, Loss in NE assigned to upper Courtland KS	3,295
	Courtland Canal, Loss in NE assigned to delivery to Lovewell	7,870
	Courtland Canal At Kansas-Nebraska State Line	60,244
	Courtland Canal Diversions to the Upper Courtland District	20,829
	Courtland Canal Above Lovewell % Return Flow	47%
	Courtland Canal, Loss assigned to deliveries of water to Lovewell, Stateline to Lovewell	3,521
	Courtland Canal Deliveries To Lovewell Reservoir	39,189
	Diversions of Republican River water from Lovewell Reservoir to the Courtland Canal below Lovewell	35,662
	Courtland Canal Below Lovewell % Return Flow	41%
	To allocate Harlan County evaporation:	
	Kansas Bostwick Diversions During Irrigation Season (actual, or 3-year average)	41,061
	Nebraska Bostwick Diversions During Irrigation Season (actual or 3-year average)	32,755

Table 1: Annual Virgin and Computed Water Supply, Allocations, and Computed Beneficial Consumptive Uses by State, Main Stem, and Sub-Basin

2024 Basin	Virgin Water Supply	Computed Water Supply	Allocations				Computed Beneficial Consumptive Use		
			Colorado	Kansas	Nebraska	Unallocated	Colorado	Kansas	Nebraska
North Fork	39,160	39,160	8,770	0	9,630	20,760	19,530	0	4,360
Arikaree	4,200	4,200	3,300	210	710	(20)	2,690	120	110
Buffalo	5,750	5,750	0	0	1,900	3,850	480	0	3,820
Rock	8,880	8,880	0	0	3,550	5,330	100	0	5,400
South Fork	18,780	18,780	8,340	7,550	260	2,630	14,190	3,980	600
Frenchman	101,030	101,090	0	0	54,180	46,910	180	0	81,880
Driftwood	380	380	0	30	60	290	0	10	960
Red Willow	14,920	17,620	0	0	3,380	14,240	0	0	9,450
Medicine	38,740	37,210	0	0	3,390	33,820	0	0	22,620
Beaver	10,650	10,650	2,130	4,130	4,320	70	0	6,150	3,980
Sappa	10,290	10,290	0	4,230	4,230	1,830	0	1,390	1,220
Prairie Dog	13,130	15,710	0	7,180	1,190	7,340	0	8,120	120
Main Stem	124,920	131,440	0	67,170	64,270	0	(3,420)	48,570	117,840
Total All Basins	390,830	401,160	22,540	90,500	151,070	137,050	33,750	68,340	252,360
Main Stem Including Unallocated		268,490	0	137,200	131,290				
Total	390,830	401,160	22,540	160,530	218,090	0	33,750	68,340	252,360

Attachment 2: Accounting Inputs and Accounting Tables from the RRCA Accounting for 2024

Table 2: Original Compact Virgin Water Supply and Allocations

Basin	Virgin Water Supply	Colorado Allocation	% of Basin Supply	Kansas Allocation	% of Basin Supply	Nebraska Allocation	% of Basin Supply	Unallocated	% of Basin Supply
North Fork	44,700	10,000	22.4%			11,000	24.6%	23,700	53.0%
Arikaree	19,610	15,400	78.5%	1,000	5.1%	3,300	16.8%	(90)	-0.4%
Buffalo	7,890					2,600	33.0%	5,290	67.0%
Rock	11,000					4,400	40.0%	6,600	60.0%
South Fork	57,200	25,400	44.4%	23,000	40.2%	800	1.4%	8,000	14.0%
Frenchman	98,500					52,800	53.6%	45,700	46.4%
Driftwood	7,300			500	6.9%	1,200	16.4%	5,600	76.7%
Red Willow	21,900					4,200	19.2%	17,700	80.8%
Medicine	50,800					4,600	9.1%	46,200	90.9%
Beaver	16,500	3,300	20.0%	6,400	38.8%	6,700	40.6%	100	0.6%
Sappa	21,400			8,800	41.1%	8,800	41.1%	3,800	17.8%
Prairie Dog	27,600			12,600	45.7%	2,100	7.6%	12,900	46.7%
Tributaries Sub-Total	384,000							175,500	
Main Stem	94,500								
Main Stem + Unallocated	270,000			138,000	51.1%	132,000	48.9%		
Total	478,900	54,100		190,300		234,500			

Table 3A: Table to Be Used to Calculate Colorado's Five-Year Running Average Allocation and Computed Beneficial				
	Col. 1	Col. 2	Col. 3	Col. 4
Year	Allocation	Computed Beneficial Consumptive	Imported Water Supply Credit and CORWS	Difference between Allocation and the Computed Beneficial Consumptive Use offset by Imported Water Supply Credit and CORWS Credit Col 1 – (Col 2- Col 3)
2020	24,200	26,910	6,218	3,508
2021	22,790	30,200	9,390	1,980
2022	19,270	26,580	8,501	1,191
2023	25,630	38,420	12,259	(531)
2024	22,540	33,750	9,873	(1,337)
Avg 2020-2024	22,890	31,170	9,250	960

Table 3B: Table to Be Used to Calculate Kansas's Five-Year Running Average Allocation and Computed Beneficial				
	Col. 1	Col. 2	Col. 3	Col. 4
Year	Allocation	Computed Beneficial Consumptive	Imported Water Supply Credit	Difference between Allocation and the Computed Beneficial Consumptive Use offset by Imported Water Supply Credit Col 1 – (Col 2- Col 3)
2020	247,750	53,810	NA	193,940
2021	201,890	57,130	NA	144,760
2022	168,020	67,770	NA	100,250
2023	144,570	62,370	NA	82,200
2024	160,530	68,340	NA	92,190
Avg 2020-2024	184,550	61,880	NA	122,670

Table 3C: Table to Be Used to Calculate Nebraska's Five-Year Running Average Allocation and Computed Beneficial				
	Col. 1	Col. 2	Col. 3	Col. 4
Year	Allocation	Computed Beneficial Consumptive	Imported Water Supply Credit and NERWS	Difference between Allocation and the Computed Beneficial Consumptive Use offset by Imported Water Supply Credit and NERWS Credit Col 1 – (Col 2- Col 3)
2020	303,070	252,400	18,995	69,665
2021	258,180	252,650	21,456	26,986
2022	221,860	249,960	16,157	(11,943)
2023	212,990	247,580	16,721	(17,869)
2024	218,090	252,360	18,287	(15,983)
Avg 2020-2024	242,840	250,990	18,320	10,170

Table 4A: Colorado Compliance with the Sub-basin Non-impairment Requirement

Table 4A is left unpopulated pursuant to the August 24, 2016 “RESOLUTION BY THE REPUBLICAN RIVER COMPACT ADMINISTRATION APPROVING OPERATION AND ACCOUNTING FOR THE COLORADO COMPACT COMPLIANCE PIPELINE AND COLORADO’S COMPLIANCE EFFORTS IN THE SOUTH FORK REPUBLICAN RIVER BASIN”, paragraph E.

2024

	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6
Sub-basin	Colorado Sub-basin Allocation (Five-year Running Average)	Unallocated Supply (Five-year Running Average)	Credits from Imported Water Supply and CORWS Credit (Five-year Running Average)	Total Available Supply (Five-year Running Average)	Colorado Computed Beneficial Consumptive Use (Five-year Running Average)	Difference Between Available Supply and Computed Beneficial Consumptive Use (Five-year Running Average)
North Fork						
Arikaree						
South Fork						
Beaver						

Table 4B: Kansas's Sub-Basin Non-impairment Compliance**2024**

	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7
Sub-basin	Kansas Sub-basin Allocation (Five-year Running Average)	Unallocated Supply (Five-year Running Average)	Unused Allocation from Colorado (Five Year Running Average)	Credits from Imported Water Supply (Five-year Running Average)	Total Available Supply Col 1 + Col 2 + Col 3 + Col 4 (Five-year Running Average)	Kansas Computed Beneficial Consumptive Use (Five-year Running Average)	Difference Between Available Supply and Computed Beneficial Consumptive Use Col 5 - Col 6 (Five-year Running Average)
Arikaree	176	(14)	968	N/A	1,130	150	980
South Fork	8,434	2,938	0	N/A	11,372	5,124	6,248
Driftwood	106	1,182	0	N/A	1,288	16	1,272
Beaver	3,596	54	1,854	N/A	5,504	5,356	148
Sappa	4,906	2,120	0	N/A	7,026	1,268	5,758
Prairie Dog	6,334	6,470	0	N/A	12,804	8,038	4,766

Table 5B: Kansas's Compliance During Water-Short Year Administration**Kansas**

Year	Allocation				Computed Beneficial Consumptive Use	Imported Water Supply Credit	Difference Between Allocation and the Computed Beneficial Consumptive Use offset by Imported Water Supply Credit
Column	1	2	3	4	5	6	7
	Sum Sub-basins	Kansas' Share of Unallocated Supply	Kansas' Share of the Unused Colorado Allocation	Total Col 1 + Col 2 + Col 3			Col 4 - (Col 5 - Col 6)
2023	20,950	7,783	1,456	30,189	18,860	N/A	11,329
2024	23,330	6,204	1,400	30,934	19,770	N/A	11,164
Avg 2023-2024	22,140	6,993	1,428	30,561	19,315	N/A	11,246

Table 5E: Nebraska's Tributary Compliance During Water-Short Year Administration

Year	Allocation			Computed Beneficial Consumptive Use	Imported Water Supply Credit and AWS	Allocation - (CBCU - IWS-AWS)
	Sub-Basin Total	Share of Unallocated Supply	Total			
2022	77,390	66,054	143,444	127,090	9,442	25,796
2023	94,690	70,088	164,778	141,530	11,242	34,490
2024	86,800	67,017	153,817	134,520	11,048	30,345
Avg 2023-2024	90,745	68,553	159,298	138,025	11,145	32,418

Attachment 2: Accounting Inputs and Accounting Tables from the RRCA Accounting for 2024

Table 5A: Colorado's Compliance During Water-Short Year Administration

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7
Year	Is the year Water Short Pursuant to III.J?* (Yes or No)	Statewide Allocation	Beaver Creek Reduction Pursuant to Table 5F	Allocation - Beaver Creek Reduction (Col. 2 - Col.3)	Computed Beneficial Consumptive (excluding the Beaver Creek Sub-basin)	Imported Water Supply Credit - IWS Beaver Creek + CORWS Credit	Difference between Allocation and the Computed Beneficial Consumptive Use offset by Imported Water Supply Credit and CORWS Credit (Col. 4 - Col. 5 + Col. 6)
2020	No	24,200	0	24,200	26,910	6,218	3,508
2021	No	22,790	0	22,790	30,200	9,390	1,980
2022	No	19,270	0	19,270	26,580	8,501	1,191
2023	No	25,630	0	25,630	38,420	12,259	(531)
2024	No	22,540	0	22,540	33,750	9,873	(1,337)
Avg 2020-2024	No	22,890	0	22,890	31,170	9,250	960

Table 5F: Colorado's Beaver Creek Reduction During Water-Short Years

Water Short Year (WSY) Pursuant to III.J	Beaver Creek Allocation	Reduction = Average of last five WSY Beaver Creek Allocations
	Col. 1	Col. 2
2002	770	N/A
2003	260	N/A
2004	360	N/A
2005	910	N/A
2006	1,420	N/A
2007	2,320	744
2013	1,130	1,054
2014	1,250	1,228
2015	2,130	1,406
2016	2,430	1,650
2018	1,940	1,852

Table 5C: Nebraska's Compliance During Water-Short Year Administration

Year	Allocation				Computed Beneficial Consumptive Use			Imported Water Supply Credit and NERWS Credit	Difference Between Allocation and Computed Beneficial Consumptive Use offset by Imported Water Supply Credit Above Guide Rock and NERWS Credit
Column	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9
	State-Wide Allocation	Allocation Below Guide Rock	Allocation Above Guide Rock	Nebraska's Share of Unused Colorado Allocation	State-Wide CBCU	CBCU Below Guide Rock	CBCU Above Guide Rock	Credits Above Guide Rock	Col 3 + Col 4 - (Col 7 - Col 8)
2023	212,990	4,040	208,950	1,394	247,580	3,702	243,879	16,738	(16,797)
2024	218,090	4,790	213,300	1,340	252,360	3,479	248,881	18,306	(15,935)
Avg 2023-2024	215,540	4,420	211,120	1,370	249,970	3,590	246,380	17,520	(16,370)

Table 5D: Nebraska's Compliance Under a Alternative Water-Short Year Administration Plan

Year	Allocation				Computed Beneficial Consumptive Use			Imported Water	Difference Between Allocation
Column	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9
	State-Wide Allocation	Allocation Below Guide Rock	Allocation Above Guide Rock	Share of Unused Colorado Allocation	State-Wide CBCU	CBCU Below Guide Rock	CBCU Above Guide Rock	Credits Above Guide Rock	Col 3 + Col 4 - (Col 7 - Col 8)
2022	221,860	9,277	212,583	1,017	249,960	2,870	247,090	16,174	(17,316)
2023	212,990	4,040	208,950	1,394	247,580	3,702	243,879	16,738	(16,797)
2024	218,090	4,790	213,300	1,340	252,360	3,479	248,881	18,306	(15,935)
Avg 2022-2024	217,650	6,040	211,610	1,250	249,970	3,350	246,620	17,070	(16,680)

Attachment 1: Sub-basin Flood Flow Thresholds

Sub-basin	Sub-basin Flood Flow Threshold Acre-feet per Year ³
Arikaree River	16,400
North Fork of Republican River	33,900
Buffalo Creek	9,800
Rock Creek	9,800
South Fork of Republican River	30,400
Frenchman Creek	51,900
Driftwood Creek	9,400
Red Willow Creek	15,100
Medicine Creek	55,100
Beaver Creek	13,900
Sappa Creek	26,900
Prairie Dog	15,700

³ Flows considered to be Flood Flows are flows in excess of the 94% flow based on a flood frequency analysis for the years 1971-2000. The Gaged Flows are measured after depletions by Beneficial Consumptive Use and change in reservoir storage.

Attachment 2: Accounting Inputs and Accounting Tables from the RRCA Accounting for 2024

Attachment 6: Computing Water Supplies and Consumptive Use Above Guide Rock

Year	Total Mainstem CWS	Hardy Gage	Superior Courtland Diversion Dam	Courtland Canal Diversions	Superior Canal Diversion	Courtland Canal Returns	Superior Canal Returns	Total Bostwick Returns Below Guide Rock	NE CBCU Below Guide Rock	KS CBCU Below Guide Rock	Total CBCU Below Guide Rock	Gain Guide Rock to Hardy	VWS Guide Rock to Hardy	Mainstem VWS Above Guide Rock	NE MS Allocation Above Guide Rock	KS MS Allocation Above Guide Rock	Nebraska Guide Rock to Hardy Allocation	Kansas Guide Rock to Hardy Allocation
2020	264,600	251,239	202,416	44,380	10,070	7,327	8,024	15,352	2,266	616	2,882	33,471	36,353	228,247	111,613	116,634	17,777	18,577
2021	204,980	142,152	115,649	73,224	9,551	10,536	6,475	17,011	3,084	723	3,807	9,492	13,299	191,681	93,732	97,949	6,503	6,796
2022	160,360	69,608	32,213	74,964	9,827	15,494	6,460	21,954	2,870	661	3,531	15,441	18,972	141,388	69,139	72,249	9,277	9,695
2023	98,590	34,861	14,677	77,296	11,708	8,802	7,692	16,494	3,702	871	4,572	3,690	8,263	90,327	44,170	46,157	4,040	4,222
2024	131,440	53,546	30,975	73,124	9,450	10,451	6,468	16,920	3,479	665	4,144	5,651	9,795	121,645	59,484	62,161	4,790	5,005

COURTLAND CANAL

	2020	2021	2022	2023	2024
Return Flow From Courtland Canal To Republican River Above Lovewell From Kansas	536	912	835	1,007	904
Return Flow From Courtland Canal To Republican River Above Hardy From Nebraska	6,791	9,625	14,659	7,794	9,548
Courtland Canal Diversions At Headgate	44,380	73,224	74,964	77,296	73,124
Courtland Canal At Kansas-Nebraska State Line	35,756	60,776	55,667	67,145	60,244
NE Courtland Canal CBCU (includes transportation loss)	342	711	1,420	646	1,237
Superior Canal CBCU	2,046	3,076	3,367	4,016	2,982

NEBRASKA

	2020	2021	2022	2023	2024
SW Diversions - Irrigation - Small Pumps - Nebraska Below Guide Rock	552	665	763	1,026	944
SW Diversions - M&I - Nebraska - Below Guide Rock	0	0	0	0	0
SW Non-Federal Reservoir Evaporation - Below Guide Rock	84	51	95	78	97
SW Return - Irrigation	138	166	191	257	236
SW Return - M&I	0	0	0	0	0
GW CBCU Nebraska Below Guide Rock	1,769	2,534	2,203	2,854	2,674

KANSAS

	2020	2021	2022	2023	2024
SW CBCU - Irrigation - Small Pumps	565	667	598	802	598
SW CBCU - M&I	0	0	0	0	0
GW CBCU Kansas Below Guide Rock	51	56	63	69	67

Attachment 2: Accounting Inputs and Accounting Tables from the RRCA Accounting for 2024

2024

Attachment 7: Calculations of Return Flows from Bureau of Reclamation Canals

Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12
Canal	Canal Diversion	Spill to Waste-Way	Net Diversion	Field Deliveries	Canal Loss	Average Field Loss Factor	Field Loss	Total Loss from District	Percent Field and Canal Loss That Returns to the Stream	Total return to Stream from Canal and Field Loss	Return as Percent of Canal Diversion
Name Canal	Headgate Diversion	Sum of measured spills to river	Col 2 - Col 3	Sum of Deliveries to the field	Col 4 - Col 5	1 -Weighted Average Efficiency of Application System for the District*	Col 5 x Col 7	Col 6 + Col 8	Estimated Percent Loss*	Col 9 x Col 10 + Col 3	Col 11/Col 2
Σ Irrigation Season											
Σ Non- Irrigation Season											
Culbertson	0	0	0	0	0	30%	0	0	82%	0	100%
	0	0	0	0	0	30%	0	0	92%	0	100.0%
Culbertson Extension	0	0	0	0	0	30%	0	0	82%	0	100%
	0	0	0	0	0	30%	0	0	92%	0	100.0%
Meeker - Driftwood	15,935	1,511	14,424	6,298	8,126	30%	1,889	10,015	82%	9,724	61.0%
	0	0	0	0	0	30%	0	0	92%	0	100.0%
Red Willow	4,251	477	3,774	1,180	2,594	30%	354	2,948	82%	2,894	68.1%
	0	0	0	0	0	30%	0	0	92%	0	100.0%
Bartley	6,863	1,267	5,596	1,956	3,640	30%	587	4,227	82%	4,733	69.0%
	0	0	0	0	0	30%	0	0	92%	0	100.0%
Cambridge	22,696	2,937	19,759	10,812	8,947	30%	3,244	12,191	82%	12,933	57.0%
	499	14	485	0	485	30%	0	485	92%	460	92.2%
Naponee	1,038	106	932	590	342	35%	207	549	82%	556	53.5%
	0	0	0	0	0	35%	0	0	92%	0	100.0%
Franklin	19,075	2,799	16,276	6,422	9,854	35%	2,248	12,102	82%	12,722	66.7%
	0	0	0	0	0	35%	0	0	92%	0	100.0%
Franklin Pump	1,550	132	1,418	1,271	147	35%	445	592	82%	617	39.8%
	0	0	0	0	0	35%	0	0	92%	0	100.0%
Almena	2,343	0	2,343	1,058	1,285	30%	317	1,602	82%	1,314	56.1%
	9,450	228	9,222	2,336	6,886	31%	724	7,610	82%	6,468	68.4%
Superior	0	0	0	0	0	31%	0	0	92%	0	100.0%
Nebraska Courtland	1,715	0	1,715	1,470	245	23%	338	583	82%	478	27.9%
Courtland Canal Above Lovewell	20,830	1,258	19,572	11,799	7,773	23%	2,714	10,487	82%	9,857	47.3%
Courtland Canal Below Lovewell	42,039	4,461	37,578	28,811	8,767	23%	6,627	15,394	82%	17,084	40.6%

Attachment 2: Accounting Inputs and Accounting Tables from the RRCA Accounting for 2024

Attachment 8: Calculations of the Computed Water Supply Adjustment and Remaining Compact compliance Volume for Implementation of 2016 RRCA Resolution -- page 1 of 2

CCV and RCCV Tracking ^a												
	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10	Col. 11	Col. 12
Year	Start of Year RCCV	RCCV Adjustme nt	CCV	CCV Inflow into HCL	RCCV Inflow into HCL	Total CCV and RCCV Inflow into HCL	Total CCV and RCCV Available for Release	CCV Released from HCL as Flow	CCV Released from HCL as Evaporation	CCV Retained in HCL (at End of Year)	CWSA	End of Year RCCV
	=Col. 12 of previous year	^b	^c			= Col. 4 + Col. 5	=Col. 6 + Col. 10 of previous year			= Col. 7 – (Col. 8 + Col. 9)	=Col. 10 – Col. 10 of previous year	= Col. 1 – Col. 2 + Col. 3 - Col. 6
2007	0	0	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	8332	0	8332	8332	0	0	8332	8332	0
2016	0	0	41,935	24752	0	24752	33084	5084	432	23679	15347	9,300
2017	9300	0	20,000	20,000	0	20000	43679	20000	224	21438	-224	9,300
2018	9300	0	0	0	0	0	21438	0	1339	20099	-1339	9,300
2019	9300	0	0	0	0	0	20099	0	2340	17759	-2340	9,300
2020	9300	1860	0	0	0	0	17759	0	3889	13870	-3889	7,440
2021	7,440	1860	0	0	0	0	13870	0	1550	12320	-1550	5,580
2022	5,580	1860	0	0	0	0	12320	0	4354	7966	-4354	3,720
2023	3,720	1860	0	0	1860	1860	9826	0	1026	8800	834	0
2024	0	0	0	0	0	0	8800	0	2305	6495	-2305	0

APV and RWS					RCCV Calc	
Colorado		Nebraska				
Aug. Pumping Volume (APV)	Resolution Water Supply Credit (CORWS)	Aug. Pumping Volume (APV) Rock Creek That Passed Sub-basin Gage in the Current Year	Aug. Pumping Volume (APV) N-CORPE That Passed Sub-basin Gage in the Current Year	Resolution Water Supply Credit (NERWS)	Extra CCV Efforts Above CCV (Use with RCCV Calc)	
0	0	0	0	0	0	
0	0	0	0	0	0	
0	0	0	0	0	0	
0	0	0	0	0	0	
0	0	0	0	0	0	
0	0	15,766	0	15,766	0	
7,448	7,448	19,397	42,758	62,155	0	
10,760	10,760	1,098	25,932	18,698	8332	
10,130	10,130	499	22,803	41,935	449	
11,330	11,330	4,563	11,106	20,000	0	
13,578	13,578	0	0	0	0	
8,905	8,905	0	0	0	0	
6,218	6,218	0	0	0	0	
9,390	9,390	0	0	0	0	
8,501	8,501	0	0	0	0	
12,259	12,259	0	0	0	0	
9,873	9,873	0	0	0	0	

a. Calculations for RCCV, CWSA, & RWS don't start until Oct. 1, 2015

b. See Provision 10 of the RRCA Resolution signed August 24, 2016, titled "Resolution Approving Long-Term Agreement Related to the Operation of Harlan County Lake for Compact Call Years" for the terms of assigning RCCV Adjustment. The RCCV Adjustment for each year is equal to 20% of the unadjusted portion of the RCCV, if it is a non-Compact Call Year, plus any remaining volumetric reductions from the previous four years.

c. In years when the contributions from Nebraska's water management activities, consistent with the 2016 CCY HCL Operations Resolution, are greater than CCV and the NERWS is equal to the greater contribution volume, CCV in Column 3 should also be set equal to the contribution.

d. The formula for calculation of RCCV is based on calendar year operations and will vary when operations occur in a different calendar year than NERWS Credit is applied.

Attachment 8: Calculations of the Computed Water Supply Adjustment and Remaining Compact compliance Volume for Implementation of 2016 RRCA Resolution -- page 2 of 2

RCCV Adjustment Calculation							
CCY?	RCCV Annual Increase (Excluding RCCV Adj)	RCCV 5 Yr. Cum. Increase since last CCY to Non-CCY	RCCV Adjustment Year 1	RCCV Adjustment Year 2	RCCV Adjustment Year 3	RCCV Adjustment Year 4	RCCV Adjustment Year 5
1 if CCY, otherwise 0							
0	0	0	0				
0	0	0	0	0			
0	0	0	0	0	0		
0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
1	9300	0	0	0	0	0	0
1	0	9300	0	0	0	0	0
1	0	9300	0	0	0	0	0
1	0	9300	0	0	0	0	0
0	0	9300	1860	0	0	0	0
0	0	0	0	1860	0	0	0
0	0	0	0	0	1860	0	0
1	-1860	0	0	0	0	1860	0
1	0	0	0	0	0	0	0

Attachment 2: Accounting Inputs and Accounting Tables from the RRCA Accounting for 2024

Flood Flow Calculations Based on Accounting Procedures III.B.1 and Attachment 1.

Hardy Gage Monthly Data (acre-feet)					
	2020	2021	2022	2023	2024
January	55,339	7,475	8,005	2,523	4,682
February	33,332	7,332	7,615	2,410	4,161
March	33,775	28,746	9,074	7,361	7,765
April	23,421	20,400	6,592	4,173	7,547
May	31,732	25,198	4,958	2,091	10,187
June	10,810	14,672	3,981	3,006	8,278
July	30,811	8,141	18,172	2,301	3,805
August	8,337	8,550	3,666	2,561	1,933
September	3,488	3,034	2,326	1,918	917
October	4,298	2,535	1,624	1,454	917
November	7,632	7,470	1,775	1,673	1,474
December	8,265	8,600	1,815	3,389	1,880
ANNUAL	251,239	142,153	69,603	34,861	53,546
Over 400K	0	0	0	0	0

5-month Consecutive Period Flows (acre-feet)					
	2020	2021	2022	2023	2024
Jan-May	177,598	89,151	36,244	18,558	34,342
Feb-Jun	133,069	96,348	32,220	19,041	37,938
Mar-Jul	130,548	97,157	42,777	18,932	37,582
Apr-Aug	105,110	76,961	37,369	14,132	31,750
May-Sep	85,177	59,595	33,103	11,878	25,120
Jun-Oct	57,743	36,932	29,769	11,241	15,850
Jul-Nov	54,566	29,730	27,563	9,908	9,046
Aug-Dec	32,020	30,189	11,206	10,995	7,121

2-month Consecutive Period Flows (acre-feet)					
	2020	2021	2022	2023	2024
Jan-Feb	88,671	14,807	15,620	4,933	8,843
Feb-Mar	67,107	36,078	16,689	9,771	11,926
Mar-Apr	57,195	49,146	15,666	11,534	15,312
Apr-May	55,152	45,598	11,550	6,264	17,734
May-Jun	42,541	39,870	8,939	5,097	18,465
Jun-Jul	41,621	22,813	22,153	5,307	12,083
Jul-Aug	39,148	16,691	21,838	4,862	5,738
Aug-Sep	11,825	11,584	5,992	4,479	2,850
Sep-Oct	7,786	5,569	3,950	3,373	1,834
Oct-Nov	11,930	10,005	3,399	3,127	2,391
Nov-Dec	15,898	16,070	3,590	5,062	3,354

Final Sub-basin Flood Flows					
	2020	2021	2022	2023	2024
North Fork Flood Flow	0	0	0	0	0
Arikaree Flood Flow	0	0	0	0	0
Buffalo Flood Flow	0	0	0	0	0
Rock Flood Flow	0	0	0	0	0
Southfork Flood Flow	0	0	0	0	0
Frenchman Flood Flow	0	0	0	0	0
Driftwood Flood Flow	0	0	0	0	0
Red Willow Flood Flow	0	0	0	0	0
Medicine Creek Flood Flow	0	0	0	0	0
Beaver Flood Flow	0	0	0	0	0
Sappa Flood Flow	0	0	0	0	0
Prairie Dog Flood Flow	0	0	0	0	0
Mainstem Flood Flow	0	0	0	0	0

Sub-basin Flows Above Attachment 1 Flood Flow Thresholds					
	2020	2021	2022	2023	2024
North Fork	0	0	0	0	0
Arikaree	0	0	0	0	0
Buffalo	0	0	0	0	0
Rock	0	0	0	0	0
South Fork	0	0	0	0	0
Frenchman	0	0	0	0	0
Driftwood	0	0	0	0	0
Red Willow	0	0	0	0	0
Medicine Creek	0	0	0	0	0
Beaver	0	0	0	0	0
Sappa	0	0	0	0	0
Prairie Dog	0	0	0	0	0
Sub-basin Sum	0	0	0	0	0

5-month Consecutive Period Test					
	2020	2021	2022	2023	2024
Jan-May	0	0	0	0	0
Feb-Jun	0	0	0	0	0
Mar-Jul	0	0	0	0	0
Apr-Aug	0	0	0	0	0
May-Sep	0	0	0	0	0
Jun-Oct	0	0	0	0	0
Jul-Nov	0	0	0	0	0
Aug-Dec	0	0	0	0	0
TOTAL	0	0	0	0	0

2-month Consecutive Period Test					
	2020	2021	2022	2023	2024
Jan-Feb	0	0	0	0	0
Feb-Mar	0	0	0	0	0
Mar-Apr	0	0	0	0	0
Apr-May	0	0	0	0	0
May-Jun	0	0	0	0	0
Jun-Jul	0	0	0	0	0
Jul-Aug	0	0	0	0	0
Aug-Sep	0	0	0	0	0
Sep-Oct	0	0	0	0	0
Oct-Nov	0	0	0	0	0
Nov-Dec	0	0	0	0	0
TOTAL	0	0	0	0	0

Combined Test					
	2020	2021	2022	2023	2024
FINAL TOTAL	0	0	0	0	0



COLORADO
Division of Water Resources
Department of Natural Resources

MEMORANDUM

To: Earl Lewis and Tom Riley
From: Tracy Kosloff *TJK*
Date: June 25, 2024
Subject: Transmittal of data related to RRCA 2016 Resolution

Enclosed is a thumb drive containing the South Fork Focus Zone table and associated redacted contracts referenced in Jason Ullmann's June 25 email. Feel free to contact our team if there are any questions. Thank you.

1313 Sherman Street, Room 821, Denver, CO 80203 P 303.866.3581 dwr.colorado.gov/
Jared S. Polis, Governor | Dan Gibbs, Executive Director | Jason T. Ullmann, State Engineer/Director



Files provided to the RRCA engineering committee in support of the RRCA's December 16, 2024 Resolution. These files are included herein and available at <http://republicanriver.org/>

2024-09 Schreuder acreage map.pdf

2024-11 SFFZ NDVI Imagery Memo.pdf

2024-11 SFFZ_NDVI_Summary_Table.pdf

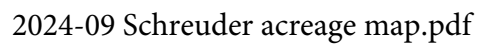
Repub_Irrig_2016.zip

Colorado SFFZ Dry-up Package 2024.xlsx

SFFZ_Dryup_Shapefile_2024.zip

SouthForkFocusZone.shp.zip

Republican River Compact Administration Groundwater Model





COLORADO
Division of Water Resources
Department of Natural Resources

MEMORANDUM

To: Earl Lewis, Jesse Bradley
From: Tracy Kosloff
Date: November 25, 2024
Subject: 2024 SFFZ Irrigated Acreage Retirement Data

Dear Earl and Jesse,

I am pleased to transmit Colorado's compilation of the 2024 irrigation season NDVI data and aerial photos for the parcels under contract with the RRWCD from 2016 through May 2024 (the same contracts transmitted to you in June 2024).

NDVI refers to the Normalized Difference Vegetation Index, which is a metric that uses remote sensing to detect vegetation. DWR has compiled satellite data from throughout the 2024 irrigation season (May-October) into a layer called the NDVI_max, which shows the highest value, or maximum NDVI, observed at each 30 m x 30 m grid cell during that timeframe. The mean of these cell values is then calculated for each parcel. DWR calculated the 2024 NDVI_max's mean values using (1) boundaries from the contracts' legal descriptions and (2) the parcel boundaries from the 2016 irrigated land data (provided to your teams in September).

Included in this data package is a Report with two pages for each contract. The two pages have the same text, but display different imagery as described further below.

- The first page for each contract shows the NDVI_max imagery. Higher NDVI_max values are depicted in white/light gray and lower NDVI_max values are depicted with shades of dark gray/black. The image includes labels for the mean of NDVI max for the 2016 irrigated land parcels. The text shows the mean of NDVI max for the legal description in the contract (which is commonly larger than the acreage required to be dried up).
- The second page for each contract shows aerial imagery captured by Vexcel Group in June of 2024 at a 15-20 cm resolution.

The NDVI threshold generally used by DWR in our analyses to indicate lack of irrigation is 130 or less, but it is necessary to consider additional information, especially when a mean NDVI value only slightly exceeds that threshold. Furthermore, it is important to note that acres entered into EQIP contracts are allowed to dryland farm, which can result in higher NDVI values based on the presence of vegetative growth.

1313 Sherman Street, Room 821, Denver, CO 80203 P 303.866.3581 dwr.colorado.gov/
Jared S. Polis, Governor | Dan Gibbs, Executive Director | Jason T. Ullmann, State Engineer/Director



2024 Spatial Analysis SFFZ
Page 2

Also included is a summary table with one row for each contract, it indicates the Report page number for that contract and other information. In some cases, the summary table provides additional comments, such as if a center pivot is visibly removed in photographs, or when a specific part of the legal description appears to not be irrigated, achieving the contracted acreage retirement. The summary table also indicates parcels where the aerial imagery / NDVI data is not conclusive about the parcel's physical retirement status, and such parcels may warrant follow up in the future to confirm their physical lack of irrigation.

Lastly, enclosed is a draft resolution for your review for consideration by the RRCA when they meet in December.

**Attachment 3: South Fork Focus Zone irrigated acreage retirement documentation submitted in
support of December 16, 2024 Resolution**

2024 Summary Table

RRWCD Contract	Report Page	Acres Retired per Contract	Acres from GIS (Legal Desc.)	Contract Date	Contract Type	Legal Description	Associated Well Permits	NDVI Mean (of Legal Desc)	Additional Information	Additional Follow Up?	Links to Relevant Field Inspection Images
170AI08P	1	132.47	443.46	10/23/2016	OAI	Rotation of any three of four 106.67 acre circles centered in each quarter Sec 33-T9S-R47W-6PM	9062-FP	131	Well capped (see field inspection photo)		https://dnrweblink.state.co.us/dwr/Doc
170AI09P	3	187.53	443.46	10/23/2016	OAI	Rotation of any three of four 106.67 acre circles centered in each quarter Sec 33-T9S-R47W-6PM	11102-FP	131	Well capped (see field inspection photo)		https://dnrweblink.state.co.us/dwr/Doc
06CR267K	5	249	392.99	9/7/2017	CREP	Three 130-acre circles in SE1/4, SW1/4 and NW1/4 of Section 24-T7S-R44W-6PM	15222-FP	124			
06CR269K	7	108.9	327.08	11/9/2017	CREP	Part of the N1/2 of Section 15, Township 10 South, Range 47 West 6th PM	13564-FP	121			
06CR275K	9	124.4	157.84	2/11/2019	CREP	NE 1/4 NE 1/4 Sec 15-T7S-R51W-6PM	15971-FP	118			
06CR276K	11	124.4	156.36	2/11/2019	CREP	NW 1/4 NW 1/4 Sec 15-T7S-R51W-6PM	10049-FP	120			
19EQ100P	13	113.7	245.75	5/24/2019	EQUIP	Part of the SW1/4 & S1/2 of NW1/4 of Sec 10-T10S-R47W	11556-FP	118			
19EQ101P	15	56.19	321.48	5/31/2019	EQUIP	Land in the S1/2 Sec 10-T9S-R46W-6PM	6505-FP	119			
19EQ103P	17	63.81	321.48	5/31/2019	EQUIP	Land in the S1/2 Sec 10-T9S-R46W-6PM	3810-FP	119			
19EQ102P	19	120	329.89	5/31/2019	EQUIP	Land in the E1/2 Sec 15-T9S-R46W-6PM	4164-FP	124			
19EQ104P	21	82	433.20	5/31/2019	EQUIP	125-acre circle in the NE1/4 of Sec 18 and a total of 35 acres in two locations in the S1/2 of Sec7-T8S-R45W	17402-FP	122			
18CR001K	23	244.25	321.87	12/23/2019	CREP	S1/2 of N1/2 and N1/2 of S1/2 Sec 22-T7S-R47W-6PM	11287-FP,15264	122			
18CR002K	25	511.83	750.56	12/26/2019	CREP	W 1/2 of Sec. 28, E 1/2 of Sec. 29 and SW 1/4 of Sec 29 all in T-9S-R45W-6PM	3906-FP, 5776-FP	124			
18CR008K	27	130	168.16	11/6/2020	CREP	Pt of NW 1/4 Section 16-T6S-47W-6PM	17575-FP	122			
18CR009K	29	130	217.53	11/6/2020	CREP	W 1/2 of NE 1/4, 20 ac. in W 1/2 of E 1/2 of NE 1/4 and 60 ac. in E 1/2 of NW 1/4 of Section 15-T6S-47W-6PM	18157-FP	130	No center pivot (from aerial imagery and field inspection photos)		https://dnrweblink.state.co.us/dwr/Doc
20EQ106K	31	205.03	637.52	12/30/2020	EQUIP	SE1/4 and NE 1/4 Sec 33, NW 1/4 Sec 34, NW 1/4 Sec 28, all in T7S-R45W-6PM	15267-FP	129			
20EQ105K	33	275.97	637.52	12/30/2020	EQUIP	SE1/4 and NE1/4 Sec 33, NW1/4 Sec 34, NW 1/4 Sec 28, all in T7S-R45W-6PM	5135-FP	129			
21EQ108K	35	120	158.74	1/3/2022	EQUIP	NW 1/4 Sec 13-T9S-R47W-6PM	6989-FP	123			
18CR022K	37	126.35	160.67	1/14/2022	CREP	SW 1/4 SEC 3 -- T6S-R48W	14868-FP	121			
18CR023K	39	234.95	312.82	2/10/2022	CREP	NW 1/4 Sect. 22 & SW 1/4 Sec. 15 all in T7SR43W-6PM	4680-FP	124			
21EQ110K	41	91.3	316.77	2/24/2022	EQUIP	Part of SW 1/4 and NW 1/4 Sec 34-T6S-R43W-6PM	10310-FP	132	No center pivot. Dryland farming allowed		
18CR036K	43	156.2	158.58	10/25/2022	CREP	A portion of circle with approximately 130 acres in the S1/2 of Sec. 2 and approximately 30 acres in the N1/2 of Sec. 11 all in T6S-R49W-6PM	14078-FP	130			
22EQ137K	45	359.44	642.79	10/26/2022	EQUIP	311 acres in the N1/2 and 45 acres in the N1/2 of the SW1/4 of Section 3, Township 6 South, Range 46 West and 4 acres in the SW1/4 of Section 33, Township 5 South, Range 46 West of the 6th P.M.	6979-FP, 6978-FP	124	No center pivot, well capped, power meters removed, dryland farming allowed		https://dnrweblink.state.co.us/dwr/DocView.aspx?id=4087783&dbid=0 https://dnrweblink.state.co.us/dwr/DocView.aspx?id=4087784&dbid=0
18CR032K	47	243.11	326.62	10/28/2022	CREP	Part of SE/4 & SW/4 Sec. 29 T7S-R47W	15290-FP	125			
18CR035K	49	127	161.38	10/28/2022	CREP	NE/4 Sec. 17-T6S-R47W	17864-FP	124			
18CR034K	51	127	158.94	10/28/2022	CREP	SE/4 Sec. 17-T6S-R47W	17863-FP	124			
22EQ135K	53	112.37	162.26	10/28/2022	EQUIP	NE/4 Sec. 6-T8S-R45W-6PM	4129-FP	115			
22EQ136K	55	430	511.31	10/28/2022	EQUIP	A 190 acre circle in Sec. 3-T8S-R45W and 120 acres in SW/4 and 120 acres in NW/4 Sec. 33-T7S-R45W	4150-FP, 16298-FP	115			
18CR031K	57	249	320.49	10/31/2022	CREP	E/2 of Sec. 20-T6S-R47W	19228-FP	123			
22EQ128K	59	174	321.29	11/7/2022	EQUIP	S/2 of Sec. 21-T9S-R45W	15944-RFP	125	At least 174 acres in the eastern half of legal description are dry (from aerial imagery and field photo from June 2023) and has NDVI of 116 and dryland farming allowed		https://dnrweblink.state.co.us/dwr/0/d
18CR038K	61	128	175.91	11/9/2022	CREP	NE 1/4 of Sec. 8-Township 6 South-Range 47 West	19144-FP	127			
22EQ127K	63	249	327.90	11/9/2022	EQUIP	W1/2 of Sec. 5-T8S-R43W	13007-FP	132	No center pivot, powerlines are cut, well is capped in field inspection images, dryland farming allowed		https://dnrweblink.state.co.us/dwr/Doc
18CR039Y	65	119.48	161.53	11/14/2022	CREP	NE 1/4 of Sec. 32-Township 5 South-Range 46 West	9114-FP	130		Potentially	
22EQ132K	67	119.09	165.72	12/14/2022	EQUIP	NW/4 Sec.21-T6S-R49W	18968-FP	115			
22EQ133K	69	127.42	161.80	12/14/2022	EQUIP	SW/4 Sec. 21-T6S-R49W	19171-FP	140	The meter and structure removed per field inspection in Oct. 2023, dryland farming allowed		https://dnrweblink.state.co.us/dwr/Doc
23EQ140K	71	115	181.03	2/9/2023	EQUIP	Part of NWQ Sec. 24-T9S-R46W	15057-FP	128	No center pivot, dryland farming allowed		
23EQ141K	73	283.41	509.96	2/9/2023	EQUIP	Part of N/2 of Sec. 2-T9S-R45W, 96 acres in the NE/4 of Sec. 3 and the NW/4 of Sec. 2 and 88 acres in the NE/4 of Sec. 2, with 30 additional acres to be flooded in the NE/4 of Sec 2; T9S-R45W	9625-FP	122			

2024-11 SFFZ_NDVI_Summary_Table.pdf

Attachment 3: South Fork Focus Zone irrigated acreage retirement documentation submitted in support of December 16, 2024 Resolution

2024 Summary Table

RRWCD Contract	Report Page	Acres Retired per Contract	Acres from GIS (Legal Desc.)	Contract Date	Contract Type	Legal Description	Associated Well Permits	NDVI Mean (of Legal Desc)	Additional Information	Additional Follow Up?	Links to Relevant Field Inspection Images
23RP001K	75	237	238.87	2/9/2023	RAMP	A 120-acre circle in the SE 1/4 of Section 1 and a 130-acre circle in the NW 1/4 of Section 12, both in Township 9 South, Range 47 West of the 6th Principal Meridian	3786-FP	130			
18CR040K	77	480	699.14	2/17/2023	CREP	Part of Section 2, being 120 acres each in the NE/4, the SE/4 and the SW/4 and 120 acres in the SW/4 of Section 1, all in Township 6 South, Range 47 West, 6th P.M.	16986-FP, 16989	127			
18CR045K	79	108	159.85	2/18/2023	CREP	SE/4 Sec. 18-T6S-R48W	19413-FP	134		Potentially	
23EQ148Y	81	106	197.14	3/16/2023	EQIP	NW/4 Sec. 33-T3S-R42W	19764-FP	118			
23EQ142K	83	120	165.96	3/17/2023	EQIP	NW 1/4 Sec.29-Township 7 S-Range 47 W.	17427-FP	132		Potentially	
23EQ144K	85	200.54	498.03	3/21/2023	EQIP	150 acres in the SE/4 of Sec. 29 and 150 acres in the N/2 of Sec. 32, all in T6S-R44W.	10084-FP	120			
18CR044K	87	116	161.68	3/22/2023	CREP	Part of E 1/2 of NW 1/4 and W 1/2 of NE 1/4 of Section 8-Township 6 South-Range 45 West of the 6th Principal Meridian	21639-FP	128			
23RP002Y	89	30.67	199.32	4/6/2023	RAMP	Lots located in Sec.29-T5S-R44W	4104-FP	131	31 acres dried in the eastern part of the legal description, RAMP only dries up portions of land		
23EQ139K	91	240.54	566.67	4/7/2023	EQIP	Sec. 27-T8S-R45W	19355-FP, 19698	132		Potentially	
23EQ147K	93	80	159.99	4/7/2023	EQIP	Part SE1/4 Sec. 3-T11S-R47W-6th P.M.	33966-FP	124			
23EQ154Y	95	115	160.66	4/12/2023	EQIP	NE/4 Sec. 14-T3S-R43W	19763-FP	142	No center pivot, re-permitted to small capacity well, well pump downsized as seen in field inspection images, dryland farming allowed		https://dnrweblink.state.co.us/dwr/Doc
23EQ143K	97	120.66	159.82	4/13/2023	EQIP	SE 1/4 of Sec. 30-T10S-R46W	19299-FP	123			
23EQ150K	99	120	166.81	4/13/2023	EQIP	NE/4 Sec. 9-T10S-R46W	18699-FP-R	135	No center pivot, power meter removed, final permit deactivated, dryland farming allowed		https://dnrweblink.state.co.us/dwr/Doc
23EQ152K	101	120	165.55	4/13/2023	EQIP	NW/4 Sec. 3-T10S-R46W	16363-FP	142	No center pivot, power meter removed, power lines cut, final permit deactivated, dryland farming allowed		https://dnrweblink.state.co.us/dwr/Doc
23EQ151K	103	119	159.55	4/13/2023	EQIP	SE/4 Sec. 3-T10S-R46W	16365-FP	136	No center pivot, power meter removed as seen in permit images, final permit deactivated, dryland farming allowed		https://dnrweblink.state.co.us/dwr/Doc
23EQ149K	105	120	177.16	4/14/2023	EQIP	NW/4 Sec. 9-T10S-R46W	19903-FP	132	Power meter removed, dry land farming allowed, final permit deactivated, dryland farming allowed		https://dnrweblink.state.co.us/dwr/Doc
23EQ153K	107	119	150.60	4/14/2023	EQIP	NE/4 Sec. 3-T10S-R46W	16362-FP	140	No center pivot, power meter removed, final permit deactivated, dryland farming allowed		https://dnrweblink.state.co.us/dwr/Doc
23EQ155Y	109	157.5	321.54	4/25/2023	EQIP	Portions of E/2 of Sec. 23-T4S-R45W	9218-FP	144	field images show well head removal in Dec 2023, dryland farming allowed		https://dnrweblink.state.co.us/dwr/Doc
23RP006K	111	28.75	161.93	4/26/2023	RAMP	NE 1/4 of Sec. 14-T10S-R47W	17777-F	132	The outer tower of center pivot not in irrigation which accounts for the retired acreage		
23RP005K	113	34.44	321.14	4/26/2023	RAMP	Part of the SE 1/4 and part of the NE 1/4 of Sec. 13, all in T10S-R47W	15168-F	123			
23RP007K	115	32.21	161.49	4/26/2023	RAMP	SW 1/4 of Sec. 13-T10S-R47W	13824-FP	129			
23RP008K	117	37.3	158.66	4/26/2023	RAMP	NE/4 Sec. 24-T10S-R47W	11748-FP	128			
23RP009K	119	31.29	160.90	4/26/2023	RAMP	SW/4 Sec. 24-T10S-R47W	19490-FP	131	The outer tower of center pivot not in irrigation which accounts for the retired acreage		
23RP010K	121	30.91	162.44	4/26/2023	RAMP	NW/4 Sec. 30-T10S-R46W	19290-FP	131	The outer tower of center pivot not in irrigation which accounts for the retired acreage		
23EQ145K	123	67	150.98	4/28/2023	EQIP	NW/4 of Sec. 22-T7S-R44W	13526-FP	127	well capped in field inspection images, dryland farming allowed		https://dnrweblink.state.co.us/dwr/Doc
23EQ158Y	125	125.2	161.87	4/28/2023	EQIP	NW/4 Sec. 32-T5S-R46W	15838-FP	136	well disconnected in Jan 2024, dryland farming allowed		https://dnrweblink.state.co.us/dwr/Doc
23EQ167K	127	63.5	161.31	4/28/2023	EQIP	NE/4 Sec. 22-T11S-R49W	11629-FP	122			
23EQ168K	129	125	159.98	4/28/2023	EQIP	SE/4 Sec. 22-T11S-R49W	23708-FP, 23709	117			
23EQ159K	131	126.8	410.49	4/28/2023	EQIP	NE/4, E/2 of the NW/4 and the N/2 of the SE/4 all in Sec. 3-T6S-R47W	10559-FP	118			

2024-11 SFFZ_NDVI_Summary_Table.pdf

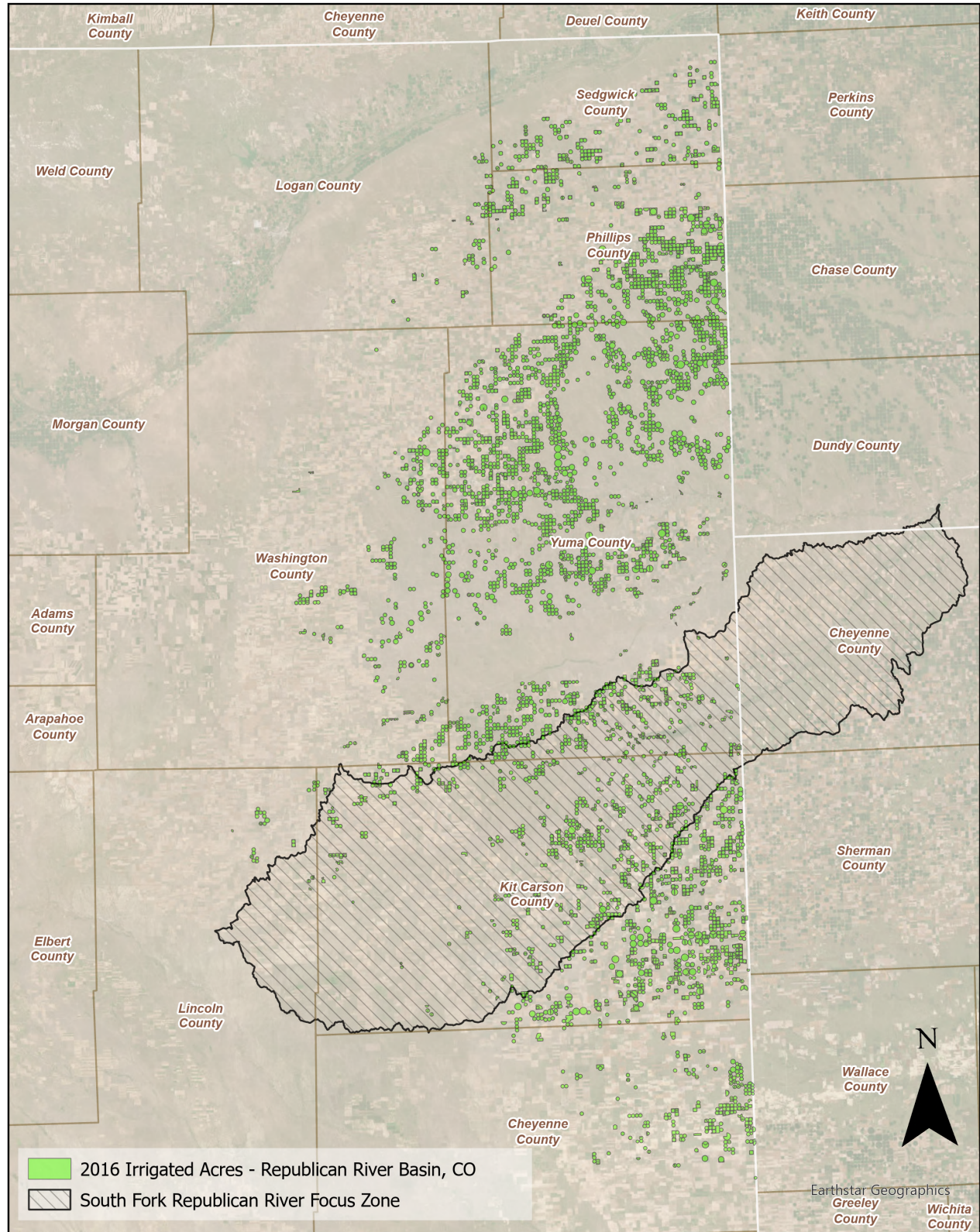
Attachment 3: South Fork Focus Zone irrigated acreage retirement documentation submitted in
support of December 16, 2024 Resolution

2024 Summary Table

RRWCD Contract	Report Page	Acres Retired per Contract	Acres from GIS (Legal Desc.)	Contract Date	Contract Type	Legal Description	Associated Well Permits	NDVI Mean (of Legal Desc)	Additional Information	Additional Follow Up?	Links to Relevant Field Inspection Images
23EQ146Y	133	146	320.55	5/2/2023	EQUIP	W/2 Sec. 28-T4S-R44W-6th P.M.	4744-FP-R	131	No center pivot, well capped, power meter removed, dryland farming allowed		https://dnrweblink.state.co.us/dwr/DocView.aspx?id=4187872&dbid=0
23EQ162K	135	112	162.22	5/2/2023	EQUIP	SW/4 Sec. 33-T9S-R45W	11141-FP	135	No center pivot, well capped, dryland farming allowed		https://dnrweblink.state.co.us/dwr/DocView.aspx?id=4187875&dbid=0
23EQ163K	137	80	166.58	5/2/2023	EQUIP	NE/4 Sec. 11-T9S-R45W	5658-FP	118			
23EQ164K	139	80	162.25	5/2/2023	EQUIP	SW/4 Sec. 11-T9S-R45W	5522-FP	118			
23EQ160K	141	234	320.10	5/5/2023	EQUIP	W/2 Sec. 2-T8S-R44W	3307-FP, 3988-FP	131	No center pivot, wells capped, dryland farming allowed		https://dnrweblink.state.co.us/dwr/DocView.aspx?id=4187872&dbid=0
23EQ161K	143	228	314.20	5/5/2023	EQUIP	N/2 Sec. 1-T8S-R44W	12425-FP	123			
23RP003Y	145	28	145.29	5/9/2023	RAMP	Circular area covering parts of the SE/4 NE/4 and NW/4 of Sec. 19-T5S-R46W	12626-FP	150	The outer tower of center pivot not in irrigation which accounts for the retired acreage		
23EQ156Y	147	126.2	160.74	5/12/2023	EQUIP	NE/4 Sec. 22-T5S-R46W	11579-FP	141		Potentially	
23EQ157Y	149	124.7	159.95	5/12/2023	EQUIP	SE/4 Sec. 22-T5S-R46W	11580-FP	135		Potentially	
23EQ173K	151	120.65	163.94	7/7/2023	EQUIP	Pt. NE/4 Sec. 30-T6S-R46W	16995-FP	125			
23EQ169K	153	120	160.00	11/1/2023	EQUIP	SE/4 Sec. 9-T10S-R47W	13921-F	123			
23EQ170K	155	117.95	148.84	11/1/2023	EQUIP	SW/4 Sec. 9-T10S-R47W	13947-FP	124			
23EQ165Y	157	124	321.47	11/28/2023	EQUIP	NE/4 and SW/4 Sec. 34-T4S-R44W	10547-FP	137	No center pivot, well capped, dryland farming allowed		https://dnrweblink.state.co.us/dwr/DocView.aspx?id=4187872&dbid=0
24RP013K	159	90.21	274.65	1/11/2024	RAMP	Portions of west half of Sec. 32-T8S-R45W	13234-F, 15765-F	124		Potentially	
24RP014K	161	120.69	159.78	1/11/2024	RAMP	Northwest Quarter Sec. 26-T9S-R46W	15979-FP, 16065-F	124			
24RP015Y	163	35.06	634.70	1/30/2024	RAMP	Portion of Sec. 12-T5S-R46W	12972-F	132	The outer tower of center pivot not in irrigation which accounts for the retired acreage		
24RP016K	165	39.59	316.63	2/7/2024	RAMP	Portions of the South half located in Sec. 8-T7S-R46W	18614-F	141	The outer tower of center pivot not in irrigation which accounts for the retired acreage		
24RP018Y	167	120	159.74	4/1/2024	RAMP	Southeast Quarter of Sec. 10-T4S-R43W	18613-FP	137		Potentially	
24RP019Y	169	56.52	54.46	4/1/2024	RAMP	A 23.3 acre circle in the NE/4 of the SE/4 and a 33.22 acre circle in the SE/4 of the SE/4 all in Southeast Quarter of Sec. 8-T4S-R43W	11482-FP, 9628-FP	149	The outer tower of center pivot not in irrigation which accounts for the retired acreage		
24EQ184K	171	360	475.90	4/12/2024	EQUIP	SW/4 of Sec. 4-T8SR46W and E/2 of Sec. 4-T8S-R46W	10171-FP	139		Potentially	
24EQ181L	173	120	160.62	4/15/2024	EQUIP	SW/4 of Sec. 24-T8S-R52W	15428-RFP, 1292-F	128			
24EQ182L	175	112.61	160.40	4/15/2024	EQUIP	NE/4 of Sec. 24-T8S-R52W	15429-RFP, 1543-F	128			
24EQ185K	177	162	320.64	4/26/2024	EQUIP	W/2 of Sec. 3-T8S-R46W	9355-FP	141		Potentially	
24EQ190K	179	119.63	160.00	5/15/2024	EQUIP	SE/4 Sec. 8-Township 9 South-Range 48 West	24413-FP, 18327-F	129		Potentially	

2024-11 SFFZ_NDVI_Summary_Table.pdf

Attachment 3: South Fork Focus Zone irrigated acreage retirement documentation submitted in support of December 16, 2024 Resolution



Repub_Irrig_2016.zip and SouthForkFocusZone.shp.zip

Attachment 3: South Fork Focus Zone irrigated acreage retirement documentation submitted in support of December 16, 2024 Resolution

Colorado SFFZ Dry-up Package 2024.xlsx

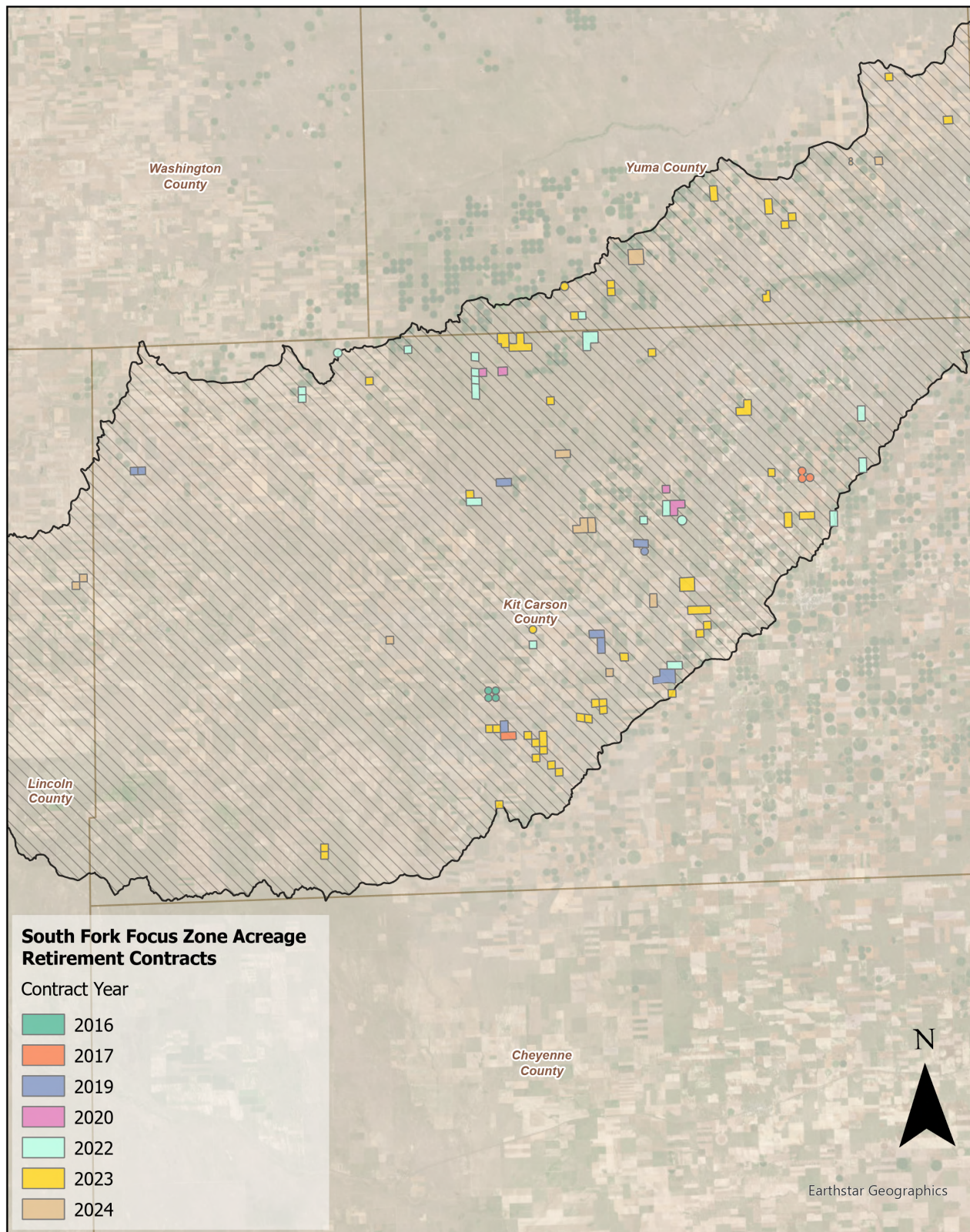
RRWCD Contract	Acres Retired per Contract	Legal description from Contract	Well Permit Number	Receipt Number	WDID
06CR267K	249	Three 130-acre circles in SE1/4, SW1/4 and NW1/4 of Section 24-T7S-R44W-6PM	15222-FP	9036344	4905302
06CR269K	108.9	Part of the N1/2 of Section 15, Township 10 South, Range 47 West 6th PM	13564-FP	9036213	4905153
06CR275K	124.4	NE 1/4 NE 1/4 Sec 15-T7S-R51W-6PM	15971-FP	9036387	4905436
06CR276K	124.4	NW 1/4 NW 1/4 Sec 15-T7S-R51W-6PM	10049-FP	9035862	4905438
170A108P	132.47	Rotation of any three of four 106.67 acre circles centered in each quarter Sec 33-T9S-R47W-6PM	9062-FP	0496381	4905236
170A109P	187.53	Rotation of any three of four 106.67 acre circles centered in each quarter Sec 33-T9S-R47W-6PM	11102-FP	9035981	4905737
18CR001K	244.25	S1/2 of N1/2 and N1/2 of S1/2 Sec 22-T7S-R47W-6PM	11287-FP	9035989	4905095
			15264-FP	9036347	4905836
			3906-FP	0455316A	4905363
			3907-FP	0455316B	4905365
			5776-FP	0455316C	4905364
			10656-FP	0455316D	4905366
18CR002K	511.83	W 1/2 of Sec. 28, E 1/2 of Sec. 29 and SW 1/4 of Sec 29 all in T-9S-R45W-6PM	10657-FP	9035950	4905439
18CR008K	130	Pt of NW 1/4 Section 16-T6S-47W-6PM	17575-FP	9036463	4905056
18CR009K	130	W 1/2 of NE 1/4, 20 ac. in W 1/2 of E 1/2 of NE 1/4 and 60 ac. in E 1/2 of NW 1/4 of Section 15-T6S-47W-6PM	18157-FP	9036511	4905057
18CR022K	126.35	SW 1/4 SEC 3 -- T6S-R48W	14868-FP	0441415	4905053
18CR023K	234.95	NW 1/4 Sect. 22 & SW 1/4 Sec. 15 all in T7SR43W-6PM	4680-FP	9035513	4905560
18CR031K	249	E/2 of Sec. 20-T6S-R47W	19228-FP	9036579	4905342
18CR032K	243.11	Part of SE/4 & SW/4 Sec. 29 T7S-R47W	15290-FP	9036354	4905588
18CR034K	127	SE/4 Sec. 17-T6S-R47W	17863-FP	9036484	4905136
18CR035K	127	NE/4 Sec. 17-T6S-R47W	17864-FP	9036486	4905137
18CR036K	156.2	A portion of circle with approximately 130 acres in the S1/2 of Sec. 2 and approximately 30 acres in the N1/2 of Sec. 11 all in T6S-R49W-6PM	14078-FP	9036246	4905769
18CR038K	128	NE 1/4 of Sec. 8-Township 6 South-Range 47 West	19144-FP	0241806	4905021
18CR039Y	119.48	NE 1/4 of Sec. 32-Township 5 South-Range 46 West	9114-FP	0527967	4906119
18CR040K	480	Part of Section 2, being 120 acres each in the NE/4, the SE/4 and the SW/4 and 120 acres in the SW/4 of Section 1, all in Township 6 South, Range 47 West, 6th P.M.	16986-FP	9036434	4905644
			16988-FP	9036436	4905647
			16989-FP	9036437	4905645
18CR044K	116	Part of E 1/2 of NW 1/4 and W 1/2 of NE 1/4 of Section 8-Township 6 South-Range 45 West of the 6th Principal Meridian	21639-FP	9036713	4906150
18CR045K	108	SE/4 Sec. 18-T6S-R48W	19413-FP	9036592	4905331
19EQ100P	113.7	Part of the SW1/4 & S1/2 of NW1/4 of Sec 10-T10S-R47W	11556-FP	9036014	4905152
19EQ101P	56.19	Land in the S1/2 Sec 10-T9S-R46W-6PM	6505-FP	9035704	4905670
19EQ102P	120	Land in the E1/2 Sec 15-T9S-R46W-6PM	4164-FP	9035471	4905038
19EQ103P	63.81	Land in the S1/2 Sec 10-T9S-R46W-6PM	3810-FP	9035411	4905669
19EQ104P	82	125-acre circle in the NE1/4 of Sec 18 and a total of 35 acres in two locations in the S1/2 of Sec7-T8S-R45W	17402-FP	9036458	4905890
20EQ105K	275.97	SE1/4 and NE1/4 Sec 33, NW1/4 Sec 34, NW 1/4 Sec 28, all in T7S-R45W-6PM	5135-FP	0383865B	4905425
20EQ106K	205.03	SE1/4 and NE 1/4 Sec 33, NW 1/4 Sec 34, NW 1/4 Sec 28, all in T7S-R45W-6PM	15267-FP	9036350	4905426
21EQ108K	120	NW 1/4 Sec 13-T9S-R47W-6PM	6989-FP	9035746	4905379
21EQ110K	91.3	Part of SW 1/4 and NW 1/4 Sec 34-T6S-R43W-6PM	10310-FP	9035911	4905096
22EQ127K	249	W1/2 of Sec. 5-T8S-R43W	13007-FP	9036179	4905797
22EQ128K	174	S/2 of Sec. 21-T9S-R45W	15944-RFP	9036385	4905258
22EQ132K	119.09	NW/4 Sec.21-T6S-R49W	18968-FP	0916982	4906022
22EQ133K	127.42	SW/4 Sec. 21-T6S-R49W	19171-FP	9036577	4906023
22EQ135K	112.37	NE/4 Sec. 6-T8S-R45W-6PM	4129-FP	9035461	4905550
22EQ136K	430	A 190 acre circle in Sec. 3-T8S-R45W and 120 acres in SW/4 and 120 acres in NW/4 Sec. 33-T7S-R45W	4150-FP	9035467	4905405
			16298-FP	9036412	4905551
22EQ137K	359.44	311 acres in the N1/2 and 45 acres in the N1/2 of the SW1/4 of Section 3, Township 6 South, Range 46 West and 4 acres in the SW1/4 of Section 33, Township 5 South, Range 46 West of the 6th P.M.	6978-FP	9035742	4905494
			6979-FP	9035743	4905493
23EQ139K	240.54	Sec. 27-T8S-R45W	19355-FP	9036586	4905697
23EQ140K	115	Part of NWQ Sec. 24-T9S-R46W	19698-FP	9036601	4905697
			15057-FP	9036337	4905039
23EQ141K	283.41	Part of N/2 of Sec. 2-T9S-R45W, 96 acres in the NE/4 of Sec. 3 and the NW/4 of Sec. 2 and 88 acres in the NE/4 of Sec. 2, with 30 additional acres to be flooded in the NE/4 of Sec 2; T9S-R45W	9625-FP	9035844	4905223
23EQ142K	120	NW 1/4 Sec.29-Township 7 S-Range 47 W.	17427-FP	0916975	4905587
23EQ143K	120.66	SE 1/4 of Sec. 30-T10S-R46W	19299-FP	9036584	4905237
23EQ144K	200.54	150 acres in the SE/4 of Sec. 29 and 150 acres in the N/2 of Sec. 32, all in T6S-R44W.	10084-FP	9035875	4905744
23EQ145K	67	NW/4 of Sec. 22-T7S-R44W	13526-FP	9036207	4905424
23EQ146Y	146	W/2 Sec. 28-T4S-R44W-6th P.M.	4744-FP-R	0504496	4905736
23EQ147K	80	Part SE1/4 Sec. 3-T11S-R47W-6th P.M.	33966-FP	0917107	4905633
23EQ148Y	106	NW/4 Sec. 33-T3S-R42W	19764-FP	9068659	4906072
23EQ149K	120	NW/4 Sec. 9-T10S-R46W	19903-FP	9036611	4905688
23EQ150K	120	NE/4 Sec. 9-T10S-R46W	18699-FP-R	9036561	4905687
23EQ151K	119	SE/4 Sec. 3-T10S-R46W	16365-FP	9036417	4905651
23EQ152K	120	NW/4 Sec. 3-T10S-R46W	16363-FP	9036416	4905682
23EQ153K	119	NE/4 Sec. 3-T10S-R46W	16362-FP	9036415	4905683
23EQ154Y	115	NE/4 Sec. 14-T3S-R43W	19763-FP	9068658	6505512
23EQ155Y	157.5	Portions of E/2 of Sec. 23-T4S-R45W	9218-FP	9066993	4906098
23EQ156Y	126.2	NE/4 Sec. 22-T5S-R46W	11579-FP	9067266	4905310
23EQ157Y	124.7	SE/4 Sec. 22-T5S-R46W	11580-FP	9067267	4905311
23EQ158Y	125.2	NW/4 Sec. 32-T5S-R46W	15838-FP	9068159	4905048
23EQ159K	126.8	NE/4, E/2 of the NW/4 and the N/2 of the SE/4 all in Sec. 3-T6S-R47W	10559-FP	9035940	524369

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Colorado SFFZ Dry-up Package 2024.xlsx

RRWCD Contract	Acres Retired per Contract	Legal description from Contract	Well Permit Number	Receipt Number	WDID
23EQ160K	234	W/2 Sec. 2-T8S-R44W	3307-FP	9035369	4905773
23EQ161K	228	N/2 Sec. 1-T8S-R44W	3988-FP	9035442	4905774
23EQ162K	112	SW/4 Sec. 33-T9S-R45W	12425-FP	0423430	4905772
23EQ163K	80	NE/4 Sec. 11-T9S-R45W	11141-FP	9035982	4905432
23EQ164K	80	SW/4 Sec. 11-T9S-R45W	5658-FP	9035615	4905256
23EQ165Y	124	NE/4 and SW/4 Sec. 34-T4S-R44W	5522-FP	9035601	4905255
23EQ167K	63.5	NE/4 Sec. 22-T11S-R49W	10547-FP	9067098	4905119
			11629-FP	9036043	4905090
23EQ168K	125	SE/4 Sec. 22-T11S-R49W	23708-FP	0094187A	4905068
23EQ169K	120	SE/4 Sec. 9-T10S-R47W	23709-FP	0094187B	4905069
23EQ170K	117.95	SW/4 Sec. 9-T10S-R47W	13921-F	9036234	4905316
23EQ173K	120.65	Pt. NE/4 Sec. 30-T6S-R46W	13947-FP	9036235	4905317
			16995-FP	9036442	4905372
23RP001K	237	A 120-acre circle in the SE 1/4 of Section 1 and a 130-acre circle in the NW 1/4 of Section 12, both in Township 9 South, Range 47 West of the 6th Principal Meridian	3786-FP	3606860	4905154
23RP002Y	30.67	Lots located in Sec.29-T5S-R44W	4104-FP	9066714	4905889
23RP003Y	28	Circular area covering parts of the SE/4 NE/4 and NW/4 of Sec. 19-T5S-R46W	12626-FP	9067568	4906122
23RP005K	34.44	Part of the SE 1/4 and part of the NE 1/4 of Sec. 13, all in T10S-R47W	15168-F	0916911	4905655
23RP006K	28.75	NE 1/4 of Sec. 14-T10S-R47W	17777-FP	9036475	4905653
23RP007K	32.21	SW 1/4 of Sec. 13-T10S-R47W	13824-FP	9036228	4905654
23RP008K	37.3	NE/4 Sec. 24-T10S-R47W	11748-FP	9036065	4905238
23RP009K	31.29	SW/4 Sec. 24-T10S-R47W	19490-FP	9036594	4905729
23RP010K	30.91	NW/4 Sec. 30-T10S-R46W	19290-FP	9036583	4905656
			12921-FP	9042473	4905518
24EQ181L	120	SW/4 of Sec. 24-T8S-R52W	15428-RFP	9042491	4905517
			15429-RFP	9042492	4905516
24EQ182L	112.61	NE/4 of Sec. 24-T8S-R52W	15430-RFP	9042493	4905657
24EQ184K	360	SW/4 of Sec. 4-T8SR46W and E/2 of Sec. 4-T8S-R46W	10171-FP	9035890	4905482
24EQ185K	162	W/2 of Sec. 3-T8S-R46W	9355-FP	9035822	4905483
			18327-F	9036529	4906043
24EQ190K	119.63	SE/4 Sec. 8-Township 9 South-Range 48 West	24413-FP	9036754	4906043
			15765-FP	10031402	4905222
24RP013K	90.21	Portions of west half of Sec. 32-T8S-R45W	13234-F	9036190	4905221
			15979-FP	10031399	4905672
24RP014K	120.69	Northwest Quarter Sec. 26-T9S-R46W	16065-FP	10031400	4905673
24RP015Y	35.06	Portion of Sec. 12-T5S-R46W	12972-FP	9067641	4905051
24RP016K	39.59	Portions of the South half located in Sec. 8-T7S-R46W	18614-FP	9036557	4905179
24RP018Y	120	Southeast Quarter of Sec. 10-T4S-R43W	18613-FP	9068476	4906079
			9628-FP	9067015	4906081
24RP019Y	56.52	A 23.3 acre circle in the NE/4 of the SE/4 and a 33.22 acre circle in the SE/4 of the SE/4 all in Southeast Quarter of Sec. 8-T4S-R43W	11482-FP	9067229	4906080
Total Acres Retire	12941.72				

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SFFZ_Dryup_Shapefile_2024.zip and SouthForkFocusZone.shp.zip