ROZA
IRRIGATION DISTRICT

# Board of Directors Special Meeting

Thursday, June 27th, 2024 – 9:00 A.M.

Basement board room - 125 S. 13th Street- Sunnyside, WA 9894

1. 2024 water supply and drought management.

2. Executive Session:
    a. Executive session pursuant to RCW 42.30.110(1)(i). Potential and pending litigation- State v. Acquavella.
    b. Executive session pursuant to RCW 42.30.110(2)(a)(iii). To evaluate legal risk of a proposed action.
    c. Executive session pursuant to RCW 42.30.110(1)(b). Selection of a site or the acquisition of real estate.

# Item #1

ROZA
IRRIGATION DISTRICT

To: Board of Directors

From: Scott Revell, District Manager

Date: June 27, 2024

Re: 2024 Drought Management Update

**Attachment**

1. Draft 48% Water Supply Operating Plan
2. Pump 1 Low Water Operations Diagram

**Background**

Staff are working on several issues simultaneously. USBR staff will be available by phone.

- **Mid-June Water Supply Forecast**-The forecast increased to 48% on June 17th (up from 47%) The low-end forecast is now 40% (up from 36%). Storage control began on June 14th. The next forecast will be issued on July 2nd.

- **June 11th Board discussion on the 47% Operating Plans-** The District has been running at 3.3 gpm/ac. since the re-start on May 31st. On June 11th the Board directed staff to run deliveries at 3.3 gpm/ac. through June 25th due to the comparatively cool temperatures prevailing at the time. The Board did not take any other action on the 47% plan.

  The Board considered, but took no action regarding delivery amounts from June 26th on because a mid-June forecast would be issued during the week of June 17th and a special Board meeting was then scheduled for June 27th to review the updated mid-June forecast information. The Board also discussed that the July 2nd forecast would be discussed at the July 9th Board meeting which would also allow time for further peak season delivery modifications before the peak heat arrived.

  During the latter part of the week of June 10-14 it looked like the delivery amount would need to be changed to 3.0 gpm/ac. on June 17th due to water usage patterns and the on-going drawdown of the Wasteway 5 Re-Regulation Reservoir.

  The Beam Road wildfire on June 15th, and resulting power outages, combined with weekend usage patterns eliminated the drawdown of the Wasteway 5 Re-Regulation

reservoir pool over the weekend of June 15th & 16th. Water orders on Friday June 14th were 51.5 CFS less than Thursday June 13th, which is not uncommon going into a weekend. 15 CFS of the reduced water orders was re-directed to refilling the Wasteway 5 Re-Regulation reservoir.

47% B Option-The 47% B plan featured these changes to the 47% version:

- ✓ A two week increase in early July to 4.0 gpm/ac.
- ✓ A two week increase in late July to 4.3 gpm/ac.
- ✓ The season ending on September 26th.

This 47% B version was crafted on June 10th after the June 11th staff report was issued on June 8th. The 47% B plan was displayed on the screen at the Board meeting but was not presented by staff in detail because the Board's review and extensive discussions were centered on the 47% plan and potential modifications.

- **Draft 48% Water Supply Operating Plan Features-** After the June 11th Board meeting the delivery-to-farms % assumption was revised from 90% to 93%, and the system efficiency assumption was revised from 85% to 80%. Both were done to match the conditions that were being observed. The net effects partially offset the positive increase in forecast supply to 48% from 47%.

  The Main Canal efficiency value used in the drought plans does not necessarily relate to what is happening in the field. The value is used to set a base value and that value is then fine-tuned with percentage of landowners taking water.

  Staff has adjusted the Main Canal efficiency in the 48% supply plan down 5 points from the 47% plan which was discussed at the June 11th Board meeting, in order to leave room for the adjustment to the percentage of landowners taking water.

  The percentage of landowners taking water is independent from and is not related to actual Main Canal efficiency. The actual Main Canal efficiency did not change because of the change in proration. The small changes that have been made in Main Canal flow have very little impact on Main Canal efficiency. Changes in air temperature do have a significant effect on Main Canal efficiency.

  **Draft 48% Plan**

  - ✓ 3.3 gpm/ac. through June
  - ✓ 3.6 gpm/ac. in the first 3 weeks of July and the first two weeks of August.
  - ✓ Includes a 10-day period in late July at 4.3 gpm/ac. (which can be moved forward or back if temperatures dictate-see page 3).
  - ✓ Includes an 8-day period in early Sept at 3.0 gpm/ac.
  - ✓ Runs the season to Sept 29th (which 21 days +/- early).
  - ✓ Includes a weekly breakdown rather than a two-week breakdown.

**2023 Drought Planning at 45% Supply-**The 2023 drought planning exercise at 45% water supply had a peak delivery amount of 3.3 gpm/ac from June 1st to August 15th. That amount was planned based on an early April prorationing date allowing for two shutdowns (14 and 10 days respectively) occurring. The 2024 season, with prorationing occurring on May 21st, did not allow for 24 total days off. The 2023 exercise also assumed 5,000-acre feet in leases, which is much less than the 11,680-acre feet which have been secured in 2024.

| Water Supply % | June 1 to 15 | June 16 to 30 | July 1 to 15 | July 16 to 31 | Aug 1 to 15 | Aug 16 to 31 | Sept 1 to 15 | Sept 16 to 30 | Oct 1 to 15 | End date |
|---|---|---|---|---|---|---|---|---|---|---|
| Days running | 15 | 15 | 15 | 16 | 15 | 16 | 15 | 15* | Varies | |
| 48% | 3.3 | 3.3 | 3.6 | 4.3 (22nd to 31st) | 3.6 (1st to 11th) | 3.3 (Begins on 12th) | 3.0 (1st to 8th) | 2.7 (Begins on 9th) | 0 | Sept 29 |
| 47% A | 3.6 | 3.6 | 3.6 | 4.0 | 4.0 | 3.6 | 2.4 | 2.7 | 2.7 | Oct 1 |
| 47% B | 3.6 | 3.6 | 4.0 | 4.3 | 4.0 | 3.6 | 2.7 | 2.7 | 0 | Sept 26 |
| 2023 Plan | 1.8 | 3.3 | 3.3 | 3.3 | 3.3 | 3.0 | 2.7 | 2.4 | 2.4 | Oct 1 |
| 2015 | 1.8 | 1.8 | 1.8 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | Oct 12* |

Note that the remaining bucket is getting smaller by the day and the operating plans are dated so that they can be matched to the amount remaining in the buck on the date of the plan. *Included an October water allocation.

**As stated in the June 11th staff report, staff reiterates that in an attempt to end the season with Roza's water allocation fully utilized, nearly any cushion or variability factor has been eliminated and actual usage patterns in the late season and variable canal efficiencies can still have a significant effect on how the remaining water allocation is used up and can affect the season end date.**

**Minimum Peak Season Flow vs. Season Duration-**In order to better plan flexible delivery amounts, staff is seeking direction on the minimum acceptable peak season delivery amounts during various temperature scenarios in severe drought years.

It is recognized that when temperatures approach 110 degrees for even a short duration and above, no amount of water is going to prevent crop damage.

| Temperature | Minimum if nighttime temps below 70 degrees | Minimum if nighttime temps above 70 degrees | 2023 Planning @45% Supply & w/ Oct. 2 season end (June 1 to Aug. 15) |
|---|---|---|---|
| 90 | ? | ? | 3.3 gpm/ac |
| 95 | ? | ? | 3.3 gpm/ac |
| 100 | ? | ? | 3.3 gpm/ac |
| 105+ | ? | ? | 3.3 gpm/ac |

AF diverted per day (w/ losses)
4.3 gpm/day = 1,615 AF/day
4.0 gpm/day = 1,482 AF/day
3.6 gpm/day = 1,354/AF day
3.3 gpm/day = 1,220 AF/day
3.0 gpm/day = 1,108 AF/day
2.7 gpm/day = 991 AF/day
2.1 gpm/day = 850 AF/day
1.8 gpm/day = 800 AF/day

The estimates of daily amounts of water diverted have changed somewhat since the 2023 planning exercise due to fine tuning the assumptions for the number of water users running at any one time and the canal efficiency estimates having both been revised since that time.

The September 30th target date in Roza's 2016, 2018 and 2023 drought planning exercises was based on various crop needs (grapes, hops, apples, etc.) rather than in attempt to bridge the irrigation season to the new water year on October 1st.

To staff's knowledge the District has formulated the priorities for water delivery amounts and season duration in drought years based on the number of affected acres by crop type rather than the value of crops affected, and has operated on the principle of attempting to provide the greatest good for the greatest number of acres, while simultaneously attempting to limit/reduce the negative impacts to those adversely affected by the prioritization.

As of the most recent crop census in 2021, just over 50% of the 72,517 irrigable assessed acres in the District are planted in crops which are harvested in mid-September and later and/or need late season water. That figure includes 65% of the apples and all of the blueberries which, while are mostly harvested earlier require late season water to keep the bushes alive. The 2021 crop census does not show the fallowing or removal of hops/grapes/apples which have occurred since due to market (or other) reasons.

- **October Water Allocation**-The 2025 water year will begin on October 1, 2024. If there is an October water allocation it will be known in the second half of September. Once the October allocation is known, the October water can be diverted and used in late September 2024. The full October entitlement is 22,500 AF. October allocations in prior drought years:
  - 2015 47% of the October entitlement.
  - 2005 0%
  - 2001 No October forecast requested or performed by USBR (likely because the Roza season ended on September 24th)

- **Leased/purchased Supplemental Water Update**- The draft June 27th water budget and operational plan have been built using 11,680-acre feet. Transfers are being or have been processed for 11,680-acre feet through the state department of Ecology for:
  - ✓ 6,500-acre feet from the Selah Moxee Irrigation District
  - ✓ 4,336-acre feet from SVID (changes slightly with the water supply forecast)
  - ✓ 417 feet from New Suncadia (was 742.8 AF) (in Kittitas County)
  - ✓ 284.82-acre feet from Mack Creek (in Kittitas County)
  - ✓ 142-acre feet from SC Aggregate (In Kittitas County)

  11,680 Total acre feet to date

  The increase will have a slight effect on the amount of water leased from SVID. The increase is reflected in the draft 48% operating plan.

  SMID and Roza staff continue to work with Ecology and USBR on the maximum allowable transfer amount from the SMID water bank.

- **Pump 1 & Pomona Area Gravity Deliveries during Flip Flop Operations-** During drought years there are times when power is not being generated at Roza Power Plant in April and May, and times from August through October during "Flip-Flop" operations (when water supply is shifted from the Yakima mainstem reservoirs to the Naches River arm reservoirs to aid spawning salmon). The flow threshold at Roza dam for generation of power is 1,300 CFS in April and May, whereas after June 1st the threshold for generating power is 500 CFS.

Drought caused low flow canal operations in the spring can occur before prorationing begins, and in this situation additional water can be diverted at Roza dam to operate Pump 1, and then be returned to the river at Wasteway 2 in Terrace Heights without going through the gate at milepost 11.0, which is the measuring point for Roza's diversions.

When power is not generated during the Flip-Flop period, the system is on "storage control" and Roza theoretically has the ability to divert additional water to operate Pump 1 without drawing down its allocation faster. This condition is uncommon and likely would occur by mid-September. Historical flows in drought resulted in little to no power generation at Roza Power Plant during fall Flip-Flop with typically no power generation after about September 9th.

Availability of water will depend on prevailing conditions in the upper Yakima storage reservoirs. The sum storage in Keechelus, Kachess and Cle Elum Reservoirs in 2024 continues to be the third lowest on record after 1994 and 2005. USBR's water budgeting may not show enough water in the upper Yakima reservoirs.

The other constraint is the flow that USBR's river operators can pass at the Easton Dam and Cle Elum control points and the limited capacity of KRD's 1146 wasteway, which is used to convey a portion of Roza's water back to the river from the KRD Main Canal during Flip-Flop.

Staff has also examined the time and cost involved with installing a pressure switch at Pump 1 during the 2024 irrigation season, which would allow the emergency float to be chained up so that the pump could run at lower flows. The cost should be less than $3,000 for the switch alone. The pressure switch will allow float to be chained up as had been done during low flow conditions in prior years. Previously, a switch with SCADA, a control cabinet and remote shutoff was examined which costs $250K and had a 6+ month lead time.

There are seven delivery points on the Main Canal from milepost 5.5 to 7.8. The delivery located at mile post 7.4 serves an orchard and it does not operate properly at very low flows. Some water is delivered, but about 60% of the water as would be expected, which may be due to an on-farm delivery system design flaw. The other gravity deliveries in the Pomona area have operated acceptably down to 400 CFS.

The minimum flow to operate Pump 1 in its current configuration is 550 CCFS +/-. There are no days currently planned in September to operate at 550 CFS or greater.

A "vortex breaker" will also be installed at Pump 1 forebay next winter. A similar device was installed at Pump 14 in the early 2000s to interrupt the formation of

vortices at the pump intake and it has worked well, although each situation is different, and there is no guarantee that it will be as effective at Pump 1. The net gain, in terms of the reduction in flow that Pump 1 will be able to operate at will not be known until it operates in 2025, but it should help.

Staff does not see a benefit to installing a temporary check at Pump 1 for its intake or to build head pressure for the gravity turnout at the MP 7.4 delivery.

- **KRD/Roza Joint Board meeting(s)-**The next meeting date has not been scheduled and it being planned for mid-July.

- **Coordination with Ecology staff in Yakima and Olympia-**Caroline Mellor is Ecology's new Drought Coordinator. She and several staff from Ecology headquarters in Olympia will tour Roza and the basin on July 11th.

- **Coordination with Legislators**-Staff continues to be in continual communication with legislators to inform them of what we know about water supply, financial assistance and the steps we are (and have been taking) to manage the supply during the 2024 season and to be ready if the drought extends into 2025.

  The primary issue for the 2025 legislative session will be drought relief funding for the next drought and ensuring that the funding is available in a timely manner under administrative rules which reward the districts/entities which have prepared financially before the next drought occurs.

- **Drought Fund Status & Grant Applications-**Staff has been working on multiple sources of grant funds. Reimbursement for drought related staff time will be included wherever possible. The drought has absorbed the majority of staff time for the Manager and Policy Director in 2024.

  - ✓ $1,037,554 has been requested from Ecology. There are a couple of variables regarding actual diversions of leased/purchased water which could reduce the final amount proportionally.

  - ✓ $200,000 was appropriated by Legislature through the Department of Commerce. We are waiting for information from the staff at Commerce.

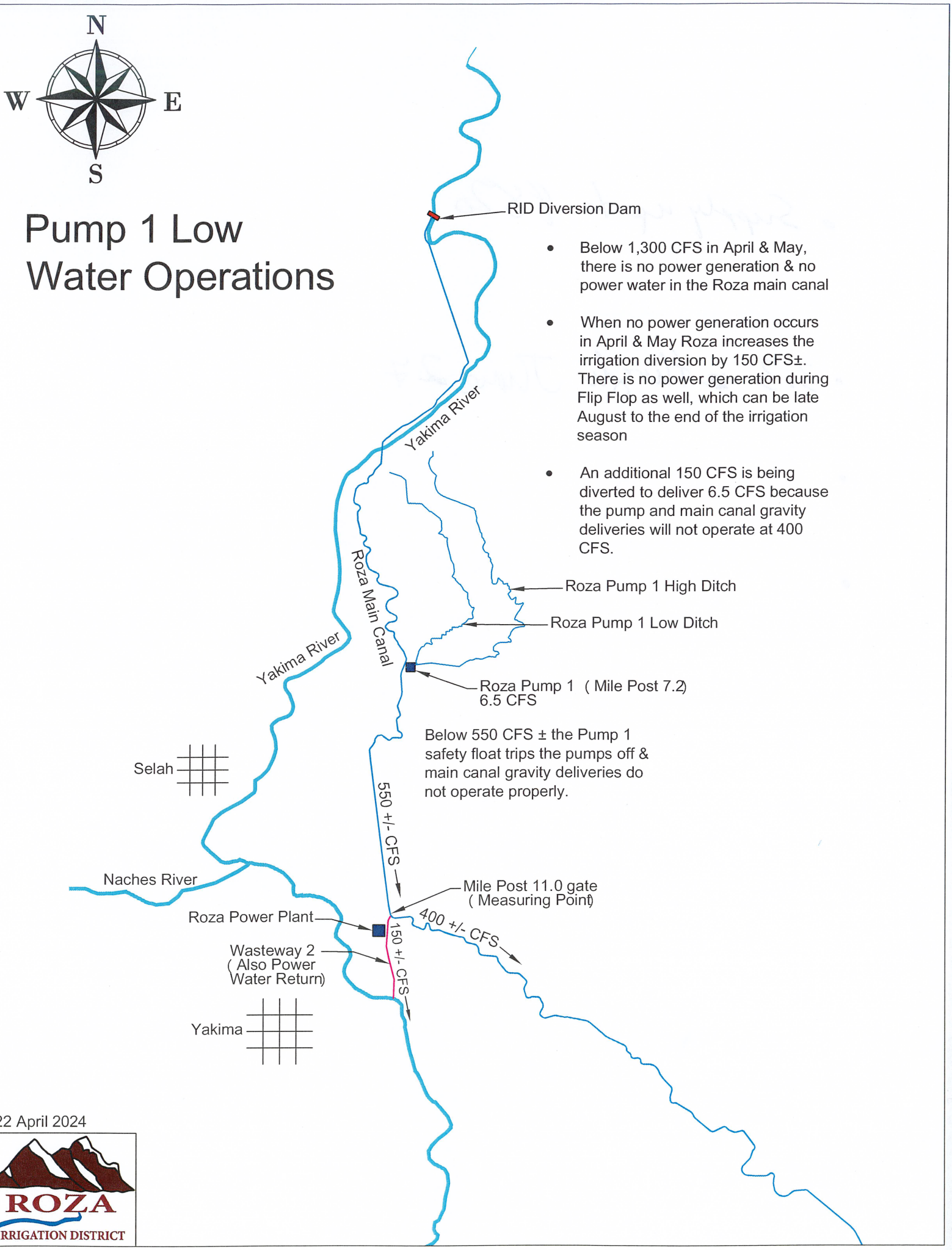
  - ✓ $3,000,000+ has been requested from USBR. A decision is likely 60+ days away.

# Daily Proration - With 11,680 ac-ft Leased Water

| Percent Proration | 48% - A | May 21 Prorationing, June 14 Storage Control | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Proration Volume (ac-ft) | 113,881 | | | | | | | | | | | | | | | | | | |
| | June | | July | | | | | August | | | | | September | | | | | October | Season Total |
| | 17-27 | 28-30 | 1-7 | 8-14 | 15-21 | 22-28 | 29-31 | 1-4 | 5-11 | 12-18 | 19-25 | 26-31 | 1 | 2-8 | 9-15 | 16-22 | 23-30 | | |
| Calendar days of Season | 11 | 3 | 7 | 7 | 7 | 7 | 3 | 4 | 7 | 7 | 7 | 6 | 1 | 7 | 7 | 7 | 8 | 20 | 126 |
| Days Running | 1 | 3 | 7 | 7 | 7 | 7 | 3 | 4 | 7 | 7 | 7 | 6 | 1 | 7 | 7 | 7 | 7 | 0 | 95 |
| District Proration (Points/40 acres) | 15 | 15 | 16 | 16 | 16 | 18 | 18 | 16 | 16 | 15 | 15 | 15 | 14 | 14 | 13 | 13 | 13 | 0 | |
| District Proration (gpm/acre) | 3.3 | 3.3 | 3.6 | 3.6 | 3.6 | 4.3 | 4.3 | 3.6 | 3.6 | 3.3 | 3.3 | 3.3 | 3.0 | 3.0 | 2.7 | 2.7 | 2.7 | 0.0 | |
| Delivered to Farms for no. of days running (acre-ft/acre) | 0.01 | 0.04 | 0.11 | 0.11 | 0.11 | 0.13 | 0.06 | 0.06 | 0.11 | 0.10 | 0.10 | 0.09 | 0.01 | 0.09 | 0.08 | 0.08 | 0.08 | 0.00 | |
| Estimated Percentage of District Lands Receiving water at a given moment. | 89% | 94% | 94% | 94% | 94% | 94% | 94% | 94% | 94% | 94% | 94% | 92% | 90% | 85% | 80% | 70% | 70% | 70% | |
| Delivered to Farms (acre-ft) | 931 | 2,949 | 7,580 | 7,580 | 7,580 | 9,045 | 3,876 | 4,332 | 7,580 | 6,881 | 6,881 | 5,772 | 849 | 5,610 | 4,725 | 4,134 | 4,134 | 0 | 90,439 |
| Diverted to District (ac-ft) | 1,163 | 3,686 | 9,475 | 9,475 | 9,475 | 11,306 | 4,846 | 5,414 | 9,475 | 8,601 | 8,601 | 7,215 | 1,061 | 7,013 | 5,906 | 5,512 | 5,512 | 0 | 113,737 |
| Canal Flow at MP 11.0 (cfs) | 588 | 621 | 684 | 684 | 684 | 816 | 816 | 684 | 684 | 621 | 621 | 607 | 536 | 506 | 426 | 398 | 398 | 0 | |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2015 Averange | 462 | 601 | 598 | 603 | 615 | 621 | 627 | 637 | 625 | 607 | 597 | 586 | 581 | 564 | 548 | 517 | 541 | 458 |
| 2019 Average | 628 | 605 | 636 | 691 | 687 | 756 | 787 | 793 | 814 | 695 | 723 | 716 | 659 | 648 | 537 | 431 | 418 | 415 |
| 2021 Average | 893 | 1,037 | 1,041 | 980 | 929 | 882 | 871 | 876 | 803 | 813 | 670 | 687 | 691 | 640 | 568 | 402 | 402 | 408 |
| 2022 Average | 625 | 830 | 823 | 839 | 925 | 984 | 1,045 | 991 | 918 | 894 | 871 | 774 | 808 | 730 | 622 | 461 | 476 | 468 |
| Average 2019 - 2022 | 715 | 824 | 833 | 837 | 847 | 874 | 901 | 886 | 845 | 801 | 755 | 726 | 719 | 673 | 576 | 431 | 432 | |

27-Jun-24


N
W
E
S
Pump 1 Low Water Operations
RID Diversion Dam
Below 1,300 CFS in April & May, there is no power generation & no power water in the Roza main canal
When no power generation occurs in April & May Roza increases the irrigation diversion by 150 CFS±. There is no power generation during Flip Flop as well, which can be late August to the end of the irrigation season
An additional 150 CFS is being diverted to deliver 6.5 CFS because the pump and main canal gravity deliveries will not operate at 400 CFS.
Yakima River
Roza Main Canal
Roza Pump 1 High Ditch
Roza Pump 1 Low Ditch
Yakima River
Roza Pump 1 ( Mile Post 7.2)
6.5 CFS
Below 550 CFS ± the Pump 1 safety float trips the pumps off & main canal gravity deliveries do not operate properly.
Selah
550 +/- CFS
Naches River
Mile Post 11.0 gate
( Measuring Point)
Roza Power Plant
400 +/- CFS
150 +/- CFS
Wasteway 2
( Also Power
Water Return)
Yakima
22 April 2024
ROZA
IRRIGATION DISTRICT