

From: White, Molly@DWR <Molly.White@water.ca.gov>
Sent: Wednesday, September 28, 2022 7:55 PM
To: Ekdahl, Erik@Waterboards
Cc: Foresman, Erin@Waterboards; Riddle, Diane@Waterboards; Frazier, Scott@Waterboards; Hunt, Thaddeus@Waterboards; Holland, Matthew@Waterboards; Leahy, Tina@Waterboards; Heinrich, Dana@Waterboards; Aufdemberge, Amy L; White, Kristin N.; Dave Mooney; Leahigh, John@DWR; Mizell, Tripp (James)@DWR; Fock, Anna@DWR; Nickels, Adam M; Hinojosa, Tracy@DWR
Subject: Electronic Transmittal: Report on Hydrologic Forecasting Improvements and Operations Outlook for TUC Orders Conditions 3 & 5
Attachments: TUCO_Condition5_Hydrology_Compliance_Sheet 9_28_2022.pdf; TUCO Cond 3 and 5 letter (9-28-22) final.pdf
Follow Up Flag: Follow up
Flag Status: Flagged

EXTERNAL:

Good evening Erik -

Consistent with the February 15, 2022 and April 4, 2022 Temporary Urgent Change Orders (TUCOs) granted by the State Water Resources Control Board (SWRCB) to the U.S. Bureau of Reclamation (Reclamation) and the California Department of Water Resources (DWR), and in compliance with Condition 3 and Condition 5 of those Orders (respectively), DWR and Reclamation hereby submit this report and Operations Outlook.

This Operations Outlook will also be posted to DWR's website under the Hydroclimate and Water Supply tab on DWR's Drought Preparedness web page.

Please contact me if you have questions.

Molly

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Molly White, P.E.  
CA Department of Water Resources  
SWP Water Operations Manager  
Office: 916-574-2722  
Cell: 916-471-8038

## 2022 Operations Outlook (based on September projections)

**Accretions / Depletions (Condition 5b.)**

| Values in TAF             | April | May | June | July | August | September |
|---------------------------|-------|-----|------|------|--------|-----------|
| Sacramento Valley         | 147   | 27  | -62  | -115 | -89    | 20        |
| Net Delta Consumptive Use | 80    | 111 | 150  | 223  | 233    | 147       |

Note: Jun-Aug Sac Valley values are negative to represent Depletion

**Deliveries (Condition 5c.&5d.)**

| Values in TAF                                                                                                                   | April  | May    | June    | July    | August        | September     | Basis of Water Right or Contractual Agreement                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------|--------|--------|---------|---------|---------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SWP - Feather River Service Area                                                                                                | 32     | 120    | 113     | 130     | 85            | 36            | A005630, A014443, Feather River Settlement Agreements                                                                                                                                                                                                    |
| SWP - North of Delta Contract Deliveries                                                                                        | 0      | 1      | 3       | 2       | 4             | 1             | A016950, A016952, A017514A, A021443                                                                                                                                                                                                                      |
| SWP - South of Delta Contract Deliveries                                                                                        | 42     | 38     | 38      | 41      | 77            | 49            | A005630, A014443, A014445A, A017512, A025435, A025511, A025988, A026058                                                                                                                                                                                  |
| CVP - Settlement Contractors                                                                                                    | 31.646 | 53.7   | 52.9    | 60.5    | 49.7          | 33.8          | This is comprised of 75% of the Exhibit A quantities listed in the Settlement Contracts. It doesn't include the small Short Form Settlement Contracts. However, the Short Form Contracts only represent approximately 1.4% of the SRSC water quantities. |
| CVP- Sacramento River Agricultural Water Service Contractors                                                                    | 3      | 7      | 9       | 12      | 7             | 4             | Water used by these contractors is part of the 75% allocated to the Settlement Contractors (allocation to NOD Water Service Ag Contractors is 0%.)                                                                                                       |
| CVP- Sacramento River Municipal and Industrial Contractors                                                                      | 0.997  | 1.285  | 1.948   | 2.357   | 1.545         | 1.265         | This includes the City of Redding's M&I Settlement Contract water and the McConnell Foundation and Centerville CSD's exchange water.                                                                                                                     |
| CVP- American River Municipal and Industrial Contractors                                                                        | 0.23   | 0.422  | 0.412   | 0.841   | 0.816         | 0             | PHS for SMUD. Allocation to ARD CVP M&I Contractors is zero.                                                                                                                                                                                             |
| CVP - Contra Costa Water District                                                                                               | 4.762  | 6.316  | 3.122   | 4.038   | 4.585         | 8.722         | CVP M&I estimated scheduled diversions.                                                                                                                                                                                                                  |
| CVP - North of Delta Refuges                                                                                                    | 0.940  | 2.485  | 5.541   | 4.050   | 2.400         | 8.900         | Includes Water to be Exchanged with DWR for Gray Lodge.                                                                                                                                                                                                  |
| CVP - Exchange Contractors                                                                                                      | 34.072 | 72.907 | 102.405 | 118.825 | 101.347       | 54.432        | Includes water being transferred to other districts, transfers are based on consumptive use reductions.                                                                                                                                                  |
| CVP - South of Delta Agricultural Water Service Contractors                                                                     | 0      | 0      | 0       | 0       | 0             | 0             | Allocation to SOD Water Service Ag Contractors is 0%.                                                                                                                                                                                                    |
| CVP - South of Delta Municipal and Industrial Service Contractors                                                               | 2      | 3      | 6.676   | 9.842   | 12.786        | 6.819         | Public Health and Safety Water only, consistent with M&I shortage policy                                                                                                                                                                                 |
| CVP - South of Delta Refuges                                                                                                    | 4.718  | 5.115  | 12.792  | 4.176   | 3.843         | 42.495        | Refuge Water Supply Contract: 01WC201756, 01WC201758, 01WC201754                                                                                                                                                                                         |
| CVP - OID & SSJID (Stanislaus Basin) Water Right holders                                                                        | 50     | 65     | 72      | 81      | Not Reporting | Not Reporting | 1988 Operations Agreement                                                                                                                                                                                                                                |
| CVP - New Melones East Side Division Water Service Contractors (Stockton East, Central San Joaquin Water Conservation District) | 0      | 0      | 0       | 0       | 0             | 0             | Per Eastside Division Shortage Policy, Contractors' allocation is zero.                                                                                                                                                                                  |
| CVP Friant Unit Class I                                                                                                         | 4.138  | 6.775  | 9       | 15      | 54            | 37            | Friant allocation went up in late July from 20% to 30%.                                                                                                                                                                                                  |

**Delta Flows (Condition 5b.)**

| Values in cfs or TAF            | April | May  | June | July  | August | September |
|---------------------------------|-------|------|------|-------|--------|-----------|
| Delta Inflow at Freepoint (cfs) | 8282  | 7485 | 9140 | 11346 | 9798   | 9183      |
| Net Delta Outflow Index (cfs)   | 7295  | 5682 | 6640 | 5796  | 3674   | 4209      |
| SJR at Vernalis Flow (cfs)      | 944   | 719  | 707  | 270   | 185    | 303       |
| CVP Export (TAF)                | 54    | 56   | 54   | 149   | 167    | 141       |
| SWP Export (TAF)                | 36    | 32   | 17   | 15    | 14     | 43        |

**Transfers (Condition 5e.)**

| Values in TAF          | April | May | June | July | August | September |
|------------------------|-------|-----|------|------|--------|-----------|
| NOD to SOD (estimated) | N/A   | N/A | N/A  | 31   | 36     | 13        |

**Reservoir Inflow (Condition 5a.)**

| Values in TAF | April | May | June | July | August | September |
|---------------|-------|-----|------|------|--------|-----------|
| Trinity       | 62    | 23  | 32   | 11   | 6      | 6         |
| Whiskeytown   | 58    | 8   | 6    | 2    | 2      | 2         |
| Shasta        | 252   | 175 | 177  | 150  | 144    | 142       |
| Folsom        | 256   | 79  | 111  | 89   | 87     | 80        |
| New Melones   | 74    | 25  | 46   | 17   | 19     | 39        |
| Oroville      | 341   | 233 | 142  | 149  | 149    | 62        |

**Reservoir Releases (Condition 5a.)**

| Values in TAF                    | April | May | June | July | August | September |
|----------------------------------|-------|-----|------|------|--------|-----------|
| Trinity Release to Trinity River | 79    | 67  | 28   | 59   | 61     | 59        |
| Carr Tunnel diversion            | 25    | 16  | 24   | 31   | 27     | 11        |
| Whiskeytown to Clear Creek       | 12    | 12  | 12   | 9    | 9      | 9         |
| Spring Creek Tunnel diversion    | 8     | 10  | 18   | 22   | 22     | 4         |
| Shasta Release to Sac River      | 194   | 277 | 242  | 201  | 281    | 249       |
| Folsom Release to American River | 69    | 64  | 152  | 262  | 214    | 141       |
| New Melones to Stanislaus River  | 27    | 25  | 49   | 18   | 15     | 14        |
| Oroville                         | 78    | 119 | 202  | 252  | 189    | 127       |

**Reservoir End-of-Month Storage (Condition 5a.)**

| Values in TAF      | April | May  | June | July | August | September |
|--------------------|-------|------|------|------|--------|-----------|
| Trinity            | 766   | 693  | 716  | 664  | 605    | 551       |
| Shasta             | 1808  | 1646 | 1777 | 1683 | 1590   | 1507      |
| Folsom             | 769   | 669  | 807  | 591  | 442    | 341       |
| New Melones        | 922   | 831  | 784  | 711  | 641    | 615       |
| Oroville           | 1907  | 1914 | 1722 | 1449 | 1312   | 1223      |
| San Luis Reservoir | 948   | 920  | 797  | 646  | 570    | 504       |

**Monthly COA Balances (Condition 5f.)**

| Values in TAF   | April | May | June | July | August | September |
|-----------------|-------|-----|------|------|--------|-----------|
| Monthly Balance | 216   | 160 | 95   | 36   | 19     | 17        |

Does not include adjustment for New Melones

**San Luis Reservoir**

| Values in TAF    | April | May | June | July | August | September |
|------------------|-------|-----|------|------|--------|-----------|
| Total Pumping    | 48    | 6   | 0    | 0    | 17     | 108       |
| Total Generation | 4     | 26  | 117  | 134  | 78     | 70        |



DEPARTMENT OF WATER RESOURCES  
Division of Operations and Maintenance  
3310 El Camino Avenue, Suite 300  
Sacramento, California 95821



— BUREAU OF —  
RECLAMATION

BUREAU OF RECLAMATION  
Central Valley Operations Office  
3310 El Camino Avenue, Suite 300  
Sacramento, California 95821

Mr. Erik Ekdahl  
State Water Resources Control Board  
1001 I Street  
Sacramento, California 95814

Re: Condition 3 of the February 15, 2022 Temporary Urgency Change Order and  
Condition 5 of the April 4, 2022 Temporary Urgency Change Order

Dear Mr. Ekdahl:

Consistent with the February 15, 2022, Temporary Urgency Change Order (TUCO) by the State Water Resources Control Board (SWRCB) issued to the U.S. Bureau of Reclamation (Reclamation) and the California Department of Water Resources (DWR), and in compliance with Condition 3 of the TUCO, DWR and Reclamation hereby submit this report by the State Water Project (SWP) and the Central Valley Project (CVP), also collectively referred to as Projects.

Condition 3 specifically requires DWR and Reclamation to identify and implement needed improvements to forecast methods to avoid significant over- or under- estimates of available water supplies and provide updates to the SWRCB on these efforts along with updates on current hydrologic and operational forecasts for the water year on a monthly basis starting in April of 2022 and continuing until the drought emergency is over.

Condition 3 also requires DWR and Reclamation to submit in writing monthly hydrologic and operational forecasts and include information on forecasted inflows; reservoir releases; water supply deliveries; reservoir storage levels; any Coordinated Operations Agreement debts; planned water transfers, forbearance agreement actions, exchanges, and other actions of this nature; and other relevant information that may be requested by the SWRCB's Executive Director to inform future drought-related decision making.

In this letter, the Projects provide updates on current hydrologic and operational forecasts for the water year, as well as information on planned water transfers, forbearance

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and Condition 5 of the April 4, 2022 Temporary Urgency Change Order

agreement actions, and exchanges. The attached table, prepared in response to Condition 5 of the latest TUCO, issued April 4, 2022, includes the information on forecasted inflows; reservoir releases; water supply deliveries; reservoir storage levels; and Coordinated Operations Agreement debts.

## Forecasting Improvements

### *Bulletin 120 Improvements*

The Snow Surveys and Water Supply Forecasting (SSWSF) team has continued with a variety of forecast improvement projects. Two of the areas of focus this summer for forecast improvements have been improving late spring Bulletin 120 forecasts and the expansion of the iSnobal model to more watersheds. Additionally, DWR continues to improve its data collection efforts, which are foundational to all forecast improvement projects. In particular, DWR is focused on improving and upgrading its Statewide Monitoring Network stations as well as expanding its ASO data collection efforts.

### *Improving Late Season Bulletin 120 Forecasts*

Historically, late spring runoff forecasts are influenced by variable weather and hydrologic conditions that can either hasten snow melt rates or see an increase in the snowpack due to late season storms. As California's climate experiences greater inter-seasonal climate variability, runoff volumes are driven by both warm and dry and cold and wet cycles within the same seasonal period, creating more uncertainty in late season forecasts. To address this, the SSWSF team is developing a constant exceedance forecast methodology to assist in adjusting forecasts as conditions vary.

### *iSnobal Snow Hydrology Model*

iSnobal is a coupled energy and mass-balance model that is integral to DWR's Aerial Remote Sensing of Snow (ARSS) program. iSnobal uses ASO data to simulate the development and melting of the seasonal snowcover in the Bulletin 120 watersheds. DWR's development and integration of the iSnobal model is supported by the United States Department of Agriculture's Agricultural Research Service (USDA-ARS) in Boise, ID as well as through a collaboration with Airborne Snow Observatories, Inc. In late 2021, DWR received iSnobal models for a couple of watersheds from the USDA-ARS who trained DWR staff on the operation and development of the model. This past summer, the DWR team developed new iSnobal models for several watersheds and have made progress on creating a process to have these models run on a daily time step utilizing a mixture of available data with the core updates coming after DWR receives new ASO data.

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and Condition 5 of the April 4, 2022 Temporary Urgency Change Order

### *Airborne Snow Observatory (ASO)*

DWR, through its contractor Airborne Snow Observatories, Inc., had completed snow-free data acquisitions in the Yuba, Truckee, and Kern River watersheds. In the coming months, snow-free data flights will occur over the American River watershed and the watersheds that contribute inflow to Lake Shasta (Upper Sacramento, McCloud, and Pit Rivers). Wildfire activity has delayed these flights.

### *Statewide Monitoring Network (SMN) Upgrades*

The SMN Unit is in the midst of a multi-year effort to upgrade its hydrometeorological data collection stations, which are located throughout the state and directly support DWR river and water supply forecasting efforts. Besides upgrading sensors with more state-of-the-art technology, a significant effort is going into replacing the aging infrastructure for these stations. The towers, poles, and buildings that house the sensor equipment are decades old and increasingly in danger of failure when subjected to the harsh conditions experienced in the Sierra Nevada during the winter. DWR has identified a structural solution engineered to withstand extreme wind events while also making it safer for DWR staff to repair and maintain equipment that is typically 20 to 30 feet off the ground. This summer, DWR worked with the U.S. Forest Service and National Parks Service to begin environmental and cultural analyses and surveys at SMN station locations to obtain permits to install these new structures. Several sites are in progress with more planned in the coming year. Construction of these new structures is expected to begin next summer.

### Projected Hydrology and Runoff

The DWR's Hydrology and Flood Operations Branch within the Division of Flood Management produces estimates of water year runoff, or the water supply index (WSI), for the major watersheds of the Sacramento and San Joaquin River basins. The WSI forecast is a statistically based forecast of Water Year runoff for each major river basin in the Sacramento and San Joaquin valleys (Sacramento, Feather, Yuba, American, Stanislaus, Tuolumne, Merced, and San Joaquin). The runoff forecasts are produced at the beginning of the month from December through May.

For the Sacramento River Valley Type Index (SVI), the water year index (based on the 50% exceedance forecast) was 4.5, which places the SVI in the critical water year type. For the San Joaquin Valley Water Year Type Index (SJI), the water year index (based on the 75% exceedance forecast) was 1.5, which places the SJI in the critical water year type.

Although the final official Water Supply Index Bulletin 120 (B120) forecast was issued on May 1, 2022, the forecast provided in this submittal has been adjusted to account for observed conditions through August and dry conditions expected through September.

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The Projects use the 90% exceedance forecast for the joint operations plan included in this report and the September Drought Plan addendum. The hydrologic forecast is unique to this water year and informed by precipitation, runoff, snowpack, and other antecedent hydrologic conditions, combined with the runoff associated with the antecedent conditions and the anticipated runoff resulting from precipitation forecasted to occur through September 30.

### SWP and CVP Operations Forecasts

The operations forecast uses the runoff forecast as model inputs to simulate Project operations under various regulatory requirements and produce forecasted reservoir storages, releases, and flows under the same hydrologic exceedances. This operations forecast gives general guidance for annual water delivery, storage management, and power planning purposes for this exceedance assumption. Actual hydrologic events unfold in time steps shorter than a month and are often unpredictable more than a few days to a week out. Daily operations are driven by operating criteria such as those found in U.S. Army Corps of Engineers flood control manuals, SWRCB D-1641 Bay-Delta Standards, the NMFS and USFWS Biological Opinions, and the ITP for the SWP.

The forecast assumptions utilize existing storage conditions, actual runoff through August, forecasted runoff based on the May 1 B120 90% exceedance hydrology, projected water supply deliveries, and meeting existing flow and water quality standards, and fish and wildlife protections. The forecast includes monthly storage levels, reservoir releases, Delta export rates, and Delta outflow through September 30, 2022.

### Planned Transfers, Forbearance Agreement Actions, Exchanges

As of September 23, 2022, eight groundwater substitution transfer proposals (five from the Feather River watershed and three from American River watershed) have been submitted to DWR's online database system Water Transfers Information Management System and have been deemed complete to proceed to the Storage and Conveyance Agreements. In addition, three reservoir release transfer proposals were submitted (one from Feather River and two from American River watersheds, respectively). There are no transfers or forbearance agreement actions from the Sacramento River Settlement Contractors to water users south of the Delta. In-Basin transfers have and will continue to occur between various contractors north of the Delta under the accelerated water transfers program. These are not expected to affect planned releases from Keswick outlined in the Final Temperature Management Plan, nor exceed the quantities of water made available for delivery this contract year among the in-Basin Sacramento River Settlement contractors. Table 1 below shows the estimated maximum quantity of short-term transfers in various watersheds with the method to make water available to transfer.

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Table 1: Estimated Maximum Quantity of Short-Term Transfers (acre-feet before any losses) as of September 23, 2022

| Method to Make Water Available for Transfer | Feather River | American River | Total         |
|---------------------------------------------|---------------|----------------|---------------|
| Groundwater Substitution                    | 15,787        | 15,494         | 31,281        |
| Reservoir Release                           | 10,000        | 21,803         | 31,803        |
| <b>Total</b>                                | <b>25,787</b> | <b>37,297</b>  | <b>63,084</b> |

On September 20, 2022, Yuba Water Agency provided the latest update for a total of approximately 74,343 acre-feet of the Yuba Accord water transfer in 2022. Table 2 below shows the estimated Lower Yuba River Accord Component water quantity to DWR and Reclamation Participating Contractors. The total quantity will be updated periodically during the transfer year.

Table 2: Estimated Lower Yuba River Accord Component Water (acre-feet before any losses)

| Estimated Lower Yuba River Accord Component Water Quantity (acre-feet before any losses) |               |
|------------------------------------------------------------------------------------------|---------------|
| Component 1                                                                              | 11,943        |
| Component 4                                                                              | 62,400        |
| <b>Total</b>                                                                             | <b>74,343</b> |

Ongoing exchanges through the Consolidated Place of Use (CPOU) between the two Projects continue to be reported through the CPOU monthly reports. As authorized under the 2022-2023 CPOU order, the total quantity of transfers and exchanges will not exceed 393,385 acre-feet from July 22, 2022, through July 21, 2023.

If you have any questions, please contact Molly White of DWR at (916) 574-2722 or Kristin White of Reclamation at (916) 979-2199.

Sincerely,

*Molly White*

Molly White, Manager  
Water Operations Branch  
Division of Operations and Maintenance  
Department of Water Resources

*Kristin White*

Kristin White, Operations Manager  
Central Valley Operations Office  
Bureau of Reclamation

Attachment

Subject: Condition 3 of the February 15, 2022 Temporary Urgency Change Order and Condition 5 of the April 4, 2022 Temporary Urgency Change Order 6

cc: Diane Riddle ([Diane.Riddle@waterboards.ca.gov](mailto:Diane.Riddle@waterboards.ca.gov))  
Scott Frazier ([Scott.Frasier@waterboards.ca.gov](mailto:Scott.Frasier@waterboards.ca.gov))  
Erin Foresman ([Erin.Foresman@waterboards.ca.gov](mailto:Erin.Foresman@waterboards.ca.gov))  
Thaddeus Hunt ([Thaddeus.Hunt@waterboards.ca.gov](mailto:Thaddeus.Hunt@waterboards.ca.gov))  
Matthew Holland ([Matthew.Holland@waterboards.ca.gov](mailto:Matthew.Holland@waterboards.ca.gov))  
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Dana Heinrich ([Dana.Heinrich@waterboards.ca.gov](mailto:Dana.Heinrich@waterboards.ca.gov))  
Amy Aufdemberge ([Amy.Aufdemberge@sol.doi.gov](mailto:Amy.Aufdemberge@sol.doi.gov))  
David Mooney ([Dmmooney@usbr.gov](mailto:Dmmooney@usbr.gov))  
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James Mizell ([James.Mizell@water.ca.gov](mailto:James.Mizell@water.ca.gov))



## 2022 Operations Outlook (based on September projections)

**Accretions / Depletions (Condition 5b.)**

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| Net Delta Consumptive Use | 80    | 111 | 150  | 223  | 233    | 147       |

Note: Jun-Aug Sac Valley values are negative to represent Depletion

**Deliveries (Condition 5c.&5d.)**

| Values in TAF                                                                                                                   | April  | May    | June    | July    | August        | September     | Basis of Water Right or Contractual Agreement                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------|--------|--------|---------|---------|---------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SWP - Feather River Service Area                                                                                                | 32     | 120    | 113     | 130     | 85            | 36            | A005630, A014443, Feather River Settlement Agreements                                                                                                                                                                                                    |
| SWP - North of Delta Contract Deliveries                                                                                        | 0      | 1      | 3       | 2       | 4             | 1             | A016950, A016952, A017514A, A021443                                                                                                                                                                                                                      |
| SWP - South of Delta Contract Deliveries                                                                                        | 42     | 38     | 38      | 41      | 77            | 49            | A005630, A014443, A014445A, A017512, A025435, A025511, A025988, A026058                                                                                                                                                                                  |
| CVP - Settlement Contractors                                                                                                    | 31.646 | 53.7   | 52.9    | 60.5    | 49.7          | 33.8          | This is comprised of 75% of the Exhibit A quantities listed in the Settlement Contracts. It doesn't include the small Short Form Settlement Contracts. However, the Short Form Contracts only represent approximately 1.4% of the SRSC water quantities. |
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| CVP- Sacramento River Municipal and Industrial Contractors                                                                      | 0.997  | 1.285  | 1.948   | 2.357   | 1.545         | 1.265         | This includes the City of Redding's M&I Settlement Contract water and the McConnell Foundation and Centerville CSD's exchange water.                                                                                                                     |
| CVP- American River Municipal and Industrial Contractors                                                                        | 0.23   | 0.422  | 0.412   | 0.841   | 0.816         | 0             | PHS for SMUD. Allocation to ARD CVP M&I Contractors is zero.                                                                                                                                                                                             |
| CVP - Contra Costa Water District                                                                                               | 4.762  | 6.316  | 3.122   | 4.038   | 4.585         | 8.722         | CVP M&I estimated scheduled diversions.                                                                                                                                                                                                                  |
| CVP - North of Delta Refuges                                                                                                    | 0.940  | 2.485  | 5.541   | 4.050   | 2.400         | 8.900         | Includes Water to be Exchanged with DWR for Gray Lodge.                                                                                                                                                                                                  |
| CVP - Exchange Contractors                                                                                                      | 34.072 | 72.907 | 102.405 | 118.825 | 101.347       | 54.432        | Includes water being transferred to other districts, transfers are based on consumptive use reductions.                                                                                                                                                  |
| CVP - South of Delta Agricultural Water Service Contractors                                                                     | 0      | 0      | 0       | 0       | 0             | 0             | Allocation to SOD Water Service Ag Contractors is 0%.                                                                                                                                                                                                    |
| CVP - South of Delta Municipal and Industrial Service Contractors                                                               | 2      | 3      | 6.676   | 9.842   | 12.786        | 6.819         | Public Health and Safety Water only, consistent with M&I shortage policy                                                                                                                                                                                 |
| CVP - South of Delta Refuges                                                                                                    | 4.718  | 5.115  | 12.792  | 4.176   | 3.843         | 42.495        | Refuge Water Supply Contract: 01WC201756, 01WC201758, 01WC201754                                                                                                                                                                                         |
| CVP - OID & SSJID (Stanislaus Basin) Water Right holders                                                                        | 50     | 65     | 72      | 81      | Not Reporting | Not Reporting | 1988 Operations Agreement                                                                                                                                                                                                                                |
| CVP - New Melones East Side Division Water Service Contractors (Stockton East, Central San Joaquin Water Conservation District) | 0      | 0      | 0       | 0       | 0             | 0             | Per Eastside Division Shortage Policy, Contractors' allocation is zero.                                                                                                                                                                                  |
| CVP Friant Unit Class I                                                                                                         | 4.138  | 6.775  | 9       | 15      | 54            | 37            | Friant allocation went up in late July from 20% to 30%.                                                                                                                                                                                                  |

**Delta Flows (Condition 5b.)**

| Values in cfs or TAF            | April | May  | June | July  | August | September |
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| Delta Inflow at Freepoint (cfs) | 8282  | 7485 | 9140 | 11346 | 9798   | 9183      |
| Net Delta Outflow Index (cfs)   | 7295  | 5682 | 6640 | 5796  | 3674   | 4209      |
| SJR at Vernalis Flow (cfs)      | 944   | 719  | 707  | 270   | 185    | 303       |
| CVP Export (TAF)                | 54    | 56   | 54   | 149   | 167    | 141       |
| SWP Export (TAF)                | 36    | 32   | 17   | 15    | 14     | 43        |

**Transfers (Condition 5e.)**

| Values in TAF          | April | May | June | July | August | September |
|------------------------|-------|-----|------|------|--------|-----------|
| NOD to SOD (estimated) | N/A   | N/A | N/A  | 31   | 36     | 13        |

**Reservoir Inflow (Condition 5a.)**

| Values in TAF | April | May | June | July | August | September |
|---------------|-------|-----|------|------|--------|-----------|
| Trinity       | 62    | 23  | 32   | 11   | 6      | 6         |
| Whiskeytown   | 58    | 8   | 6    | 2    | 2      | 2         |
| Shasta        | 252   | 175 | 177  | 150  | 144    | 142       |
| Folsom        | 256   | 79  | 111  | 89   | 87     | 80        |
| New Melones   | 74    | 25  | 46   | 17   | 19     | 39        |
| Oroville      | 341   | 233 | 142  | 149  | 149    | 62        |

**Reservoir Releases (Condition 5a.)**

| Values in TAF                    | April | May | June | July | August | September |
|----------------------------------|-------|-----|------|------|--------|-----------|
| Trinity Release to Trinity River | 79    | 67  | 28   | 59   | 61     | 59        |
| Carr Tunnel diversion            | 25    | 16  | 24   | 31   | 27     | 11        |
| Whiskeytown to Clear Creek       | 12    | 12  | 12   | 9    | 9      | 9         |
| Spring Creek Tunnel diversion    | 8     | 10  | 18   | 22   | 22     | 4         |
| Shasta Release to Sac River      | 194   | 277 | 242  | 201  | 281    | 249       |
| Folsom Release to American River | 69    | 64  | 152  | 262  | 214    | 141       |
| New Melones to Stanislaus River  | 27    | 25  | 49   | 18   | 15     | 14        |
| Oroville                         | 78    | 119 | 202  | 252  | 189    | 127       |

**Reservoir End-of-Month Storage (Condition 5a.)**

| Values in TAF      | April | May  | June | July | August | September |
|--------------------|-------|------|------|------|--------|-----------|
| Trinity            | 766   | 693  | 716  | 664  | 605    | 551       |
| Shasta             | 1808  | 1646 | 1777 | 1683 | 1590   | 1507      |
| Folsom             | 769   | 669  | 807  | 591  | 442    | 341       |
| New Melones        | 922   | 831  | 784  | 711  | 641    | 615       |
| Oroville           | 1907  | 1914 | 1722 | 1449 | 1312   | 1223      |
| San Luis Reservoir | 948   | 920  | 797  | 646  | 570    | 504       |

**Monthly COA Balances (Condition 5f.)**

| Values in TAF   | April | May | June | July | August | September |
|-----------------|-------|-----|------|------|--------|-----------|
| Monthly Balance | 216   | 160 | 95   | 36   | 19     | 17        |

Does not include adjustment for New Melones

**San Luis Reservoir**

| Values in TAF    | April | May | June | July | August | September |
|------------------|-------|-----|------|------|--------|-----------|
| Total Pumping    | 48    | 6   | 0    | 0    | 17     | 108       |
| Total Generation | 4     | 26  | 117  | 134  | 78     | 70        |