

December 9, 2003

Summary of CVP Operations Including (b)(2) Fish Actions for Water Year 2003

Base case = Operations that would have occurred this year under the regulatory environment that existed at the time of enactment of the CVPIA (October 1992).

UA = upstream actions (i.e., stream flows to improve anadromous fish habitat/survival)

DA = Delta actions (i.e., export reductions to improve Delta fish habitat/survival)

October 2002 - UA - Interior maintained instream flow conditions with releases from CVP reservoirs to provide suitable habitat for upstream migration, spawning, and egg incubation for fall-run Chinook salmon:

- Sacramento River flows (Keswick releases) were maintained at approximately 5,900-7,600 cfs. The base case flows were the same.

- Clear Creek flows (Whiskeytown releases) were augmented to approximately 200 cfs, compared to the base case flows of 50 cfs.

- American River flows (Nimbus releases) were maintained at approximately 1,550 cfs, compared to the base case flows of approximately 1,700 cfs. This conserved storage in Folsom Reservoir. Folsom Dam's temperature control shutters were adjusted to help meet instream temperature objectives.

EWA assets were used beginning October 25 to implement a lower river outlet release of 500 cfs, to access the remaining cold water pool below the power penstocks at Folsom Dam. See EWA Action 2. The 150 cfs augmentation on Clear Creek and the 150 cfs reduction on the American River were accomplished under (b)(1) reoperations.

Stanislaus River flows (Goodwin releases) were maintained at 200 cfs with an 8-day pulse flow of approximately 700 cfs from October 21-28, using about 7,800 AF of purchased water. The base case flows were approximately 200 cfs.

October 2002 - DA - CVP exports were not modified by (b)(2) fish actions.

November 2002 - UA - Interior maintained instream flow conditions with releases from CVP reservoirs to provide suitable habitat for upstream migration, spawning, and egg incubation for fall-run Chinook salmon:

- Sacramento River flows (Keswick releases) were maintained at approximately 4,600-7,500 cfs. The base case flows were the same.

- Clear Creek flows (Whiskeytown releases) were augmented to approximately 200 cfs, compared to the base case flows of 100 cfs.

- American River flows (Nimbus releases) were maintained at approximately 1,550-1,800 cfs, compared to the base case flows of approximately 1,650-1,900 cfs. The EWA lower river outlet release which started on October 25 was discontinued November 19, with approximately 26,500 AF of water being released through the river outlets. EWA assets were used to compensate the CVP and WAPA for the foregone power. See EWA Action 2.

The 100 cfs augmentation on Clear Creek and the 100 cfs reduction on the American River were accomplished under (b)(1) reoperations.

- Stanislaus River flows (Goodwin releases) were augmented to approximately 250-300 cfs, using 5,000 AF of purchased water added to the base case flows of approximately 200 cfs.

November 2002 - DA - CVP exports were not modified by (b)(2) fish actions.

December 2002 - UA - Interior maintained instream flow conditions with releases from CVP reservoirs to provide suitable habitat for upstream migration, spawning, and egg incubation for fall-run Chinook salmon and steelhead trout:

- Sacramento River flows (Keswick releases) were maintained at approximately 4,000-12,000 cfs, compared to the base case flows of 3,250-12,000 cfs. (b)(2) assets were used to augment flows to 4,000 cfs from December 13-25 for spawning Chinook salmon, compared to the base case flows of 3,250 cfs.

- Clear Creek flows (Whiskeytown releases) were augmented to 200 cfs, compared to the base case flows of 100 cfs.

- American River flows (Nimbus releases) were maintained at approximately 1,500-1,800 cfs, compared to base case flows of 750 - 1,900 cfs. (b)(2) assets were used in conjunction with approximately 5,000 AF of EWA water to augment flows to 1,500 cfs from December 16-31 compared to the base case of 750 cfs. See EWA Action 3.

- Stanislaus River flows (Goodwin releases) were augmented to 275 cfs, using approximately 4,500 AF of purchased water added to the base case flows of approximately 200 cfs.

December 2002 - DA - CVP exports were curtailed in order to comply with WQCP standards during a fisheries-based closure of the Delta cross-channel gates. (b)(2) assets were used to implement the export reduction from December 5 - 14. Additional (b)(2) assets were expended for a CVP export curtailment to protect Delta smelt and juvenile salmon December 27-31. SWP exports during the same period were reduced using EWA assets. See EWA Action 4.

January 2003 - UA - Interior maintained instream flow conditions with releases from CVP reservoirs to provide suitable habitat for upstream migration, spawning, egg incubation, rearing and outmigration for anadromous fish, including listed runs of Chinook salmon and steelhead trout:

- Sacramento River flows (Keswick releases) were maintained at approximately 6,500-18,600 cfs

reflecting flood control operations in both the base case and actual case.

- Clear Creek flows (Whiskeytown releases) were augmented to 200 cfs, compared to the base case flows of 50 cfs. A two-day pulse flow of 1,200 cfs to move gravel was conducted January 27-28 using (b)(2) assets.

- American River flows (Nimbus releases) were maintained at approximately 1,550- 4,100 cfs, which were consistent with the base case flows with the exception of January 13-24, in which actual flows were less than base case flows (reflecting flood control releases due to encroachment in the base case).

- Stanislaus River flows (Goodwin releases) were augmented at 225 cfs, using approximately 3,000 AF of purchased water added to the base case flows of 175 cfs. A two-day pulse flow evaluation of 1,000 cfs was conducted January 27-29 using water from other sources.

January 2003 - DA - CVP exports were not modified by (b)(2) fish actions. SWP exports were reduced January 1 - 2, January 15 - 20, and January 25 - 28 using EWA assets. See EWA Actions 4, 5, and 6.

February 2003 - UA - Interior maintained instream flow conditions with releases from CVP reservoirs to provide suitable habitat for upstream migration, spawning, egg incubation, rearing and outmigration for anadromous fish, including listed runs of Chinook salmon and steelhead trout, and improve conditions for estuarine species by helping to meet WQCP objectives:

- Sacramento River flows (Keswick releases) were augmented to approximately 6,000-13,000 cfs, using (b)(2) assets in order to meet WQCP objectives at Roe Island. Base case flows during the same period decreased from 12,000 cfs at the beginning of the month to 3,250 cfs at the end of the month.

- Clear Creek flows (Whiskeytown releases) were augmented to 200 cfs, compared to the base case flows of 50 cfs.

- American River flows (Nimbus releases) were maintained at approximately 2,500-5,500 cfs, similar to base flows ranging from 1,000-5,500 cfs (reflecting flood control releases due to encroachment in both the actual and the base case). These releases also helped to meet WQCP requirements at Roe Island.

- Stanislaus River flows (Goodwin releases) were maintained at approximately 500-600 cfs to meet Vernalis salinity objectives. Base case flows were the same.

February 2003 - DA - Interior reduced CVP exports on February 14-15 using (b)(2) assets to help meet the WQCP objectives at Roe Island.

March 2003 - UA - Interior maintained instream flow conditions with releases from CVP reservoirs to provide suitable habitat for upstream migration, spawning, egg incubation, rearing and outmigration for anadromous fish, including listed runs of Chinook salmon and steelhead trout, and improve conditions for estuarine species by helping to meet WQCP objectives:

- Sacramento River flows (Keswick releases) were augmented to approximately 3,600 - 5,800 cfs for fisheries purposes, compared to base case flows of 3,250 cfs.
- Clear Creek flows (Whiskeytown releases) were augmented to 200 cfs, compared to base case flows of 50 cfs.
- American River flows (Nimbus releases) were augmented to 1,800 - 2,500 cfs for fisheries purposes compared to base case flows of 800 - 5,000 cfs.
- Stanislaus River flows (Goodwin releases) were maintained at approximately 450 - 500 cfs to meet Vernalis salinity objectives. Base case flows were the same.

March 2003 - DA - CVP exports were not modified by (b)(2) fish actions.

April 2003 - UA - Interior maintained instream flow conditions with releases from CVP reservoirs to provide suitable habitat for upstream migration, spawning, egg incubation, rearing and outmigration for anadromous fish, including listed runs of Chinook salmon and steelhead trout, and improve conditions for estuarine species by helping to meet WQCP and Vernalis Adaptive Management Plan (VAMP) objectives:

- Sacramento River flows (Keswick releases) were maintained at approximately 3,500 cfs the first half of the month compared to base case flows of 3,500 - 5,000 cfs for the same period. In the latter part of the month flood control releases of up to 29,000 cfs were made in both the base case and actual case.
- Clear Creek flows (Whiskeytown releases) were augmented to 200 cfs, compared to base case flows of 50 cfs.
- American River flows (Nimbus releases) were maintained at approximately 1,850 cfs compared to base case flows of 1,800 - 5,000 cfs, until the end of the month when flood control releases of up to 4,800 cfs were made in both the base case and actual case.
- Stanislaus River flows (Goodwin releases) were maintained at approximately 600 - 800 cfs to meet Vernalis salinity objectives in both the base case and actual case prior to April 24. For the remainder of the month flows were augmented to approximately 1,500 cfs using acquired water per the San Joaquin River Agreement (SJRA) for VAMP, compared to base case flows of 750 cfs.

April 2003 - DA - CVP exports were reduced to 2,700 - 3,400 cfs between April 1 - 14, compared to base case exports of 4,300 cfs. Actual exports were lower than the base case because the Federal share of San Luis Reservoir filled in early April, whereas it did not in the base case. Actual exports were also constrained by E/I restrictions.

To increase survival of outmigrating juvenile Chinook salmon and other anadromous and estuarine fish, and to implement VAMP, combined exports at the CVP and SWP were reduced to 1,500 cfs for 31 days from April 15 - May 15. The CVP export reductions using (b)(2) water were coordinated with SWP export reductions using EWA assets. See EWA Action 7.

May 2003 - UA - Interior maintained instream flow conditions with releases from CVP reservoirs to provide suitable habitat for upstream migration, spawning, egg incubation, rearing and outmigration for anadromous fish, including listed runs of Chinook salmon and steelhead trout, and improve conditions for estuarine species by helping to meet WQCP and Vernalis Adaptive Management Plan (VAMP) objectives:

- Sacramento River flows (Keswick releases) were decreased from 29,000 cfs early in the month for flood control, to approximately 12,100 cfs for temperature control operations and water supply by the end of the month. Base case flows were the same.

- Clear Creek flows (Whiskeytown releases) increased April 29 - May 7 due to flood control releases in both the base and actual case. For the remainder of the month flows were augmented to 150 - 200 cfs, compared to base flows of 50 cfs.

- American River flows (Nimbus releases) were maintained at approximately 5,000 - 6,500 cfs. Base case flows were the same.

- Stanislaus River flows (Goodwin releases) were maintained at approximately 750 - 1,100 cfs, using acquired water per the SJRA for VAMP (April 15 - May 15). Following VAMP, (b)(2) water was used to maintain flows at approximately 600 - 1,000 cfs, compared to base case flows of 350 - 650 cfs.

May 2003 - DA - To increase survival of outmigrating juvenile Chinook salmon and other anadromous and estuarine fish, and to implement VAMP, combined exports at the CVP and SWP were reduced to 1,500 cfs for 31 days from April 15 - May 15. During VAMP the CVP export reductions using (b)(2) water were coordinated with SWP export reductions using EWA assets (EWA Action 7).

From May 16 - 18, combined exports at the CVP and SWP were maintained at 1,500 cfs. From May 18 - 27 exports were increased to approximately 2,000 cfs (equal to San Joaquin River flows at Vernalis). From May 28 - 31 combined exports at the CVP and SWP were gradually increased from 2,000 to 7,750 cfs. During this "shoulder on VAMP" period, EWA assets were

used to implement export reductions at both the CVP and SWP. See EWA Action 8.

June 2003 - UA - Interior maintained instream flow conditions with releases from CVP reservoirs to provide suitable habitat for upstream migration, spawning, egg incubation, rearing and outmigration for anadromous fish, including listed runs of Chinook salmon and steelhead trout, and improve conditions for estuarine species by helping to meet WQCP objectives:

- Sacramento River flows (Keswick releases) were maintained at approximately 12,100 -14,000 cfs, primarily for temperature control operations and water supply. Base case flows were the same.

- Clear Creek flows (Whiskeytown releases) were augmented to approximately 140 cfs, compared to the base case flows of 50 cfs.

- American River flows (Nimbus releases) were maintained at approximately 2,500 - 7,000 cfs. Base case flows were the same.

- Stanislaus River flows (Goodwin releases) were augmented to approximately 1,000 - 1,250 cfs using (b)(2) water, as well as additional acquired water, in order to meet WQCP flow objectives at Vernalis. Base case flows were approximately 250 -350 cfs.

June 2003 - DA - CVP exports averaged 4,405 cfs, exceeding the D1485 limit of 3,000 cfs. Base case exports were assumed to do the same, thereby reducing the amount of replacement pumping the CVP is entitled to during the ensuing summer months.

July 2003 - UA - Interior maintained instream flow conditions with releases from CVP reservoirs to provide suitable habitat for upstream migration, spawning, egg incubation, rearing and outmigration for anadromous fish, including listed runs of Chinook salmon and steelhead trout:

- Sacramento River flows (Keswick releases) were maintained at approximately 11,500 - 15,100 cfs, primarily for temperature control operations and water supply. Base case flows were the same.

- Clear Creek flows (Whiskeytown releases) were augmented to approximately 90 cfs, compared to base case flows of 50 cfs.

- American River flows (Nimbus releases) were maintained at approximately 2,500 - 4,600 cfs. Base case flows were the same.

- Stanislaus River flows (Goodwin releases) were maintained at approximately 375 - 550 cfs. Base case flows were the same.

July 2003 - DA - CVP exports were not curtailed for fishery purposes. However, actual exports were reduced from base case exports due to the WQCP elimination of replacement pumping.

August 2003 - UA - Interior maintained instream flow conditions with releases from CVP reservoirs to provide suitable habitat for upstream migration, spawning, egg incubation, rearing and outmigration for anadromous fish, including listed runs of Chinook salmon and steelhead trout:

- Sacramento River flows (Keswick releases) were maintained at approximately 8,100 - 14,300 cfs, primarily for temperature control operations and water supply. Base case flows were the same.

- Clear Creek flows (Whiskeytown releases) were augmented to 90 cfs, compared to base case flows of 50 cfs.

- American River flows (Nimbus releases) were maintained at approximately 2,000 - 4,500 cfs, to meet water supply and temperature control objectives for steelhead. Base case flows were the same.

- Stanislaus River flows (Goodwin releases) were maintained at approximately 275 - 400 cfs. Base case flows were the same.

August 2003 - DA - CVP exports were not curtailed for fishery purposes. However, actual exports were reduced from base case exports due to the WQCP elimination of replacement pumping.

September 2003 - UA - Interior maintained instream flow conditions with releases from CVP reservoirs to provide suitable habitat for upstream migration, spawning, egg incubation, rearing and outmigration for anadromous fish, including listed runs of Chinook salmon and steelhead trout:

- Sacramento River flows (Keswick releases) were maintained at approximately 7,000 - 8,900 cfs, primarily for temperature control operations and water supply. Base case flows were the same.

- Clear Creek flows (Whiskeytown releases) increased on September 4 to provide attraction flows for spring run Chinook and peaked at 200 cfs on September 13. Subsequent flows were decreased to approximately 180 cfs, compared to base case flows of 50 cfs.

- American River flows (Nimbus releases) were maintained at approximately 1,800 - 2,000 cfs, to meet water supply and temperature control objectives for steelhead. Base case flows were the same.

- Stanislaus River flows (Goodwin releases) were maintained at approximately 200 - 275 cfs. Base case flows were the same.

September 2003 - DA - CVP exports were not curtailed for fishery purposes. However, actual exports were reduced from base case exports due to the WQCP elimination of replacement pumping.

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