Attachment 3 CalSim II Model Delivery Specifications

# Introduction

The assumptions for all United States Bureau of Reclamation (Reclamation) model simulations are summarized in Attachment 1 Model Assumptions. This compilation of delivery specifications for the CalSim II model provides additional detail in support of Attachment 1 Model Assumptions.

# Delivery Specifications

The delivery specifications for the CalSim II model include Central Valley Project (CVP) and State Water Project (SWP) contract amounts, and other water rights assumptions used. These specifications are detailed in the following tables:

* Tables 3-1a through 3-1d. CVP North-of-the-Delta – Future Conditions
* Tables 3-2a and 3-2b. CVP American River – Future Conditions
* Table 3-3. CVP/SWP Delta – Future Conditions
* Tables 3-4a through 3-4f. CVP South-of-the-Delta – Future Conditions
* Tables 3-5a and 3-5b. SWP North-of-the-Delta – Future Conditions
* Tables 3-6a through 3-6c. SWP South-of-the-Delta – Future Conditions

Table 3-1a. CVP North-of-the-Delta - Future Conditions

| **CVP Contractor** | **Geographic Location** | **CVP Water Service Contracts (TAF/yr)** | | **Settlement / Exchange Contractor (TAF/yr)** | **Water Rights/ Non-CVP (TAF/yr)** | **Level 2 Refuges1 (TAF/yr)** |
| --- | --- | --- | --- | --- | --- | --- |
| **AG** | **M&I** |
| Anderson Cottonwood ID | Sacramento River Redding Subbasin |  |  | 128.0 |  |  |
| Clear Creek CSD | 13.8 | 1.5 |  |  |  |
| Bella Vista WD | 22.1 | 2.4 |  |  |  |
| Shasta CSD |  | 1.0 |  |  |  |
| Sac R. Misc. Users |  |  | 3.4 |  |  |
| Redding, City of |  |  | 21.0 |  |  |
| City of Shasta Lake | 2.5 | 0.3 |  |  |  |
| Mountain Gate CSD |  | 0.4 |  |  |  |
| Shasta County Water Agency | 0.5 | 0.5 |  |  |  |
| Redding, City of/Buckeye |  | 6.1 |  |  |  |
| **Total** | **38.9** | **12.2** | **152.4** | **0.0** | **0.0** |
| Corning WD | Corning Canal | 23.0 |  |  |  |  |
| Proberta WD | 3.5 |  |  |  |  |
| Thomes Creek WD | 6.4 |  |  |  |  |
| **Total** | **32.9** | **0.0** | **0.0** | **0.0** | **0.0** |

Table 3-1b. CVP North-of-the-Delta - Future Conditions

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CVP Contractor** | **Geographic Location** | **CVP Water Service Contracts (TAF/yr)** | | **Settlement / Exchange Contractor (TAF/yr)** | **Water Rights/ Non-CVP (TAF/yr)** | **Level 2 Refuges1 (TAF/yr)** |
| **AG** | **M&I** |
| Kirkwood WD | Tehama-Colusa Canal | 2.1 |  |  |  |  |
| Glide WD | 10.5 |  |  |  |  |
| Kanawha WD | 45.0 |  |  |  |  |
| Orland-Artois WD | 53.0 |  |  |  |  |
| Colusa, County of | 20.0 |  |  |  |  |
| Colusa County WD | 62.2 |  |  |  |  |
| Davis WD | 4.0 |  |  |  |  |
| Dunnigan WD | 19.0 |  |  |  |  |
| La Grande WD | 5.0 |  |  |  |  |
| Westside WD | 65.0 |  |  |  |  |
| **Total** | **285.8** | **0.0** | **0.0** | **0.0** | **0.0** |
| Sac. R. Misc. Users2 | Sacramento River |  |  | 1.5 |  |  |
| Glenn Colusa ID | Glenn-Colusa Canal |  |  | 441.5 |  |  |
| 383.5 |
| Sacramento NWR |  |  |  |  | 54.5 |
| Delevan NWR |  |  |  |  | 24.6 |
| Colusa NWR |  |  |  |  | 29.3 |
| Colusa Drain M.W.C. | Colusa Basin Drain |  |  | 7.7 |  |  |
| 62.3 |
| **Total** |  | **0.0** | **0.0** | **895.0** | **0.0** | **108.4** |

Table 3-1c. CVP North-of-the-Delta - Future Conditions

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CVP Contractor** | **Geographic Location** | **CVP Water Service Contracts (TAF/yr)** | | **Settlement / Exchange Contractor (TAF/yr)** | **Water Rights/ Non-CVP (TAF/yr)** | **Level 2 Refuges1 (TAF/yr)** |
| **AG** | **M&I** |
| Princeton-Cordova-Glenn ID | Sacramento River |  |  | 67.8 |  |  |
| Provident ID |  |  | 54.7 |  |  |
| Maxwell ID |  |  | 1.8 |  |  |
| 16.2 |
| Sycamore Family Trust |  |  | 31.8 |  |  |
| Roberts Ditch IC |  |  | 4.4 |  |  |
| Sac R. Misc. Users2 |  |  | 4.9 |  |  |
|  |  | 9.5 |  |  |
| **Total** | **0.0** | **0.0** | **191.2** | **0.0** | **0.0** |
| Reclamation District 108 | Sacramento River |  |  | 12.9 |  |  |
| 219.1 |  |
| River Garden Farms |  |  | 29.8 |  |  |
| Meridian Farms WC |  |  | 35.0 |  |  |
| Pelger Mutual WC |  |  | 8.9 |  |  |
| Reclamation District 1004 |  |  | 71.4 |  |  |
| Carter MWC |  |  | 4.7 |  |  |
| Sutter MWC |  |  | 226.0 |  |  |
| Tisdale Irrigation & Drainage Co. |  |  | 9.9 |  |  |
| Sac R. Misc. Users2 |  |  | 103.4 |  |  |
|  |  | 0.9 |  |  |
| Feather River WD export | 20.0 |  |  |  |  |
| **Total** | **20.0** | **0.0** | **722.1** | **0.0** | **0.0** |

Table 3-1d. CVP North-of-the-Delta - Future Conditions

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CVP Contractor** | **Geographic Location** | **CVP Water Service Contracts (TAF/yr)** | | **Settlement / Exchange Contractor (TAF/yr)** | **Water Rights/ Non-CVP (TAF/yr)** | **Level 2 Refuges1 (TAF/yr)** |
| **AG** | **M&I** |
| Sutter NWR | Sutter bypass water for Sutter NWR |  |  |  |  | 25.7 |
| Gray Lodge WMA | Feather River |  |  |  |  | 41.3 |
| Butte Sink Duck Clubs |  |  |  |  | 15.6 |
| **Total** | **0.0** | **0.0** | **0.0** | **0.0** | **82.6** |
| Sac. R. Misc. Users2 | Sacramento River  DSA 65 |  |  | 56.8 |  |  |
| City of West Sacramento |  |  | 23.6 |  |  |
| Davis-Woodland Water Supply Project |  |  |  |  |  |
| **Total** | **0.0** | **0.0** | **80.4** | **0.0** | **0.0** |
| Sac R. Misc. Users | Lower Sacramento River |  |  | 4.8 |  |  |
| Natomas Central MWC |  |  | 120.2 |  |  |
| Pleasant Grove-Verona MWC |  |  | 26.3 |  |  |
| City of Sacramento (PCWA) |  | 0.0 |  | 0.0 |  |
| PCWA (Water Rights) |  | 0.0 |  | 0.0 |  |
| **Total** | **0.0** | **0.0** | **151.3** | **0.0** | **0.0** |
| **Total CVP North-of-Delta** |  | **377.6** | **12.2** | **2193.8** | **0.0** | **191.0** |

Notes:

1. Level 4 Refuge water needs are not included.

Table 3-2a American River – Future Conditions

|  | **Diversion Location** | **CVP M&I1 Contracts (maximum1)** | **Water Rights (maximum)** | **Diversion Limit (maximum capacity)** |
| --- | --- | --- | --- | --- |
| Placer County Water Agency2 | Auburn Dam Site |  | 65.0 | 65.0 |
| **Total** | **0.0** | **65.0** | **65.0** |
| Sacramento Suburban Water District2 | Folsom Reservoir |  | 0 | 0 |
| City of Folsom - includes P.L. 101-514 | 7 | 27 | 34 |
| Folsom Prison |  | 5 | 5 |
| San Juan Water District (Placer County) |  | 25 | 25 |
| San Juan Water District (Sac County) - includes P.L. 101-514 | 24.2 | 33 | 57.2 |
| El Dorado Irrigation District | 7.55 | 17 | 24.55 |
| City of Roseville | 32 | 30 | 62.0 |
| Placer County Water Agency | 35 |  | 35 |
| El Dorado County - P.L.101-514 | 15 |  | 15 |
| **Total** | **120.75** | **137.0** | **257.75** |
| So. Cal WC/Arden Cordova WC | Folsom South Canal |  | 5 | 5 |
| California Parks and Recreation | 5 |  | 5 |
| SMUD | 30 | 15 | 45 |
| Canal Losses |  | 1 | 1 |
| Total | 35 | 21 | 56 |
| City of Sacramento | Lower American River |  | 230 | 230 |
| Carmichael Water District |  | 12 | 12 |
| **Total** | **0.0** | **242** | **242** |
| **Total American River Diversions** |  | **155.75** | **465** | **620.75** |

Table 3-2b American River – Future Conditions

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Diversion Location** | **CVP M&I1 Contracts (maximum1)** | **Water Rights (maximum)** | **Diversion Limit (maximum capacity)** |
| Sacramento River Diversions | | | | |
| City of Sacramento | Lower Sacramento River |  | 81.8 | 81.8 |
| Sacramento County Water Agency | 10 |  | 10 |
| Sacramento County Water Agency -  P.L. 101-514 / FRWP | 35 |  | 35 |
| Sacramento County Water Agency -  water rights and acquisitions |  | varies4, average ~32 | varies4, average ~32 |
| East Bay Municipal Utilities District | 133 |  | varies5 ,  average 14.6 |
| **Total Sacramento River Diversions** |  | **178** | **113.8** | **173.4** |
| **Total American and Sacramento River Diversions** |  | **333.75** | **578.8** | **794.15** |

Notes:

1 When the CVP Contract quantity exceeds the quantity of the Diversion Limit minus the Water Right (if any), the diversion modeled is the quantity allocated to the CVP Contract (based on the CVP contract quantity shown times the CVP M&I allocation percentage) plus the Water Right (if any), but with the sum limited to the quantity of the Diversion Limit

2 Diversion at Folsom Dam for Sacramento Suburban WD, up to 29 TAF, is allowed if and when Mar-Nov Folsom Unimpaired Inflow (FUI) exceeds 1600 TAF; when diversion at Folsom Dam is allowed, Placer County WA diversion at the Auburn Dam Site is reduced by the amount diverted at Folsom Dam

4 SCWA targets 68 TAF of surface water supplies annually. The portion unmet by CVP contract water is assumed to come from two sources:

1. Delta “excess” water- averages 17.5 TAF annually, but varies according to availability. SCWA is assumed to divert excess flow when it is available, and when there is available pumping capacity.
2. “Other” water- derived from transfers and/or other appropriated water, averaging 14.5 TAF annually but varying according remaining unmet demand.

5 EBMUD CVP diversions are governed by the Amendatory Contract, stipulating:

1. 133 TAF maximum diversion in any given year
2. 165 TAF maximum diversion amount over any 3 year period
3. Diversions allowed only when EBMUD total storage drops below 500 TAF
4. 155 cfs maximum diversion rate

Table 3-3. CVP/SWP Delta - Future Conditions

| **CVP/ SWP Contractor** | **Geographic Location** | **Water Right (TAF/yr)** | **SWP Table A Amount (TAF)** | | **SWP Article 21 Demand (TAF/yr Maximum)** | **CVP Water Service Contracts (TAF/yr)** | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Ag** | **M&I** | **AG** | **M&I** |
| North Delta | | | | | | | |
| City of Vallejo | City of Vallejo |  |  |  |  |  | 16.0 |
| CCWD1 | Contra Costa County |  |  |  |  |  | 195.0 |
| Napa County FC&WCD | North Bay Aqueduct |  |  | 29.03 | 7.71 |  |  |
| Solano County WA | North Bay Aqueduct |  |  | 47.76 | 21.83 |  |  |
| Fairfield, Vacaville and Benicia Agreement | North Bay Aqueduct | 31.60 |  |  |  |  |  |
| City of Antioch | City of Antioch | 18.0 |  |  |  |  |  |
| **Total** |  | **49.6** | **0.0** | **76.79** | **29.54** | **0.0** | **211.0** |
| South Delta | | | | | | | |
| Delta Water Supply Project | City of Stockton | 32.4 |  |  |  |  |  |
| **Total** |  | **32.4** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** |
| **Total North and South Delta** |  | **82.0** | **0.0** | **76.79** | **29.54** | **0.0** | **211.0** |

Notes:

1. The Los Vaqueros module in CalSim II is used to determine the range of demands that are met by CVP contracts or other water rights

Table 3-4a. CVP South-of-the-Delta - Future Conditions

| **CVP Contractor** | **Geographic Location** | **CVP Water Service Contracts (TAF/yr)** | | **Settlement/ Exchange Contractor (TAF/yr)** | **Water Rights/ Non-CVP (TAF/yr)** | **Level 2 Refuges1 (TAF/yr)** | **Losses (TAF/yr)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **AG** | **M&I** |
| Byron-Bethany ID | Upper DMC | 20.6 |  |  |  |  |  |
| Tracy, City of |  | 10.0 |  |  |  |  |
|  | 5.0 |  |  |  |  |
|  | 5.0 |  |  |  |  |
| Banta Carbona ID | 20.0 |  |  |  |  |  |
| **Total** | **40.6** | **20.0** | **0.0** | **0.0** | **0.0** | **0.0** |
| Del Puerto WD | Upper DMC | 12.1 |  |  |  |  |  |
| Davis WD | 5.4 |  |  |  |  |  |
| Foothill WD | 10.8 |  |  |  |  |  |
| Hospital WD | 34.1 |  |  |  |  |  |
| Kern Canon WD | 7.7 |  |  |  |  |  |
| Mustang WD | 14.7 |  |  |  |  |  |
| Orestimba WD | 15.9 |  |  |  |  |  |
| Quinto WD | 8.6 |  |  |  |  |  |
| Romero WD | 5.2 |  |  |  |  |  |
| Salado WD | 9.1 |  |  |  |  |  |
| Sunflower WD | 16.6 |  |  |  |  |  |
| West Stanislaus WD | 50.0 |  |  |  |  |  |
| Patterson WD | 16.5 |  |  | 6.0 |  |  |
| **Total** | **206.7** | **0.0** | **0.0** | **6.0** | **0.0** | **0.0** |

Table 3-4b. CVP South-of-the-Delta - Future Conditions

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **CVP Contractor** | **Geographic Location** | **CVP Water Service Contracts (TAF/yr)** | | **Settlement/ Exchange Contractor (TAF/yr)** | **Water Rights/ Non-CVP (TAF/yr)** | **Level 2 Refuges1 (TAF/yr)** | **Losses (TAF/yr)** |
| **AG** | **M&I** |
| Upper DMC Loss | Upper DMC |  |  |  |  |  | 18.5 |
| Panoche WD | Lower DMC Volta | 6.6 |  |  |  |  |  |
| San Luis WD | 65.0 |  |  |  |  |  |
| Laguna WD | 0.8 |  |  |  |  |  |
| Eagle Field WD | 4.6 |  |  |  |  |  |
| Mercy Springs WD | 2.8 |  |  |  |  |  |
| Oro Loma WD | 4.6 |  |  |  |  |  |
| **Total** | **84.4** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** |
| Central California ID | Lower DMC Volta |  |  | 140.0 |  |  |  |
| Grasslands via CCID |  |  |  |  | 81.8 |  |
| Los Banos WMA |  |  |  |  | 11.2 |  |
| Kesterson NWR |  |  |  |  | 10.5 |  |
| Freitas - SJBAP |  |  |  |  | 6.3 |  |
| Salt Slough - SJBAP |  |  |  |  | 8.6 |  |
| China Island - SJBAP |  |  |  |  | 7.0 |  |
| Volta WMA |  |  |  |  | 13.0 |  |
| Grassland via Volta Wasteway |  |  |  |  | 23.2 |  |
| **Total** | **0.0** | **0.0** | **140.0** | **0.0** | **161.5** | **0.0** |

Table 3-4c. CVP South-of-the-Delta - Future Conditions

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **CVP Contractor** | **Geographic Location** | **CVP Water Service Contracts (TAF/yr)** | | **Settlement/ Exchange Contractor (TAF/yr)** | **Water Rights/ Non-CVP (TAF/yr)** | **Level 2 Refuges1 (TAF/yr)** | **Losses (TAF/yr)** |
| **AG** | **M&I** |
| Fresno Slough WD | San Joaquin River at Mendota Pool | 4.0 |  |  | 0.9 |  |  |
| James ID | 35.3 |  |  | 9.7 |  |  |
| Coelho Family Trust | 2.1 |  |  | 1.3 |  |  |
| Tranquillity ID | 13.8 |  |  | 20.2 |  |  |
| Tranquillity PUD | 0.1 |  |  | 0.1 |  |  |
| Reclamation District 1606 | 0.2 |  |  | 0.3 |  |  |
| Central California ID |  |  | 392.4 |  |  |  |
| Columbia Canal Co. |  |  | 59.0 |  |  |  |
| Firebaugh Canal Co. |  |  | 85.0 |  |  |  |
| San Luis Canal Co. |  |  | 23.6 |  |  |  |
| M.L. Dudley Company |  |  |  | 2.3 |  |  |
| Grasslands WD |  |  |  |  | 29.0 |  |
| Mendota WMA |  |  |  |  | 27.6 |  |
| Losses |  |  |  |  |  | 101.5 |
| **Total** | **55.5** | **0.0** | **560.0** | **34.8** | **56.6** | **101.5** |
| San Luis Canal Co. |  |  |  | 140.0 |  |  |  |
| Grasslands WD |  |  |  |  | 2.3 |  |
| Los Banos WMA |  |  |  |  | 12.4 |  |
| San Luis NWR |  |  |  |  | 19.5 |  |
| West Bear Creek NWR |  |  |  |  | 7.5 |  |
| East Bear Creek NWR |  |  |  |  | 8.9 |  |
| **Total** | **0.0** | **0.0** | **140.0** | **0.0** | **50.6** | **0.0** |

Table 3-4d. CVP South-of-the-Delta - Future Conditions

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **CVP Contractor** | **Geographic Location** | **CVP Water Service Contracts (TAF/yr)** | | **Settlement/ Exchange Contractor (TAF/yr)** | **Water Rights/ Non-CVP (TAF/yr)** | **Level 2 Refuges1 (TAF/yr)** | **Losses (TAF/yr)** |
| **AG** | **M&I** |
| San Benito County WD (Ag) | San Felipe Aqueduct | 35.6 |  |  |  |  |  |
| Santa Clara Valley WD (Ag) | 33.1 |  |  |  |  |  |
| Pajaro Valley WD | 6.3 |  |  |  |  |  |
| San Benito County WD (M&I) |  | 8.3 |  |  |  |  |
| Santa Clara Valley WD (M&I) |  | 119.4 |  |  |  |  |
| **Total** | **74.9** | **127.7** | **0.0** | **0.0** | **0.0** | **0.0** |
| San Luis WD | CA reach 3 | 60.1 |  |  |  |  |  |
| CA, State Parks and Rec | 2.3 |  |  |  |  |  |
| Affonso/Los Banos Gravel Co. | 0.3 |  |  |  |  |  |
| **Total** | **62.6** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** |
| Panoche WD | CVP Dos Amigos PP/ CA reach 4 | 87.4 |  |  |  |  |  |
| Pacheco WD | 10.1 |  |  |  |  |  |
| **Total** | **97.5** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** |

Table 3-4e. CVP South-of-the-Delta - Future Conditions

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **CVP Contractor** | **Geographic Location** | **CVP Water Service Contracts (TAF/yr)** | | **Settlement/ Exchange Contractor (TAF/yr)** | **Water Rights/ Non-CVP (TAF/yr)** | **Level 2 Refuges1 (TAF/yr)** | **Losses (TAF/yr)** |
| **AG** | **M&I** |
| Westlands WD (Centinella) | CA reach 4 | 2.5 |  |  |  |  |  |
| Westlands WD (Broadview WD) | 27.0 |  |  |  |  |  |
| Westlands WD (Mercy Springs WD) | 4.2 |  |  |  |  |  |
| Westlands WD (Widern WD) | 3.0 |  |  |  |  |  |
| **Total** | **36.7** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** |
| Westlands WD: CA Joint Reach 4 | CA reach 4 | 219.0 |  |  |  |  |  |
| Westlands WD: CA Joint Reach 5 | CA reach 5 | 570.0 |  |  |  |  |  |
| Westlands WD: CA Joint Reach 6 | CA reach 6 | 219.0 |  |  |  |  |  |
| Westlands WD: CA Joint Reach 7 | CA reach 7 | 142.0 |  |  |  |  |  |
| **Total** |  | **1150.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** |
| Avenal, City of | CA reach 7 |  | 3.5 |  | 3.5 |  |  |
| Coalinga, City of |  |  | 10.0 |  |  |  |  |
| Huron, City of |  |  | 3.0 |  |  |  |  |
| **Total** |  | **0.0** | **16.5** | **0.0** | **3.5** | **0.0** | **0.0** |

Table 3-4f. CVP South-of-the-Delta - Future Conditions

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **CVP Contractor** | **Geographic Location** | **CVP Water Service Contracts (TAF/yr)** | | **Settlement/ Exchange Contractor (TAF/yr)** | **Water Rights/ Non-CVP (TAF/yr)** | **Level 2 Refuges1 (TAF/yr)** | **Losses (TAF/yr)** |
| **AG** | **M&I** |
| CA Joint Reach 3 - Loss | CVP Dos Amigos PP/CA reach 3 |  |  |  |  |  | 2.5 |
| CA Joint Reach 4 - Loss | CA reach 4 |  |  |  |  |  | 10.1 |
| CA Joint Reach 5 - Loss | CA reach 5 |  |  |  |  |  | 30.1 |
| CA Joint Reach 6 - Loss | CA reach 6 |  |  |  |  |  | 12.5 |
| CA Joint Reach 7 - Loss | CA reach 7 |  |  |  |  |  | 8.5 |
| **Total** |  | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **63.7** |
| Cross Valley Canal - CVP | CA reach 14 |  |  |  |  |  |  |
| Fresno, County of | 3.0 |  |  |  |  |  |
| Hills Valley ID-Amendatory | 3.3 |  |  |  |  |  |
| Kern-Tulare WD | 40.0 |  |  |  |  |  |
| Lower Tule River ID | 31.1 |  |  |  |  |  |
| Pixley ID | 31.1 |  |  |  |  |  |
| Rag Gulch WD | 13.3 |  |  |  |  |  |
| Tri-Valley WD | 1.1 |  |  |  |  |  |
| Tulare, County of | 5.3 |  |  |  |  |  |
| Kern NWR |  |  |  |  | 11.0 |  |
| Pixley NWR |  |  |  |  | 1.3 |  |
| **Total** | **128.3** | **0.0** | **0.0** | **0.0** | **12.3** | **0.0** |
| **Total CVP South-of-Delta** |  | **1937.1** | **164.2** | **840.0** | **44.3** | **281.0** | **183.7** |

Notes:

1. Level 4 Refuge water needs are not included.

Table 3-5a. SWP North-of-the-Delta - Future Conditions

| **SWP CONTRACTOR** | **Geographic Location** | **FRSA Amount (TAF)** | **Water Right (TAF/yr)** | **Table A Amount (TAF)** | | **Article 21 Demand (TAF/yr Maximum)** | **Other (TAF/yr)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Ag** | **M&I** |
| Feather River | | | | | | | |
| Palermo | FRSA |  | 17.6 |  |  |  |  |
| County of Butte | Feather River |  |  |  | 27.5 |  |  |
| Thermalito | FRSA |  | 8.0 |  |  |  |  |
| Western Canal | FRSA | 150.0 | 145.0 |  |  |  |  |
| Joint Board | FRSA | 550.0 | 5.0 |  |  |  |  |
| City of Yuba City | Feather River |  |  |  | 9.6 | 1.43 |  |
| Feather WD | FRSA | 17.0 |  |  |  |  |  |
| Garden, Oswald, Joint Board | FRSA |  |  |  |  |  |  |
| Garden | FRSA | 12.9 | 5.1 |  |  |  |  |
| Oswald | FRSA | 2.9 |  |  |  |  |  |
| Joint Board | FRSA | 50.0 |  |  |  |  |  |
| Plumas, Tudor | FRSA |  |  |  |  |  |  |
| Plumas | FRSA | 8.0 | 6.0 |  |  |  |  |
| Tudor | FRSA | 5.1 | 0.2 |  |  |  |  |
| **Total Feather River Area** |  | **795.8** | **186.9** | **0.0** | **37.1** | **1.43** | **0.0** |

**Table 3-5b. SWP North-of-the-Delta – Future Conditions**

| **SWP CONTRACTOR** | **Geographic Location** | **FRSA Amount (TAF)** | **Water Right (TAF/yr)** | **Table A Amount (TAF)** | | **Article 21 Demand (TAF/yr Maximum)** | **Other (TAF/yr)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Ag** | **M&I** |
| Other | | | | | | | |
| Yuba County Water Agency | Yuba River |  |  |  |  |  | Variable |
|  | 333.6 |
| Camp Far West ID | Yuba River |  |  |  |  |  | 12.6 |
| Bear River Exports | American R/DSA70 |  |  |  |  |  | Variable |
|  | 95.2 |
| Feather River Exports to American River (left bank to DSA70) | American R/DSA70 |  | 11.0 |  |  |  |  |

Table 3-6a. SWP South-of-the-Delta –Future Conditions

| **SWP Contractor** | **Geographic Location** | **Table A Amount (TAF)** | | **Article 21 Demand (TAF/yr Maximum)** | **Losses (TAF/yr)** |
| --- | --- | --- | --- | --- | --- |
| **Ag** | **M&I** |
| Alameda Co. FC&WCD, Zone 7 | SBA reaches 1-4 |  | 47.60 | 1.09 |  |
| SBA reaches 5-6 |  | 33.02 |  |  |
| **Total Alameda Co. FC&WCD, Zone 7** |  | **80.62** | **1.09** | **0.0** |
| Alameda County WD | SBA reaches 7-8 |  | 42.00 | 2.35 |  |
| Santa Clara Valley WD | SBA reach 9 |  | 100.00 | 32.12 |  |
| Oak Flat WD | CA reach 2A | 5.70 |  | 0.05 |  |
| County of Kings | CA reach 8C | 9.31 |  | 13.58 |  |
| Dudley Ridge WD | CA reach 8D | 45.35 |  | 37.32 |  |
| Empire West Side ID | CA reach 8C | 3.00 |  | 2.16 |  |
| Kern County Water Agency | CA reaches 3, 9-13B | 608.86 | 134.60 |  |  |
| CA reaches 14A-C | 99.20 |  | 543.69 |  |
| CA reaches 15A-16A | 59.40 |  |  |  |
| CA reach 31A | 80.67 |  |  |  |
| **Total KCWA** | **848.13** | **134.60** | **543.69** | **0.0** |
| Tulare Lake Basin WSD | CA reaches 8C-8D | 87.47 |  | 69.67 |  |
| San Luis Obispo Co. FC&WCD | CA reaches 33A-35 |  | 25.00 | 0.99 |  |
| Santa Barbara Co. FC&WCD | CA reach 35 |  | 45.49 | 8.17 |  |
| Antelope Valley-East Kern WA | CA reaches 19-20B, 22A-B |  | 144.84 | 26.52 |  |
| Santa Clarita Valley WA | CA reach 31A | 12.70 |  | 2.94 |  |
| CA reach 30 |  | 82.50 |  |  |
| **Total SCVWA** | **12.70** | **82.50** | **2.94** | **0.0** |

Table 3-6b. SWP South-of-the-Delta –Future Conditions

| **SWP Contractor** | **Geographic Location** | **Table A Amount (TAF)** | | **Article 21 Demand (TAF/yr Maximum)** | **Losses (TAF/yr)** |
| --- | --- | --- | --- | --- | --- |
| **Ag** | **M&I** |
| Coachella Valley WD | CA reach 26A |  | 138.35 | 14.54 |  |
| Crestline-Lake Arrowhead WA | CA reach 24 |  | 5.80 |  |  |
| Desert WA | CA reach 26A |  | 55.75 | 5.86 |  |
| Littlerock Creek ID | CA reach 21 |  | 2.30 |  |  |
| Mojave WA | CA reaches 19, 22B-23 |  | 85.80 |  |  |
| Metropolitan WDSC | CA reach 10A, 12E, and 14C |  | 675.11 |  |  |
| CA reach 26A |  | 302.03 | 129.78 |  |
| CA reach 30 |  | 580.65 | 107.03 |  |
| CA reaches 28G-H |  | 224.82 | 39.49 |  |
| CA reach 28J |  | 128.89 | 9.87 |  |
| **Total MWDSC** | **0.0** | **1911.50** | **286.17** | **0.0** |
| Palmdale WD | CA reaches 20A-B |  | 21.30 | 1.98 |  |
| San Bernardino Valley MWD | CA reach 26A |  | 102.60 | 4.41 |  |
| San Gabriel Valley MWD | CA reach 26A |  | 28.80 | 5.52 |  |
| San Gorgonio Pass WA | CA reach 26A |  | 17.30 | 0.02 |  |
| Ventura County FCD | CA reach 29H |  | 3.15 |  |  |
|  | CA reach 30 |  | 16.85 | 40.92 |  |
|  | **Total VCFCD** | **0.0** | **20.00** | **40.92** | 0.0 |

Table 3-6c. SWP South-of-the-Delta –Future Conditions

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SWP Contractor** | **Geographic Location** | **Table A Amount (TAF)** | | **Article 21 Demand (TAF/yr Maximum)** | **Losses (TAF/yr)** |
| Ag | M&I |
| SWP Losses | CA reaches 1-2 |  |  |  | 7.70 |
| SBA reaches 1-9 |  |  |  | 0.60 |
| CA reach 3 |  |  |  | 10.80 |
| CA reach 4 |  |  |  | 2.60 |
| CA reach 5 |  |  |  | 3.90 |
| CA reach 6 |  |  |  | 1.20 |
| CA reach 7 |  |  |  | 1.60 |
| CA reaches 8C-13B |  |  |  | 11.90 |
| Wheeler Ridge PP and CA reaches 14A-C |  |  |  | 3.60 |
| Chrisman PP and CA reaches 15A-18A |  |  |  | 1.80 |
| Pearblossom PP and CA reaches 17-21 |  |  |  | 5.10 |
| Mojave PP and CA reaches 22A-23 |  |  |  | 4.00 |
| REC and CA reaches 24-28J |  |  |  | 1.40 |
| CA reaches 29A-29F |  |  |  | 1.90 |
| Castaic PWP and CA reach 29H |  |  |  | 3.10 |
| REC and CA reach 30 |  |  |  | 2.40 |
| **Total** |  |  |  | **63.60** |
| **Total SWP South-of-the-Delta** |  | **1011.66** | **3044.55** | **1098.98** | **63.60** |