

Technical Addendum to The State Water Project Final Delivery Capability Report 2019

August 26, 2020

State of California
Natural Resources Agency
Department of Water Resources



This page intentionally left blank

Table of Contents

Contents

Table of Contents	i
List of Tables	iii
List of Figures	vii
Final DCR 2019 Technical Addendum	1
Introduction	1
Overview of Model Assumptions	2
2019 Delivery Capability Report (DCR) – Existing Condition	2
Dry Year Analysis	8
Objective.....	8
Approach	8
Summary.....	16
CalSim II Modeling Assumptions	17
Model Input Data	41
Article 21 Demands – Existing Conditions	41
Table A Amounts and Article 56 Carryover	44
Documentation on the Updated CalSim II State Water Project Table A, Carryover, and Article 21 Demands and Demand Patterns	46
Objectives	46
Methods	46
Updating the SWP Table A and Article 56 Demands	47
Updating the Article 21 demands	50
Adding 60 percent allocation logic.....	56
Appendix A: Existing Conditions	A-1
Simulation Results for Existing Conditions	A-1
SWP Table A Deliveries.....	A-1
How to interpret Table A-1 SWP Deliveries	A-2
Article 21 Deliveries	A-5
SWP Exports from the Sacramento-San Joaquin Delta.....	A-7
Individual Contractor Table A Deliveries - Existing Conditions	A-10

Individual Contractor Tables SWP Table A Deliveries Description	A-10
Appendix B: Future Condition with Climate Change and 45 cm Sea Level Rise Scenario	B-1
Introduction – Future Conditions	B-1
Climate Change Hydrology	B-1
Sea-Level Rise (SLR).....	B-2
Simulation Results for Future Conditions	B-4
SWP Table A Deliveries.....	B-4
How to interpret Table B-3 SWP Deliveries.....	B-5
Article 21 Deliveries	B-8
SWP Exports from the Sacramento-San Joaquin Delta.....	B-10
Individual Contractor Table A Deliveries - Future Conditions.....	B-13
Individual Contractor Tables SWP Table A Deliveries Description	B-13

List of Tables

Table 1. Dry Year SWP Table A deliveries from the DCR 2019 Main Report.	8
Table 2. Comparison of the pre and post-COA Amendment DCR 2019 export sharing ratios under Balanced and Excess Conditions – Export Constrained	9
Table 3. DCR 2017 - Sensitivity Analysis Dry and Critical Period Banks SWP Exports (TAF) Jan-Dec Averages After Applying post COA amendment export sharing ratios	9
Table 4. DCR 2017 - Sensitivity Analysis Dry and Critical Period SWP Table A Deliveries (Delta and South of Delta only) (TAF) Jan-Dec Averages After Applying post COA amendment export sharing ratios	10
Table 5. DCR 2019 - Sensitivity Analysis Dry and Critical Period Banks SWP Exports (TAF) Jan-Dec Averages After Reverting to pre COA amendment export sharing ratios	10
Table 6. DCR 2019 - Sensitivity Analysis Dry and Critical Period SWP Table A Deliveries (Delta and South of Delta only) (TAF) Jan-Dec Averages After Reverting to pre COA amendment export sharing ratios.....	10
Table 7. Change in Banks SWP exports for three five comparisons of the effects of the Oroville storage target.	11
Table 8. Example of Oroville storage, Banks SWP export operation, Table A allocations and deliveries in a Dry year (1989) with 1.0 and 1.6 storage targets	13
Table 9. DCR 2019 - Sensitivity Analysis Dry and Critical Period Banks SWP Exports (TAF) Jan-Dec Averages. Before and after the ITP/ROC-LTO Actions implementation.	14
Table 10. DCR 2019 - Sensitivity Analysis Dry and Critical Period SWP Table A deliveries (Delta and South of Delta only) (TAF) Jan-Dec Averages. Before and after the ITP/ROC-LTO Actions implementation.	15
Table 11. CalSim II Modeling Assumptions for 2019 Delivery Capability Report.....	17
Table 12. CVP North of Delta Contract Amounts as modeled in CSII	27
Table 13. CVP Contract and Water Right Amounts for American River as modeled in CSII.....	30
Table 14. CVP South of Delta Contract Amounts as modeled in CSII	32
Table 15. SWP North of Delta Contract Amounts as modeled in CSII	36
Table 16. SWP Delta Contract Amounts as modeled in CSII	37
Table 17. SWP South of Delta Contract Amounts as modeled in CSII	38
Table 18. 2019 Monthly Maximums - DCR Article 21 Demands in Normal Years ¹	41
Table 19. 2019 Monthly Maximums - DCR Article 21 Demands in Kern Wet Years	41
Table 20. 2019 DCR Article 21 Annual Maximums	42
Table 21. 2019 DCR Table A Demand and Article 56 Carryover (Existing Conditions).....	45

Table 22. Historical requested Article 21 water from 2011, 2017, and 2019 with the maximum calculated request – County of Kings.....	51
Table 23. 9 SWP contractors whose maximum Article 21 historical requests were higher than those of the maximum historical deliveries. The last column values are their respective Article 21 demands before the 20% scaling up.	51
Table 24. Historical delivered Article 21 water from 2005-2018 along with calculated maximum requested – County of Kings. Months June to November where hidden because there were no deliveries and to maximum table space.....	52
Table 25. Two cases on determining the monthly Article 21 demand input depending on the whether the annual historical delivery or request was higher.	53
Table 26. SV DSS DEM_D847_PIN County of Kings Article 21 demand.....	54
Table A-1. SWP Table A Deliveries for Existing Conditions.....	A-3
Table A-2. Article 21 Deliveries for Existing Conditions.....	A-5
Table A-3. SWP Exports for Existing Conditions	A-7
Table A-4. Alameda County FC&WCD-Zone 7: Existing Conditions	A-11
Table A-5. Alameda County WD: Existing Conditions.....	A-13
Table A-6. Antelope Valley-East Kern WA: Existing Conditions	A-15
Table A-7. Santa Clarita Valley WA: Existing Conditions.....	A-17
Table A-8. Coachella Valley WD: Existing Conditions	A-19
Table A-9. County of Kings: Existing Conditions.....	A-21
Table A-10. Crestline-Lake Arrowhead WA: Existing Conditions	A-23
Table A-11. Desert WA: Existing Conditions	A-25
Table A-12. Dudley Ridge WD: Existing Conditions	A-27
Table A-13. Empire West Side ID: Existing Conditions	A-29
Table A-14. Kern County WA-AG: Existing Conditions.....	A-31
Table A-15. Kern County WA-MI: Existing Conditions	A-33
Table A-16. Littlerock Creek ID: Existing Conditions.....	A-35
Table A-17. Metropolitan WDSC: Existing Conditions	A-37
Table A-18. Mojave WA: Existing Conditions	A-39
Table A-19. Napa County FC&WCD: Existing Conditions	A-41
Table A-20. Oak Flat WD: Existing Conditions	A-43
Table A-21. Palmdale WD: Existing Conditions	A-45
Table A-22. San Bernardino Valley MWD: Existing Conditions	A-47

Table A-23. San Gabriel Valley MWD: Existing Conditions	A-49
Table A-24. San Geronio Pass WA: Existing Conditions	A-51
Table A-25. San Luis Obispo County FC&WCD: Existing Conditions.....	A-53
Table A-26. Santa Barbara County FC&WCD: Existing Conditions	A-55
Table A-27. Santa Clara Valley WD: Existing Conditions.....	A-57
Table A-28. Solano County WA: Existing Conditions	A-59
Table A-29. Tulare Lake Basin WSD: Existing Conditions.....	A-61
Table A-30. Ventura County WPD: Existing Conditions	A-63
Table B-1. Projected SLR (ft) for San Francisco (OPC 2018).....	B-2
Table B-2. DCR 2019 Preliminary Future Conditions (1 ft and 1.5 ft SLR projections for High Emissions, 2040).....	B-2
Table B-3. SWP Table A Deliveries for Future Conditions.....	B-6
Table B-4. Article 21 Deliveries for Future Conditions	B-8
Table B-5. SWP Exports for Future Conditions	B-10
Table B-6. Alameda County FC&WCD-Zone 7: Future Conditions	B-14
Table B-7. Alameda County WD: Future Conditions	B-16
Table B-8. Antelope Valley-East Kern WA: Future Conditions	B-18
Table B-9. Santa Clarita Valley WA: Future Conditions	B-20
Table B-10. Coachella Valley WD: Future Conditions	B-22
Table B-11. County of Kings: Future Conditions.....	B-24
Table B-12. Crestline-Lake Arrowhead WA: Future Conditions	B-26
Table B-13. Desert WA: Future Conditions	B-28
Table B-14. Dudley Ridge WD: Future Conditions.....	B-30
Table B-15. Empire West Side ID: Future Conditions	B-32
Table B-16. Kern County WA-AG: Future Conditions	B-34
Table B-17. Kern County WA-MI: Future Conditions.....	B-36
Table B-18. Littlerock Creek ID: Future Conditions	B-38
Table B-19. Metropolitan WDSC: Future Conditions.....	B-40
Table B-20. Mojave WA: Future Conditions.....	B-42
Table B-21. Napa County FC&WCD: Future Conditions.....	B-44
Table B-22. Oak Flat WD: Future Conditions.....	B-46

Table B-23. Palmdale WD: Future Conditions	B-48
Table B-24. San Bernardino Valley MWD: Future Conditions	B-50
Table B-25. San Gabriel Valley MWD: Future Conditions	B-52
Table B-26. San Geronio Pass WA: Future Conditions	B-54
Table B-27. San Luis Obispo County FC&WCD: Future Conditions	B-56
Table B-28. Santa Barbara County FC&WCD: Future Conditions	B-58
Table B-29. Santa Clara Valley WD: Future Conditions	B-60
Table B-30. Solano County WA: Future Conditions	B-62
Table B-31. Tulare Lake Basin WSD: Future Conditions	B-64
Table B-32. Ventura County WPD: Future Conditions	B-66

List of Figures

Figure 1. Control sheet which selects the directory where the updated lookup table files will be generated in.....	48
Figure A-1. Comparison of SWP Table A Delivery Probability for Existing Conditions	A-1
Figure B-1. Comparison of SWP Table A Delivery Probability for Future Conditions.....	B-4

Final DCR 2019 Technical Addendum

Introduction

The technical addendum is a supplemental document to the 2019 Delivery Capability Report (DCR) Existing and Future (Climate Change with 45cm Sea Level Rise) conditions. This document presents a brief description of the model assumptions, updates, and state water project (SWP) contractor deliveries. The following items are discussed:

- Model updates
- Dry Year Analysis
- Model assumptions
- Model input data
 - Article 21 demands
 - Table A amounts and Article 56 carryover
- Documentation on updating the model input data
- Appendix A-Simulation results for Existing Conditions
 - Annual delivery for Table A, Article 56, and Article 21
 - SWP contractor annual deliveries
- Appendix B-Simulation results for Future Conditions (Climate Change)
 - Annual delivery for Table A, Article 56, and Article 21
 - SWP contractor annual deliveries

Overview of Model Assumptions

2019 Delivery Capability Report (DCR) – Existing Condition

This section outlines the updates to the CalSim II model since the 2017 Delivery Capability Report (DCR) to prepare for the DCR 2019. The DCR 2019 model includes the following broad categories which described the upcoming sections:

- 2018 Coordinated Operation Agreement (COA) addendum
- Re-initiation of Consultation on the Long-Term Operations of the Central Valley Project (CVP) and State Water Project (SWP) (ROC on LTO)
- Incidental Take Permit for Long-Term Operation of the State Water Project (ITP)
- CVP and SWP operation updates
 - ROC on LTO and ITP reconciliation

COA Addendum 2018

In December 2018, Reclamation and DWR signed an Addendum to the Coordinated Operations Agreement about how to share obligations and exports between the federal CVP and the SWP. Reclamation and DWR staff jointly developed the CalSim model. The updated code reflects the following changes:

- Article 6(c): Sharing of responsibility for meeting in-basin uses with storage withdrawals under balanced conditions:

Water Year Type	CVP	SWP
Wet	80%	20%
Above Normal	80%	20%
Below Normal	75%	25%
Dry	65%	35%
Critical	60%	40%

- Article 10(i): Sharing Exports when Exports are constrained
 - Balanced: 65% CVP/35% SWP
 - Excess: 60% CVP/40% SWP

Reclamation Updates

Friant Delivery to Exchange Contractors

In extremely dry conditions, Exchange Contractors cannot get their full delivery from the Delta Mendota Canal (DMC). When this happens, the Exchange Contractors can call on Friant to supplement their deliveries. This operation has been added to the CalSim code.

Sacramento River Navigation Control Point (NCP)

To limit releases when Shasta storage is low, off-ramps were introduced to modify the flow requirement at the NCP based on Shasta storage.

CVP South of Delta (SOD) Allocation

The CVP SOD allocation logic has been updated to better reflect recent operations.

- Exports are estimated based on the Sacramento River Index instead of a single seasonal estimate.
- Modified the San Luis Rule Curve to encourage more efficient timing of North to South conveyance.
- Allowed a higher allocation in May if CVP San Luis storage is higher.

Trinity

A 50 TAF Trinity River Fall Flow release was added in August/September of Above Normal, Below Normal, Dry, and Critical water years based on the Trinity Index. This is carried over into a similar reduction of imports from Trinity to the CVP.

B2 Actions

The model no longer uses an old, preprocessed timeseries based on the 2008 OCAP to implement CVPIA B2 flows at Keswick or Nimbus.

Update CVP Settlement Contractor Demands

CVP Settlement Contractor Demands were updated to match 2000 to 2016 CVO historical annual volumes and monthly distributions.

Disaggregate Folsom Diversions

Separated El Dorado ID and El Dorado County from the aggregated Folsom diversions. These are now distinct deliveries with their own demands and return flows.

Power Releases

- Keswick capacity through the power plant was updated to 16,000 cfs
- Nimbus capacity through the power plant was updated to 5,500 cfs

Other Minor Changes

There were a few minor changes since the 2017 DCR.

- Minor Changes
 - New weight to encourage C6_Rem (units 2, 4, and 6 instead of the river valve)
 - Use Folsom Storage Level instead of a hard number in FMStandard
 - export_ops1.wresl no longer calls the BDCP code jul_sep_prefer_td_exp.wresl
 - Zeroed out the Delta Islands Transfer to Contra Costa Water District (CCWD)
 - Implemented stricter code to implement how flood flows in the Upper San Joaquin River are split between Mendota Pool and the Chowchilla Bypass
 - Define D418 for Cycles 1-5
 - B2Action3 was updated to include an integer check and move a parenthesis
 - Reopcontinuity.wresl now uses a float (penalty 999999) to balance at Hood
 - Friant_rain_fld_est.wresl removed the initial condition for the goal compute-rainrel
- Merged Files
 - CVPcut_sys and CVPcut_s were merged into CVPcut
 - CVPSDeliveryLogicCycle1 and CVPSysDeliveryLogicCycle1 were merged into CVPDeliveryLogicCycle1
- Name Changes
 - Collins_data.wresl changed some case names and comments to be more accurate
 - sum_cvp_reduced_dem.wresl uses perdel_cvpex_s instead of perdel_cvpex_sys
 - American_PRJ_WR.table updated PCWASac to PCWAFol
 - NDO_NDS is now NDO_MOD, and X2_prv_NDS is now X2_prv_MOD

DWR Updates

Oroville Carryover Storage Target

The Oroville carryover target (September storage target) was updated in the model to be consistent with current State Water Project operational guidelines of 1.6 MAF from 1.0 MAF. The Water Operations Office, within the State Water Project, Operations and Maintenance, routinely evaluates the projected demands on Oroville for meeting contractual and regulatory requirements. Recent evaluations have indicated a need to keep storage levels higher what than the previous water supply guidelines methodology was providing.

The current Oroville target is based on a static (flat) 1.6 MAF at the end of September. This methodology using a static 1.6 MAF differs from the previous water supply guidelines methodology, which initially used a 1.0 MAF floor and subsequently increased to a 1.3 MAF floor. The previous methodology utilized a dynamic carryover target based on the 1.0 or 1.3 MAF floor plus a term that incorporated the previous September storage and the current year Table A allocation. The actual carryover target in a given year was typically much higher than 1.0 or 1.3 MAF and could exceed 1.6 MAF as it did in 2012 at a time when the 1.0 MAF floor was being used.

The actual operative target in the last seven years has been between 1.3 and 1.6 MAF reflecting a number of facility and hydrologic conditions that were temporarily governing storage management. The implementation of a static 1.6 MAF target has not been reflected in the modeling up until this release of the DCR.

SWP Demand and Demand Patterns

Updated the Table A, Article 56, and Article 21 demand and demand patterns. Table A and Article 56 demands were obtained from the State Water Project Analysis Office (SWPAO) Initial request data from 2014-2019. 60% allocation patterns are now considered in the model.

Article 21 demand and delivery logic were revised to consider the historical monthly and annual (2005-2018) deliveries and 2011, 2017, and 2019 annual requests. Monthly and annual Article 21 maximum deliveries have now been defined for each contractor.

For more details, please refer to the following section: **Documentation on the Updated CalSim II State Water Project Table A, Carryover, and Article 21 Demands and Demand Patterns**

FRSA Winter Water Allocation

Replaced the tiered winter water allocation logic with a continuum allocation based on the previous month storage at Oroville, inflow into Oroville, minimum in-stream flow requirements on Feather River met with releases from Oroville/ Thermalito Complex, and winter water demand. Under the revised logic, allocations are scaled continuously between 0% and 100% and are updated monthly between October and January.

Banks Permitted Pumping Capacity

Banks pumping plant permitted capacity is up to 10,300 cfs.

Oroville RVOS

Replaced an outdated assumption. The Oroville River Valve Outlet System (RVOS) has been fixed and can now utilize its full capacity of 4,000 cfs instead of the assumed 1,500 cfs capacity.

While reviewing the results, the staff noticed that water was released from the RVOS before utilizing the full capacity of units 2, 4, and 6 which sit at a higher elevation than RVOS. Updated the code to ensure proper order of release operations: (1) Units 2, 4 and 6; then, (2) Units 1, 3, and 5; and finally, RVOS.

Incidental Take Permit (ITP) Framework

Revised the CalSim II cycle structure to accommodate protected routing of ITP water blocks as follows:

- Updated the ANN references in the ANN and X2 files to use inputs from TRANSFER_STAGE1 cycle, instead of the last cycle inputs.
- Added a new cycle – ITP - after the TRANSFERS_STAGE1 cycle. Currently, the purpose of this cycle to fix transfers, wheeling and other operations such that there is no difference between cycle 12 and cycle 13 results. Here is a list of steps taken to develop the new cycle:
 - copy and paste the files from the TRANSFERS_STAGE1 cycle;
 - fix all transfers and wheeling operations to TRANSFERS_STAGE1;
 - fix all X2 salinity calculations to TRANSFERS_STAGE1;
 - fix deliveries, groundwater pumping, groundwater recharge and conveyance losses to TRANSFERS_STAGE1;
 - fix channel flows at selected locations to TRANSFERS_STAGE1; and

- fix selected project operations to TRANSFERS_STAGE1 including COA IBU, COA UWFE, Term 91 diversions.

Updated Yuba Accord Operations

Yuba Water Agency (YWA) converted their operations model from a monthly timestep to a daily timestep as part of their FERC Relicensing process for a more accurate representation of Yuba River Development Project (YRDP) operations. To be consistent with YWA's planning model, Yuba River Development Project Model (YRDPM), the CalSim II inputs related to the Yuba River operations have been updated. In addition to updates to the Yuba River flow above Daguerre Point Dam (I230) and Daguerre Point Dam diversion (DEM_D230_MI) timeseries, the Yuba River transfer (Yuba_Trans) timeseries was further post-processed as follows:

- Defined Accord transfer volume as increase relative to the baseline (D1644) operations between May and September during balanced conditions;
- Restricted the amount of potential refill to the transfer volume and track refill as it occurred;
- If a transfer was not fully refilled in a given year, any remaining refill volume was carried over until it was refilled; and
- If refill occurred during balanced conditions, it was considered an impact, and the subsequent transfer was reduced by an equivalent volume.

DWR and Reclamation Long Term Operation Updates

DCR 2019 study includes all Incidental Take Permit for Long-Term Operation of the State Water Project (ITP) actions. However, due to few minor differences in ROC on LTO and ITP code, DWR and Reclamation modeling staff reconciled ROC on LTO and ITP code pertaining to the following operations:

- Combined flow in Old and Middle River (OMR)
- Fall X2
- Suisun Marsh Salinity Control Gate (SMSCG)

Combined Flow in Old and Middle River (OMR)

- Added OMR target of -5,000 cfs (January-June)
 - Except for 14 days of -2,000 cfs in January (first flush) if not triggered in December
 - Or except for 5 days of -2,000 (January-June) for the turbidity bridge and 6 days of -6,250 cfs when increased pumping due to storm is possible in January-February (AN, BN, D water years)
- Updated OMR target to -3,500 cfs when salvage occurs in March-May
 - Except for 5 days of -2,000 cfs if salvage and turbidity bridge coincide
- Corrected Health and Safety (H&S) off-ramp when exports are low
- Export capacity shared according to COA Article 10(i)

Fall X2/Summer-Fall Delta Smelt Habitat

- Updated X2 in September-October

- Wet and Above Normal years = 80 KM with transitional flows in last half of August
- Below Normal years= SMSCG Operations for 60 days
- CVP meets flow requirements by export reduction and SWP meets requirement by reservoir release.

Suisun Marsh Salinity Control Gate (SMSCG)

- DSM2 model simulation includes tidally based operations that have been shown to meet D-1641 WQ standards (October-May) in Montezuma Slough during salinity control season, which is used for Artificial Neural Network training. Therefore, CalSim II does not explicitly model it.
- Operate for up to 60 days June-October in BN, and AN years (Summer/Fall Delta Smelt habitat).

Dry Year Analysis

Objective

This section explains the reasons for the substantial dry period reductions in Banks SWP exports and SWP deliveries shown in the DCR 2019 main report. Table 1 shows the SWP Table A deliveries from the Delta and South of Delta during the dry periods.

Table 1. Dry Year SWP Table A deliveries from the DCR 2019 Main Report.

Estimated Average and Dry-Period Deliveries of SWP Table A Water, Excluding Butte County and Yuba City (Existing Conditions, in taf/year) and Percent of Maximum SWP Table A Amount, 4,133 TAF/year												
	Long-term Average		Single Dry Year (1977)		Dry Periods							
					2-Year Drought (1976-1977)		4-Year Drought (1931-1934)		6-Year Drought (1987-1992)		6-Year Drought (1929-1934)	
DCR 2017	2,571	62%	336	8%	1,206	29%	1,397	34%	1,203	29%	1,408	34%
DCR 2019	2,414	58%	288	7%	1,311	32%	1,228	30%	1,058	26%	1,158	28%
Diff and % Max Diff	-157	-4%	-48	-1%	105	3%	-169	-4%	-145	-3%	-250	-6%

Approach

Three code updates were reviewed from DCR 2017 to DCR 2019 as follows:

1. COA Addendum 2018 update
2. Oroville Carryover Storage Target increase – 1.0 million acre-feet (MAF) to 1.6 MAF
3. ITP and ROC on LTO actions

Sensitivity analyses studies were developed which compared the DCR 2019 study with and without the update category. The COA Addendum 2018 update evaluated results with the DCR 2017 study as well as DCR 2019. Sensitivity of the Oroville carryover storage target increases and ITP and ROC on LTO actions were also evaluated on the DCR 2019 only.

COA Addendum 2018

Table 2 compares the COA export sharing ratios between pre and post COA addendum 2018 under export restriction. The percent difference column highlights the reduced SWP export share during export constrained months. SWP export share decreased 15% in balanced conditions and 10% under excess conditions under COA. The 2018 COA Addendum sharing ratios drastically reduces the dry and critical water year types SWP exports and deliveries.

Table 2. Comparison of the pre and post-COA Amendment DCR 2019 export sharing ratios under Balanced and Excess Conditions – Export Constrained

Conditions	DCR 2019 (pre COA amendment)		DCR 2019 (post COA amendment)		% Diff	
	CVP	SWP	CVP	SWP	CVP	SWP
Balanced	50%	50%	65%	35%	15%	-15%
Excess	50%	50%	60%	40%	10%	-10%

Results and Discussion

Table 3 and Table 5 show that the Table 2 COA export capacity sharing ratios of COA addendum reduced Banks SWP Exports by 10-13% in Dry Years and 11-14% in Critical Years. When comparing the multi-year dry periods, the Banks SWP reductions followed similar decreasing trends. This can be attributed to the rest of the differing assumptions and operations between the two DCR studies.

Table 4 and Table 6 also show the Dry and Critical water year types impacts on SWP Table A deliveries. In DCR 2017, using the latest COA sharing ratios led to 10% decrease in Dry years and 12% in Critical years. The DCR 2019 was also affected similarly, at 9% reduction in Dry water years and 10% in Critical years.

Overall, the COA amendment export capacity sharing ratios reduced SWP exports and SWP Table A deliveries during the Dry and Critical water year types at similar percentage decreases.

Table 3. DCR 2017 - Sensitivity Analysis Dry and Critical Period Banks SWP Exports (TAF) Jan-Dec Averages After Applying post COA amendment export sharing ratios

Studies	Long Term	Dry Years (Sac 40-30-30)	Critical Years (Sac 40-30-30)	1929-1934	1931-1934	1976-1977	1987-1992
DCR 2017	2616	1951	1169	1464	1420	1257	1252
DCR 2017 (post COA Amendment)	2498	1760	1036	1433	1442	1145	992
Difference	-118	-191	-133	-31	22	-112	-260
% Difference	-5%	-10%	-11%	-2%	2%	-9%	-21%

Table 4. DCR 2017 - Sensitivity Analysis Dry and Critical Period SWP Table A Deliveries (Delta and South of Delta only) (TAF) Jan-Dec Averages After Applying post COA amendment export sharing ratios

Studies	Long Term	Dry Years (Sac 40-30-30)	Critical Years (Sac 40-30-30)	1929-1934	1931-1934	1976-1977	1987-1992
DCR 2017	2571	2065	1160	1408	1397	1206	1203
DCR 2017 (post COA Amendment)	2453	1851	1019	1351	1353	1092	948
Difference	-117	-214	-141	-57	-44	-114	-255
% Difference	-5%	-10%	-12%	-4%	-3%	-9%	-21%

Table 5. DCR 2019 - Sensitivity Analysis Dry and Critical Period Banks SWP Exports (TAF) Jan-Dec Averages After Reverting to pre COA amendment export sharing ratios

Studies	Long Term	Dry Years (Sac 40-30-30)	Critical Years (Sac 40-30-30)	1929-1934	1931-1934	1976-1977	1987-1992
DCR 2019 (pre COA Amendment)	2592	1822	1204	1396	1390	1337	1283
DCR 2019	2519	1610	1055	1228	1214	1198	1057
Difference	-73	-212	-149	-168	-176	-139	-226
% Difference	-3%	-13%	-14%	-14%	-14%	-12%	-21%

Table 6. DCR 2019 - Sensitivity Analysis Dry and Critical Period SWP Table A Deliveries (Delta and South of Delta only) (TAF) Jan-Dec Averages After Reverting to pre COA amendment export sharing ratios

Studies	Long Term	Dry Years (Sac 40-30-30)	Critical Years (Sac 40-30-30)	1929-1934	1931-1934	1976-1977	1987-1992
DCR 2019 (pre COA Amendment)	2481	1944	1179	1276	1342	1416	1270
DCR 2019	2414	1786	1076	1158	1228	1311	1058
Difference	-67	-158	-103	-118	-114	-105	-212
% Difference	-3%	-9%	-10%	-10%	-9%	-8%	-20%

Oroville Carryover Storage Target

Results and Discussion

Increasing the Oroville end of September storage target from 1.0 MAF to 1.6 MAF leads to a reduction in Dry and Critical year deliveries. With a higher storage target, Oroville operates more conservatively during the summer. This is to maintain higher storage and meet the target in September to the greatest extent possible. The storage target is used in calculating the SWP allocation, and a higher Oroville carryover target will lead to a lower allocation, which will decrease exports and deliveries.

The storage target is also used to constrain export releases in all months of the year, when Oroville is in low storage conditions. Table 7 shows the change in Banks SWP exports after increasing the Oroville end of September storage target from 1.0 to 1.6 MAF. SWP exports decrease in all water year types.

Table 7. Change in Banks SWP exports for three five comparisons of the effects of the Oroville storage target.

Banks SWP exports	Oroville Carryover 1.0 to 1.6 MAF target
All years	-61
Wet, AN, BN years	-28
Dry, Critical years	-118

Table 8 below shows an example of how the SWP operation is affected by the storage target, using the DCR 2019 run with the 1.0 and 1.6 MAF storage targets. This example is from the year 1989, which is a Dry year which starts with very low storage because it is in the middle of the 1987-92 drought. While Oroville storage is lower entering this period in the model run with the 1.0 storage target, the difference in storage increases significantly in the August-October period, due to differences in releases for exports. In the model run with the 1.6 storage target, releases for exports are less in order to meet the higher storage target and to maintain a lower allocation. In this year the 1.6 storage target run has a lower Table A allocation (47% vs 48%) and lower Table A deliveries (-206 taf), due to the more conservative operation of Oroville.

Table 8. Example of Oroville storage, Banks SWP export operation, Table A allocations and deliveries in a Dry year (1989) with 1.0 and 1.6 storage targets

Case	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan-Dec
Oroville storage with 1.0 MAF target (taf)	940	1079	2230	2615	2521	2268	1597	1251	1246	1269	1251	1252	1627
Oroville storage 1.6 MAF target (taf)	976	1115	2265	2650	2555	2302	1631	1516	1525	1547	1538	1541	1763
Difference	36	36	35	35	34	34	34	265	279	278	287	289	136
Banks SWP exports with 1.0 MAF target (cfs)	2654	1093	1811	877	600	1647	6680	3540	3527	3072	2808	1845	2513
Banks SWP exports with 1.6 MAF target (cfs)	2654	1756	1811	877	600	1647	6680	300	3346	2973	2008	1864	2210
Difference	0	663	0	0	0	0	0	-3240	-181	-99	-800	19	-303
Table A deliveries with 1.0 MAF target (taf)	10.4	13.2	31.2	155.3	203.7	293.0	333.7	322.5	266.2	252.8	206.4	150.8	2239
Table A deliveries with 1.6 MAF target (taf)	0.8	0.6	37.2	160.9	210.6	302.3	344.1	315.0	198.9	200.5	133.5	128.2	2033
Difference	-10	-13	6	6	7	9	10	-8	-67	-52	-73	-23	-206
Table A allocation with 1.0 MAF target (%)	12	14	20	59	59	59	59	59	59	59	59	59	48
Table A allocation with 1.6 MAF target (%)	0	0	23	60	60	60	60	60	60	60	60	60	47
Difference	-12	-14	3	2	2	2	2	2	2	2	2	2	-1

ITP and ROC LTO Actions

A DCR 2019 baseline study was developed to isolate the 2009 Biological Opinions and Reasonable and Prudent Alternatives (BO RPAs) and the latest ITP and ROC LTO actions. Comparing this baseline with DCR 2019 will help assess the SWP exports and Table A deliveries impact before (BO RPAs only) and after the ITP and ROC LTO code updates were implemented. The steps undertaken were as follows:

1. Start from the ITP Baseline
2. Turn on San Joaquin River Restoration flows
3. Increase the Oroville carryover target from 1.3 MAF to 1.6 MAF
 - ITP Base already increased Oroville carryover target from 1.0 MAF to 1.3 MAF
4. Apply the updated SWP Table A, Article 56, and Article 21 demand and demand patterns

Results and Discussion

Table 9 compares Banks SWP exports with BO RPAs only and with the ITP and ROC LTO actions. Banks SWP exports increased with the addition of the ITP and ROC LTO actions in all the drought periods and Critical water year type except in 1929-1934, 1987-1992 dry periods and the Dry water year type in which exports went down by 3 TAF, 37 TAF and 44 TAF, respectively.

Table 10 also compares the SWP Table A deliveries excluding Butte and Yuba before and after the ITP and ROC LTO operations. Deliveries increased with the addition of the ITP and ROC LTO actions in all the drought periods and Dry and Critical water year types except 1929-1934 which is negligible and minor (1 TAF). The increased Table A deliveries in 1976-1977 were highest, but this could be attributed to the sensitivity of the single dry year 1977. Table 10 demonstrates that the ITP and ROC LTO operations updates were not the main reasons for the SWP Table A deliveries reductions during drought periods shown in Table 1.

Table 9. DCR 2019 - Sensitivity Analysis Dry and Critical Period Banks SWP Exports (TAF) Jan-Dec Averages. Before and after the ITP/ROC-LTO Actions implementation.

Studies	Long Term	Dry Water Years	Critical Water Years	Dry Periods			
				1929-1934	1931-1934	1976-1977	1987-1992
DCR 2019 Baseline (BO RPAs only)	2403	1654	1028	1231	1165	1050	1094
DCR 2019	2519	1610	1055	1228	1214	1198	1057
Difference	116	-44	27	-3	49	148	-37
% Difference	5%	-3%	3%	0%	4%	12%	-4%

Table 10. DCR 2019 - Sensitivity Analysis Dry and Critical Period SWP Table A deliveries (Delta and South of Delta only) (TAF) Jan-Dec Averages. Before and after the ITP/ROC-LTO Actions implementation.

Studies	Long Term	Dry Water Years	Critical Water Years	Dry Periods			
				1929-1934	1931-1934	1976-1977	1987-1992
DCR 2019 Baseline (BO RPAs only)	2339	1760	1028	1159	1199	1033	1057
DCR 2019	2414	1786	1076	1158	1228	1311	1058
Difference	75	26	48	-1	29	278	1
% Difference	3%	1%	4%	0%	2%	21%	0%

Summary

Three update categories between DCR 2017 to DCR 2019 were investigated as follows:

1. COA Addendum 2018 update
2. Oroville Carryover Storage Target increase (1.0 MAF to 1.6 MAF)
3. ITP and ROC on LTO actions

Of the 3 updates, the updated COA 2018 export capacity sharing ratios and the increased Oroville carryover end of September target from 1.0 MAF to 1.6 MAF were the main two reasons leading up to reduced Banks SWP exports and SWP Table A deliveries during the drought periods and water year types.

CalSim II Modeling Assumptions

Table 11. CalSim II Modeling Assumptions for 2019 Delivery Capability Report

	Existing Condition ¹	Future Condition
Planning Horizon¹	Year 2020	Year 2040
Period of Simulation	82 years (1922-2003)	Same as Existing Condition
HYDROLOGY		
Level of Development (land use)	2030 Level ²	Same as Existing Condition
Inflows/Supplies	Inflows based on Historical Hydrology	Inflows based on climate change hydrology with 45 cm sea level rise.
DEMANDS		
North of Delta (excluding the American River)		
CVP ³	Land-use based, full build-out of contract amounts, except for Settlement Contractors represented with historical diversions	Same as Existing Condition
SWP (FRSA)	Land-use based, limited by contract amounts ^{4, 5}	Same as Existing Condition
Non-project	Land-use based, limited by water rights and SWRCB Decisions for Existing Facilities	Same as Existing Condition
Antioch Water Works	Pre-1914 water right	Same as Existing Condition
Federal refuges	Firm Level 2 water needs ⁶	Same as Existing Condition
American River Basin		
Water rights	Year 2025, full water rights ⁷	Same as Existing Condition
CVP	Year 2025, full contracts including Freeport Regional Water Project, except for Settlement Contractors at historical diversions ⁷	Same as Existing Condition
San Joaquin River Basin⁸		
Friant Unit	Limited by contract amounts, based on current allocation policy	Same as Existing Condition
Lower basin	Land-use based, based on district level operations and constraints	Same as Existing Condition
Stanislaus River basin	Land-use based, Stepped Release Plan (SRP) ⁹	Same as Existing Condition
South of Delta		
CVP ³	Demand based on contract amounts	Same as Existing Condition
Federal refuges	Firm Level 2 water needs ⁶	Same as Existing Condition
CCWD	195 TAF/yr CVP contract supply and water rights ¹⁰	Same as Existing Condition
SWP	Demand based on full Table A amounts ^{4, 11}	Same as Existing Condition
Article 56	Based on 2014-2019 contractor requests	Same as Existing Condition
Article 21	MWD delivery up to 286.17 TAF/year (January-May) subject to conveyance capacity, KCWA delivery up to 543.69 TAF/year (November-June), and other contractor deliveries up to maximum of 301.20	Same as Existing Condition

	Existing Condition ¹	Future Condition
	TAF/year, subject to conveyance capacity. All demands have been scaled up by 20% to not constrain Article 21 demands strictly by historical data.	
North Bay Aqueduct	77 TAF/yr demand under SWP contracts. Up to 2.635 TAF/mon of excess flow (i.e. when Standard Water Right Term 91 is not in effect, UWFE used as surrogate) under Fairfield, Vacaville and Benicia Settlement Agreement. NOD Allocation Settlement Agreement terms for Napa and Solano ¹²	Same as Existing Condition
FACILITIES		
System-wide	Existing facilities	Same as Existing Condition
Sacramento Valley		
Shasta Lake	Existing, 4,552 TAF capacity	Same as Existing Condition
Red Bluff Diversion Dam	Diversion dam gates out all year, Pumping Plant operated to deliver CVP water	Same as Existing Condition
Fremont Weir	Existing Weir	Same as Existing Condition
Colusa Basin	Existing conveyance and storage facilities	Same as Existing Condition
Lower American River	Hodge criteria for diversion at Fairbairn	Same as Existing Condition
Upper American River	PCWA American River pump station ^{7,13}	Same as Existing Condition
Lower Sacramento River	Freeport Regional Water Project ¹⁴	Same as Existing Condition
Sacramento River–San Joaquin Delta Region (Delta Export Conveyance)		
SWP Banks Pumping Plant (South Delta)	Physical capacity is 10,300 cfs, permitted capacity is 6,680 cfs in all months and up to 10,300 cfs during Dec 15 th - Mar 15 th depending on Vernalis flow conditions ¹⁵ ; additional capacity of 500 cfs (up to 7,180 cfs) allowed Jul–Sep for reducing impact of NMFS BO (Jun 2009) Action IV.2.1 ¹⁶ on SWP ¹⁷	Same as Existing Condition
CVP C.W. “Bill” Jones Pumping Plant (formerly Tracy PP)	Permit capacity is 4,600 cfs in all months (allowed for by the Delta-Mendota Canal-California Aqueduct Intertie)	Same as Existing Condition
Upper Delta-Mendota Canal Capacity	Existing plus 400 cfs Delta-Mendota Canal–California Aqueduct Intertie	Same as Existing Condition
CCWD Intakes	Los Vaqueros existing storage capacity, 160 TAF, existing pump locations, Alternative Intake Project (AIP) included ¹⁸	Same as Existing Condition
Montezuma Slough Salinity Control Gates	Delta salinity conditions are adjusted for months in which the salinity control gate is operated (Details in the operation section) ⁹	Same as Existing Condition
San Joaquin River		
Millerton Lake (Friant Dam)	Existing, 524 TAF capacity	Same as Existing Condition

	Existing Condition ¹	Future Condition
Lower San Joaquin River	City of Stockton Delta Water Supply Project, 30 mgd capacity	Same as Existing Condition
San Francisco Bay Region		
South Bay Aqueduct (SBA)	SBA rehabilitation, 430 cfs capacity from junction with California Aqueduct to Alameda County FC&WSD Zone 7 point	Same as Existing Condition
South Coast Region		
California Aqueduct	Existing capacity	Same as Existing Condition
REGULATORY STANDARDS		
Trinity River		
Minimum Flow below Lewiston Dam	Trinity EIS Preferred Alternative (369-815 TAF/yr)	Same as Existing Condition
Trinity Reservoir end-of-September minimum storage	Trinity EIS Preferred Alternative (600 TAF/yr as able)	Same as Existing Condition
Trinity River Fall Augmentation Flows	420 cfs August 1 through September 30 in all but very wet years	Same as Existing Condition
Clear Creek		
Minimum flow below Whiskeytown Dam	Downstream water rights, 1963 USBR Proposal to USFWS and NPS; and 200 cfs October through May or 150 cfs in Critical years and 150 cfs June through September with 10 TAF for channel maintenance in February of BN, AN and Wet years and 10 TAF for Spring pulse flows in June of all years ⁹	Same as Existing Condition
Upper Sacramento River		
Shasta Lake end-of-September minimum storage	1900 TAF in non-critically dry years (not explicitly modeled - achieved through project allocation profiles when hydrologically feasible) ⁹	Same as Existing Condition
Minimum flow below Keswick Dam	SWRCB WR 90-5; and stabilize fall flows to reduce redd dewatering and rebuild cold water pool; and spring pulse flow up to 150 TAF if projected May 1 storage > 4.1 MAF ⁹	Same as Existing Condition
Feather River		
Minimum flow below Thermalito Diversion Dam	2006 Settlement Agreement (700 / 800 cfs)	Same as Existing Condition
Minimum flow below Thermalito Afterbay outlet	1983 DWR, CDFW agreement (750 – 1,700 cfs)	Same as Existing Condition
Yuba River		
Minimum flow below Daguerre Point Dam	D-1644 Operations (Lower Yuba River Accord) ¹⁹	Same as Existing Condition
American River		

	Existing Condition ¹	Future Condition
Minimum flow below Nimbus Dam	American River Flow Management Standard, per 2017 Water Forum Agreement with a planning minimum end of December storage target of 275 TAF ⁹	Same as Existing Condition
Minimum flow at H Street Bridge	SWRCB D-893	Same as Existing Condition
Lower Sacramento River		
Minimum flow near Rio Vista	SWRCB D-1641	Same as Existing Condition
Mokelumne River		
Minimum flow below Camanche Dam	Federal Energy Regulatory Commission 2916-029 ¹⁴ , 1996 (Joint Settlement Agreement) (100 – 325 cfs)	Same as Existing Condition
Minimum flow below Woodbridge Diversion Dam	Federal Energy Regulatory Commission 2916-029 ¹⁴ , 1996 (Joint Settlement Agreement) (25 – 300 cfs)	Same as Existing Condition
Stanislaus River		
Minimum flow below Goodwin Dam	Flows per New Melones SRP ⁹	Same as Existing Condition
Minimum dissolved oxygen	SWRCB D-1422	Same as Existing Condition
Merced River		
Minimum flow below Crocker-Huffman Diversion Dam	Davis-Grunsky (180 – 220 cfs, Nov – Mar), and Cowell Agreement	Same as Existing Condition
Minimum flow at Shaffer Bridge	Federal Energy Regulatory Commission 2179 (25 – 100 cfs)	Same as Existing Condition
Tuolumne River		
Minimum flow at Lagrange Bridge	Federal Energy Regulatory Commission 2299-024, 1995 (Settlement Agreement) (94 – 301 TAF/yr)	Same as Existing Condition
San Joaquin River		
San Joaquin River below Friant Dam/Mendota Pool	San Joaquin River Restoration-full flows, not constrained by current river capacity, model implementation does not include any recapture/recirculation ⁹	Same as Existing Condition
Maximum salinity near Vernalis	As supported by Stanislaus SRP flows ⁹	Same as Existing Condition
Minimum flow near Vernalis	As supported by Stanislaus SRP flows ⁹	Same as Existing Condition
Sacramento-San Joaquin Delta		
Delta Outflow Index (flow and salinity)	SWRCB D-1641 and for Summer/Fall Delta Smelt habitat operate to meet X2 of 80 km for September and October of AN, and Wet years with transitional flows in last half of August; modeled as In-Basin Use and shared according to COA Article 6(c) 9 , 20 , 21	Same as Existing Condition
Delta Cross Channel gate operation	SWRCB D-1641 with additional days closed from Oct 1-Jan 31 based on NMFS BO (Jun 2009) Action	Same as Existing Condition

	Existing Condition ¹	Future Condition
	IV.1.2 ¹⁶ (closed during flushing flows from Oct 1-Dec 14 unless adverse water quality conditions)	
South Delta exports (Jones PP and Banks PP)	SWRCB D-1641, additional 500 cfs allowed for Jul-Sep for reducing impact on SWP ¹⁷ , Export capacity shared according to COA Article 10(i) ²⁰	Same as Existing Condition
Combined Flow in Old and Middle River (OMR)	OMR target of -5,000 cfs in January through June except for 14 days of -2,000 cfs in January (for the first flush) if it is not triggered in December, or 5 days of -2,000 cfs in January through June for the turbidity bridge, and 6 days of -6,250 cfs when increased pumping due to storm is possible in January and February of AN, BN, and D water years. When salvage occurs in March - May, the target OMR is -3,500 cfs except for 5 days of -2,000 cfs if salvage and turbidity bridge coincide ⁹ Export capacity shared according to COA Article 10(i) ²⁰	Same as Existing Condition
SJR Inflow to Export Ratio	Maximum allowable SWP Export is the maximum of 600 CFS or 40% of the total Export under SJRIE regulation in April 1 – May 31 when Delta Outflow is less than 44,500 cfs. Export restriction is applied above health and Safety requirements of 300 cfs ²¹	Same as Existing Condition
Additional 100 TAF for Delta Outflow	SWP 100 taf export cut during spring, summer, or fall months to provide a flexible water block to enhance Delta Outflow. This criterion is modeled as SWP export cut of wet and above normal years in August month ²¹	Same as Existing Condition
OPERATIONS CRITERIA: RIVER-SPECIFIC		
Upper Sacramento River		
Flow objective for navigation (Wilkins Slough)	Flow objective for Wilkins Slough based on month, CVP allocation, and Shasta storage condition to reflect CVP operations for local delivery	Same as Existing Condition
American River		
Folsom Dam flood control	Variable 400/600 flood control diagram (without outlet modifications)	Same as Existing Condition
Feather River		
Flow at mouth of Feather River (above Verona)	Maintain the CDFW /DWR flow target of 2,800 cfs for Apr - Sep dependent on Oroville inflow and FRSA allocation	Same as Existing Condition
Stanislaus River		
Flow below Goodwin Dam	New Melones Stepped Release Plan ⁹	Same as Existing Condition
San Joaquin River		
Salinity at Vernalis	Grasslands Bypass Project (full implementation)	Same as Existing Condition

		Existing Condition ¹	Future Condition
Sacramento - San Joaquin Delta			
Montezuma Slough Salinity Control Gates (October-June)	Not modeled ²²		Same as Existing Condition
Montezuma Slough Salinity Control Gates (Summer-Fall action)	Summer/Fall Delta Smelt habitat operate for up to 60 days June through October of BN and AN year; CVP and SWP meet the flow requirement to maintain the salinity ^{9, 21}		Same as Existing Condition
Montezuma Slough Salinity Control Gates (summer action)	Additional summer action for a 30-day control gate operation during a dry year following a below normal year. SWP only meets the flow requirement ²¹		Same as Existing Condition
Summer/Fall Habitat (Fall X2)	Fall X2 criteria to maintain low salinity in Suisan Marsh in September and October of wet and above normal years with transitional flow in August. CVP meets its obligation from export cut followed by reservoir release and SWP meets its obligation from reservoir release followed by export cut ^{9, 21}		Same as Existing Condition
OPERATIONS CRITERIA: SYSTEMWIDE			
CVP Water Allocation			
Settlement and exchange	100% (75% in Shasta critical years)		Same as Existing Condition
Refuges	100% (75% in Shasta critical years)		Same as Existing Condition
CVP Agriculture	100% - 0% based on supply. South-of-Delta allocations are additionally limited due to D-1641, ROC on LTO export restrictions. North-of-Delta allocation adjustment for high Shasta Lake ^{9, 21}		Same as Existing Condition
Municipal & Industrial	100% - 50% based on supply. South-of-Delta allocations are additionally limited due to D-1641, ROC on LTO export restrictions. North-of-Delta allocation adjustment for high Shasta Lake storage ^{9, 21}		Same as Existing Condition
SWP Water Allocation			
North of Delta (FRSA)	Contract-specific NOD Allocation Settlement Agreement terms for Napa and Solano ¹²		Same as Existing Condition
South of Delta (including North Bay Aqueduct)	Based on supply; equal prioritization between Ag and M&I based on Monterey Agreement; allocations are limited due to D-1641, ROC on LTO and ITP export restrictions ^{9, 21} NOD Allocation Settlement Agreement terms for Napa and Solano ¹²		Same as Existing Condition

	Existing Condition ¹	Future Condition
CVP/SWP Coordinated Operations		
Sharing of responsibility for in-basin use	<p>According to Coordinated Operations Agreement (2018), sharing responsibility for meeting Sacramento Valley In-basin use during balance condition with water year type in percentage for CVP and SWP, respectively are⁹:</p> <p style="text-align: center;">80/20 in AN and W</p> <p style="text-align: center;">75/25 in BN</p> <p style="text-align: center;">65/35 in D</p> <p style="text-align: center;">60/40 in C</p> <p>As per NAPA agreement, FRWP and EBMUD 2/3 of the North Bay Aqueduct diversions are considered as Delta export, 1/3 of the North Bay Aqueduct diversion is considered as in-basin use</p>	Same as Existing Condition
Sharing of surplus flows	<p>According to Coordinated Operations Agreement (2018), CVP and SWP sharing responsibility during Unstored Water for Export (UWFE) during balanced condition for all year type is 55% and 45%, respectively.</p>	Same as Existing Condition
Sharing of restricted export capacity for project-specific priority pumping	<p>The percentage sharing of export capacity under export limits due to (1) SWRCB D-1641 (export/inflow ratio, Vernalis 1:1), (2) Old and Middle River flow requirements^{9, 21}</p> <p style="text-align: center;">60/40 CVP/SWP during excess conditions</p> <p style="text-align: center;">65/35 CVP/SWP during balanced conditions</p> <p style="text-align: center;">No restrictions on Inter-tie use to meet these shares</p>	Same as Existing Condition
Water transfers	<p>Acquisitions by SWP contractors are wheeled at priority in Banks Pumping Plant over non-SWP users; LYRA included for SWP contractors¹⁷</p>	Same as Existing Condition
Sharing of export capacity for lesser priority and wheeling-related pumping	<p>Cross Valley Canal wheeling (max of 128 TAF/yr), CALFED ROD defined Joint Point of Diversion (JPOD)</p>	Same as Existing Condition
San Luis Reservoir	<p>San Luis Reservoir is allowed to operate to a minimum storage of 100 TAF</p>	Same as Existing Condition

	Existing Condition ¹	Future Condition
Sharing of Banks additional permitted capacity	195 TAF of “make up” pumping to the extent it does not impact SWP operations through the remainder of the year. Not explicitly implemented in this model ²⁰	Same as Existing Condition
CVPIA 3406(b)(2)		
Policy decision	Per May 2003 Department of Interior decision	Same as Existing Condition
Allocation	No B2 actions modeled ⁹	Same as Existing Condition
Actions	Pre-determined upstream fish flow objectives below Whiskeytown ⁹	Same as Existing Condition
Accounting adjustments	No B2 Accounting modeled ⁹	Same as Existing Condition
WATER MANAGEMENT ACTIONS		
Water Transfer Supplies (long term programs)		
Lower Yuba River Accord ¹⁷	Yuba River acquisitions for reducing impact of ROC on LTO and ITP on SWP ^{9, 21}	Same as Existing Condition
Phase 8	None	Same as Existing Condition

Notes

- 1 These assumptions have been developed under the direction of the Department of Water Resources for the Delivery Capability Report (DCR) studies.
- 2 The Sacramento Valley hydrology used in the Future Conditions CALSIM II model reflects 2020 land-use assumptions associated with Bulletin 160-98. The San Joaquin Valley hydrology reflects draft 2030 land-use assumptions developed by Reclamation. Development of Future-level projected land-use are being coordinated with the California Water Plan Update for future models.
- 3 CVP contract amounts have been reviewed and updated according to existing and amended contracts, as appropriate. Assumptions regarding CVP agricultural and M&I service contracts and Settlement Contract amounts are listed in Table 12, Table 13, and Table 14 in respect of NOD, American River and SOD accordingly. Summary of CVP contract amounts are tabulated below.

Project	North-of-the-Delta	South-of-the-Delta
Contractor Type	(TAF)	(TAF)
CVP Contractors		
Settlement/Exchanges	2291	840
Water Service Contractor		
Agriculture	358	1937
M&I	360	164
Refuges	191	281

- 4 SWP contract amounts have been updated as appropriate based on recent Table A transfers/agreements. The contractors' table A entitlement is obtained from Bulletin 132. Assumptions regarding SWP agricultural and M&I contract amounts are listed in Table 15, Table 16, and Table 17 in respect of NOD, Delta and SOD accordingly. Summary of SWP contract amounts are tabulated below.

Project	North-of-the-Delta	South-of-the-Delta
Contractor Type	(TAF)	(TAF)
SWP Contractors		
Feather River Area + Delta	1087	0
Table A	114	4056
Agriculture	0	1012
M&I	114	3044

- 5 Demand for rice straw decomposition water from Thermalito Afterbay was added to the model and updated to reflect historical diversion from Thermalito in the October through January period.
- 6 Water needs for Federal refuges have been reviewed and updated, as appropriate. Assumptions regarding firm Level 2 refuge water are listed in Table 12 and Table 13. Refuge Level 4 (and incremental Level 4) water is not included.
- 7 Assumptions regarding American River water rights and CVP contracts with the Sacramento River Water Reliability Project are listed in Table 13. The Sacramento Area Water Forum agreement, its dry year diversion reductions, Middle Fork Project operations and water is not included.
- 8 CalSim-II representation of the San Joaquin River (CalSim-II San Joaquin River Model, Reclamation, 2005). The model reflects the difficulties of on-going groundwater overdraft problems. The 2030 level of development representation of the San Joaquin River Basin does not make any attempt to offer solutions to groundwater overdraft problems. In addition, a dynamic groundwater simulation is not yet implemented here for the San Joaquin River Valley. Groundwater extraction/recharge and stream-groundwater interaction are static assumptions and may not accurately reflect a response to simulated actions. These limitations should be considered in the analysis of result.
- 9 Re-initiation of Consultation on long-term operations of the Central Valley Project (CVP) and State Water Project (SWP). <https://www.usbr.gov/mp/bdo/lto/index.html>
- 10 The actual amount diverted is operated in conjunction with supplies from the Los Vaqueros project. The existing Los Vaqueros storage capacity is 160 TAF. Associated water rights to fill Los Vaqueros with Delta excess flows are included,

but CCWD's water right permit and water right license on Mallard Slough are not included. The operation also includes in-Delta transfers.

- [11](#) It is assumed that SWP Contractors can take delivery of all Table A allocations and Article 21 supplies. Article 56 provisions are assumed and allow for SWP Contractors to manage storage and delivery conditions such that full Table A allocations can be delivered. Detailed analysis of the South Coast and Tulare regions support these assumptions. NBA Article 21 deliveries are dependent on excess conditions only, all other Article 21 deliveries also require that San Luis Reservoir be at capacity and that Banks PP and the California Aqueduct has available capacity to divert from the Delta for direct delivery.
- [12](#) This includes draft logic for the updated Allocation Settlement Agreement for four NOD contractors: Butte, Yuba, Napa and Solano.
- [13](#) PCWA American River pumping facility upstream of Folsom Lake is included.
- [14](#) Mokelumne River flows are modified to reflect modified operations associated with EBMUD supplies from the Freeport Regional Water Project.
- [15](#) Current ACOE permit for Banks PP allows for an average diversion rate of 6,680 cfs in all months. Diversion rate can increase up to 1/3 of the rate of San Joaquin River flow at Vernalis during Dec 15th – Mar 15th up to a maximum diversion of 10,300 cfs, if Vernalis flow exceeds 1,000 cfs.
- [16](#) In cooperation with Reclamation, National Marine Fisheries Service, Fish and Wildlife Service, and CA Department of Fish and Game, the CA Department of Water Resources has developed assumptions for implementation of the FWS BO (Dec 15th 2008) and NMFS BO (June 4th 2009) in CALSIM II. The FWS BO and NMFS BO assumptions are documented in the Appendix 5A of the LTO EIS (Reclamation 2015b).
- [17](#) Acquisitions of Component 1 water under the Lower Yuba River Accord and use of 500 cfs dedicated capacity at Banks PP during Jul – Sep, are assumed to be used to reduce as much of the impact of the Apr-May Delta export actions on SWP contractors as possible.
- [18](#) The CCWD Alternate Intake Project, an intake at Victoria Canal, which operates as an alternate Delta diversion for Los Vaqueros Reservoir. To be consistent with latest Los Vaqueros modeling; and intake WQ conditions updated based on DSM2.
- [19](#) D-1644 and the Lower Yuba River Accord is assumed to be implemented. The Yuba River is not dynamically modeled in CALSIM II. Yuba River hydrology and availability of water acquisitions under the Lower Yuba River Accord are based on modeling performed and the Lower Yuba River Accord EIS/EIR study team.
- [20](#) Coordinated Operation of the Central Valley project and the State Water Project Addendum. <https://www.usbr.gov/mp/cvo/coa-addendum-2018-12-12.pdf>
- [21](#) Incidental Take Permit (ITP) for Long-Term Operation of the State Water Project. <https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/State-Water-Project/Files/ITP-for-Long-Term-SWP-Operations.pdf>
- [22](#) The D1641 regulation is not modeled in CalSim II. However, DSM2 operates this gate from October to February which reduces the salinity below the D1641 standard below until May. Testimonial presented in California Water Fix hearing. Testimonial presented in California Water Fix hearing. https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/petitioners_exhibit/dwr/part2/DWR-1015%20Testimony%20Smith.pdf

Table 12. CVP North of Delta Contract Amounts as modeled in CSII

CVP CONTRACTOR	Geographic Location	CALSIM II Representation		CVP Water Service Contracts (TAF/yr)		Settlement / Exchange Contractor (TAF/yr)	Water Rights/Non-CVP (TAF/yr)	Level 2 Refuges (TAF/yr)
		Diversion	Region	AG	M&I			
Anderson Cottonwood ID	Sacramento River Redding Subbasin	D104A	DSA 58			128.0		
Clear Creek CSD		D104B	DSA 58	13.8	1.5			
Bella Vista WD		D104C	DSA 58	22.1	2.4			
Shasta CSD		D104D	DSA 58		1.0			
Sac R. Misc. Users		D104F	DSA 58			3.4		
Redding, City of		D104G	DSA 58			21.0		
City of Shasta Lake		D104H	DSA 58	2.5	0.3			
Mountain Gate CSD		D104I	DSA 58		0.4			
Shasta County Water Agency		D104J	DSA 58	0.5	0.5			
Redding, City of/Buckeye		D104K	DSA 58		6.1			
Total		D104			38.9	12.2	152.4	
Corning WD	Corning Canal	D171	WBA 4	23.0				
Proberta WD		D171	WBA 4	3.5				
Thomes Creek WD		D171	WBA 4	6.4				
Total					32.9	0.0	0.0	
Kirkwood WD	Tehama-Colusa Canal	D172	WBA 4	2.1				
Glide WD		D174	WBA 7N	10.5				
Kanawha WD		D174	WBA 7N	45.0				
Orland-Artois WD		D174	WBA 7N	53.0				
Colusa, County of		D178	WBA 7S	20.0				
Colusa County WD		D178	WBA 7S	62.2				
Davis WD		D178	WBA 7S	4.0				
Dunnigan WD		D178	WBA 7S	19.0				
La Grande WD		D178	WBA 7S	5.0				
Westside WD		D178	WBA 7S	65.0				
Total					285.8	0.0	0.0	
Sac. River Misc. Users	Sacramento River	D113A	WBA 4			1.2		
Glenn Colusa ID	Glenn-Colusa Canal	D143A	WBA 8NN			441.5		
		D145A	WBA 8NS			383.5		
Sacramento NWR		D143B	WBA 8NN					54.5
Delevan NWR		D145B	WBA 8NS					24.6
Colusa NWR		D182B	WBA 8NS					29.3
Colusa Drain M.W.C.	Colusa Basin Drain	D180	WBA 8NN			0.0		
		D182A/D18302	WBA 8NS			Average ~41.2		
Total				0.0	0.0	866.2		108.4

CVP CONTRACTOR	Geographic Location	CALSIM II Representation		CVP Water Service Contracts (TAF/yr)		Settlement / Exchange Contractor (TAF/yr)	Water Rights/Non-CVP (TAF/yr)	Level 2 Refuges (TAF/yr)
		Diversion	Region	AG	M&I			
Princeton-Cordova-Glenn ID / Provident ID / Maxwell ID / Sac R. Misc. Users	Sacramento River	D122A	WBA 8NS			149.9		
Maxwell ID / Sycamore Family Trust / Roberts Ditch IC / Reclamation District 108 / Sac R. Misc. Users		D122B	WBA 8NS			149.8		0.0
Total						299.7		
Reclamation District 108 / River Garden Farms / Sac R. Misc. Users	Sacramento River	D129A	WBA 8S			261.2		
Meridian Farms WC / Pelger Mutual WC / Reclamation District 1004 / Carter MWC / Sutter MWC / Tisdale Irrigation & Drainage Co.		D128	DSA 15			479.31		
Feather River WD export		D128	DSA 15	0.0				
Total				0.0	0.0	740.5		0.0
Sutter NWR	Sutter bypass water for Sutter NWR	C136B	DSA 69					25.7
Gray Lodge WMA	Feather River	C216B	DSA 69					41.3
Butte Sink Duck Clubs		C221	DSA 69					15.6
Total					0.0	0.0	0.0	
Sac R. Misc. Users	Sacramento River	D163	DSA 65			56.8		
City of West Sacramento		D165	DSA 65			23.6		
Davis-Woodland Water Supply Project		D165	DSA 65					

CVP CONTRACTOR	Geographic Location	CALSIM II Representation		CVP Water Service Contracts (TAF/yr)		Settlement / Exchange Contractor (TAF/yr)	Water Rights/Non-CVP (TAF/yr)	Level 2 Refuges (TAF/yr)
		Diversion	Region	AG	M&I			
Total				0.0	0.0	80.4		0.0
Sac R. Misc. Users	Lower Sacramento River	D162A	DSA 70			4.8		
Natomas Central MWC		D162B	DSA 70			120.2		
Pleasant Grove-Verona MWC		D162C	DSA 70			26.3		
City of Sacramento		D162D	DSA 70		0.0		0.0	
Placer County Water Agency (Sac Suburban, Roseville and others)		D162E	DSA 70		0.0		0.0	
Total					0.0	151.3	0.0	
Total CVP North-of-Delta				357.6	12.2	2291.7	0.0	191.1

Table 13. CVP Contract and Water Right Amounts for American River as modeled in CSII

CVP CONTRACTOR	Geographic Location	CALSIM II Diversion	CVP Water Service Contracts (TAF/yr)		Settlement/ Exchange Contractor (TAF/yr)	Water Rights/ Non-CVP (TAF/yr)	Diversion Limit Capacity) (TAF/Yr)
			AG	M&I1			
Placer County Water Agency	Auburn Dam Site	D300		0.0		65.0	65.0
Sacramento Suburban Water District2	Folsom Reservoir	D8A				0.0	0.0
City of Folsom (includes P.L. 101-514)		D8B		7.0		27.0	34.0
Folsom Prison		D8C				5.0	5.0
San Juan Water District (Placer County)		D8D				25.0	25.0
San Juan Water District (Sac County) (includes P.L. 101-514)		D8E		24.2		33.0	57.2
El Dorado Irrigation District		D8F		7.55		17.0	7.55
City of Roseville		D8G		32.0		30.0	62.0
Placer County Water Agency		D8H		35.0			35
El Dorado County (P.L. 101-514)		D8I		15.0			0.0
Total				0.0	120.8	0.0	137.0
So. Cal WC/ Arden Cordova WC	Folsom South Canal	D9AA				5.0	5.0
California Parks and Recreation		D9AB		5.0			5.0
SMUD (export)		D9B		30.0		15.0	45.0
Canal Losses		D9A				1.0	1.0
Total			0.0	35.0	0.0	21.0	56.0
City of Sacramento	Lower American River	D302A				230.0	230.0
Carmichael Water District		D302C				12.0	12.0
Total			0.0	0.0	0.0	240	240
City of Sacramento	Lower Sacramento River	D167A		0.0		81.8	311.8
Sacramento County Water Agency (includes SMUD transfer)		D167B		10.0			10
		D168C		35.0			35.

CVP CONTRACTOR	Geographic Location	CALSIM II Diversion	CVP Water Service Contracts (TAF/yr)		Settlement/ Exchange Contractor (TAF/yr)	Water Rights/ Non-CVP (TAF/yr)	Diversion Limit Capacity) (TAF/Yr)	
			AG	M&I1				
Sacramento County Water Agency (P.L. 101- 514)		D168C		15.0			15	
Sacramento County Water Agency - assumed Appropriated Water		D168C				Varies Average ~17 TAF	18	
EBMUD (export)		D168B		133.0				
Total				0.0	193.0	0.0	98.8	522.8
Total (American R)			0.0	348.8	0.00	551.8	1109.6	

Table 14. CVP South of Delta Contract Amounts as modeled in CSII

CVP CONTRACTOR	Geographic Location	CALSIM II Diversion	CVP Water Service Contracts (TAF/yr)		Settlement / Exchange Contractor (TAF/yr)	Water Rights / Non-CVP (TAF/yr)	Level 2 Refuges (TAF/yr)	Losses (TAF/yr)
			AG	M&I				
Byron-Bethany ID	Upper DMC	D700	20.6					
Tracy, City of		D700		10.0				
		D700		5.0				
		D700		5.0				
Banta Carbona ID		D700	20.0					
Total	D700	40.6	20.0	0.0	0.0	0.0	0.0	
<hr/>								
Del Puerto WD	Upper DMC	D701	12.1					
Davis WD		D701	5.4					
Foothill WD		D701	10.8					
Hospital WD		D701	34.1					
Kern Canon WD		D701	7.7					
Mustang WD		D701	14.7					
Orestimba WD		D701	15.9					
Quinto WD		D701	8.6					
Romero WD		D701	5.2					
Salado WD		D701	9.1					
Sunflower WD		D701	16.6					
West Stanislaus WD		D701	50.0					
Patterson WD		D701	16.5			6.0		
Total		D701	206.7	0.0	0.0	6.0	0.0	212.7
<hr/>								
Upper DMC Loss	Upper DMC	D702						18.5
<hr/>								
Panoche WD	Lower DMC Volta	D706	6.6					
San Luis WD		D706	65.0					
Laguna WD		D706	0.8					
Eagle Field WD		D706	4.6					
Mercy Springs WD		D706	2.8					
Oro Loma WD		D706	4.6					
Total	D706	84.4	0.0	0.0	0.0	0.0	0.0	
<hr/>								
Upper DMC Exchange Contractors	Lower DMC Volta	D707						
Central California ID	Lower DMC Volta	D707			140.0			
Grasslands via CCID	Lower DMC Volta	D708					81.8	
Los Banos WMA	Lower DMC Volta	D708					11.2	
Kesterson NWR		D708					10.5	
Freitas - SJBAP		D708					6.3	
Salt Slough - SJBAP		D708					8.6	
China Island - SJBAP		D708					7.0	
Volta WMA	D708					13.0		

CVP CONTRACTOR	Geographic Location	CALSIM II Diversion	CVP Water Service Contracts (TAF/yr)		Settlement / Exchange Contractor (TAF/yr)	Water Rights / Non-CVP (TAF/yr)	Level 2 Refuges (TAF/yr)	Losses (TAF/yr)
			AG	M&I				
Grassland via Volta Wasteway		D708					23.2	
Total		D708	0.0	0.0	140.0	0.0	161.5	0.0
Fresno Slough WD	San Joaquin River at Mendota Pool	D607A	4.0			0.9		
James ID		D607A	35.3			9.7		
Coelho Family Trust		D607A	2.1			1.3		
Tranquillity ID		D607A	13.8			20.2		
Tranquillity PUD		D607A	0.1			0.1		
Reclamation District 1606		D607A	0.2			0.3		
Exchange Contractors		D607B						
Central California ID		D607B			392.4			
Columbia Canal Co.		D607B			59.0			
Firebaugh Canal Co.		D607B			85.0			
San Luis Canal Co.		D607B			23.6			
M.L. Dudley Company		D607B				2.3		
Grasslands WD		D607C					29.0	
Mendota WMA		D607C					27.6	
Losses		D607D						101.5
Total		D607	55.5	0.0	560.0	34.8	56.6	101.5
Exchange Contractors	San Joaquin River at Sack Dam	D608B						
San Luis Canal Co.		D608B			140.0			
Grasslands WD		D608C					2.3	
Los Banos WMA		D608C					12.4	
San Luis NWR		D608C					19.5	
West Bear Creek NWR		D608C					7.5	
East Bear Creek NWR		D608C					8.9	
Total	D608	0.0	0.0	140.0	0.0	50.6	0.0	
San Benito County WD (Ag)	San Felipe	D710	35.6					
Santa Clara Valley WD (Ag)		D710	33.1					
Pajaro Valley WD		D710	6.3					
San Benito County WD (M&I)		D711		8.3				
Santa Clara Valley WD (M&I)		D711		119.4				
Total		D710/D711	74.9	127.7	0.0	0.0	0.0	0.0

CVP CONTRACTOR	Geographic Location	CALSIM II Diversion	CVP Water Service Contracts (TAF/yr)		Settlement / Exchange Contractor (TAF/yr)	Water Rights / Non-CVP (TAF/yr)	Level 2 Refuges (TAF/yr)	Losses (TAF/yr)
			AG	M&I				
San Luis WD	CA reach 3	D833	60.1					
CA, State Parks and Rec		D833	2.3					
Affonso/Los Banos Gravel Co.		D833	0.3					
Total		D833	62.6	0.0	0.0	0.0	0.0	0.0
Panoche WD	CVP Dos Amigos PP/ CA reach 4	D835	87.4					
Pacheco WD		D835	10.1					
Total		D835	97.5	0.0	0.0	0.0	0.0	0.0
Westlands WD (Centinella WD)	CA reach 4	D836	2.5					
Westlands WD (Broadview WD)		D836	27.0					
Westlands WD (Mercy Springs WD)		D836	4.2					
Westlands WD (Widern WD)		D836	3.0					
Total		D836	36.7	0.0	0.0	0.0	0.0	0.0
Westlands WD: CA Joint Reach 4	CA reach 4	D837	219.0					
Westlands WD: CA Joint Reach 5	CA reach 5	D839	570.0					
Westlands WD: CA Joint Reach 6	CA reach 6	D841	219.0					
Westlands WD: CA Joint Reach 7	CA reach 7	D843	142.0					
Total			1150.0	0.0	0.0	0.0	0.0	0.0
Avenal, City of	CA reach 7	D844		3.5		3.5		
Coalinga, City of		D844		10.0				
Huron, City of		D844		3.0				
Total		D844	0.0	16.5	0.0	3.5	0.0	0.0
CA Joint Reach 3 - Loss	CVP Dos Amigos PP/CA reach 3	D834						2.5
CA Joint Reach 4 - Loss	CA reach 4	D838						10.1
CA Joint Reach 5 - Loss	CA reach 5	D840						30.1
CA Joint Reach 6 - Loss	CA reach 6	D842						12.5

CVP CONTRACTOR	Geographic Location	CALSIM II Diversion	CVP Water Service Contracts (TAF/yr)		Settlement / Exchange Contractor (TAF/yr)	Water Rights / Non-CVP (TAF/yr)	Level 2 Refuges (TAF/yr)	Losses (TAF/yr)	
			AG	M&I					
CA Joint Reach 7 - Loss	CA reach 7	D845						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 Hills Valley ID-Amendatory		D855	3.0						
Kern-Tulare WD		D855	40.0						
Lower Tule River ID		D855	31.1						
Pixley ID		D855	31.1						
Rag Gulch WD		D855	13.3						
Tri-Valley WD		D855	1.1						
Tulare, County of Kern NWR		D855	5.3						
Pixley NWR		D856					11.0		
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	281.1	183.7

Table 15. SWP North of Delta Contract Amounts as modeled in CSII

SWP CONTRACTOR	Geographic Location	CALSIM II Diversion	FRSA Amount (TAF)	Water Right (TAF/yr)	Table A Amount (TAF)		Max Article 21 Demand (TAF/yr)	Other (TAF/yr)
					Ag	M&I		
Feather River								
Palermo	FRSA	D6		17.6				
County of Butte	Feather River	D201				27.5		
Thermalito	FRSA	D202		8.0				
Western Canal	FRSA	D7A	150.0	145.0				
Joint Board	FRSA	D7B	550.0	5.0				
City of Yuba City	Feather River	D204				9.6	1.43	
Feather WD	FRSA	D206A	17.0					
Garden, Oswald, Joint Board	FRSA	D206B						
Garden	FRSA	D206BA	12.9	5.1				
Oswald	FRSA	D206BB	2.9					
Joint Board	FRSA	D206BC	50.0					
Plumas, Tudor	FRSA	D206C						
Plumas	FRSA	D206CA	8.0	6.0				
Tudor	FRSA	D206CB	5.1	0.2				
Rice Decom	FRSA	D7C	291.1					
Total Feather River Area			1086.9	186.9	0.0	37.1		
Other								
Yuba County Water Agency	Yuba River	D230						Variable 333.6
Camp Far West ID	Yuba River	D285						12.6
Bear River Exports	American R/DSA70	D283						Variable 95.2
Feather River Exports to American River	American R/DSA70	D223		11.0				

Table 16. SWP Delta Contract Amounts as modeled in CSII

SWP CONTRACTOR	Geographic Location	CALSIM II Diversion	Water Right (TAF/yr)	SWP Table A Amount (TAF)		SWP Max Article 21 Demand (TAF/yr)	CVP Water Service Contracts (TAF/yr)	
				Ag	M&I		AG	M&I
North Delta								
City of Vallejo	City of Vallejo	D403A						16.0
CCWD	Contra Costa County	D420						195.0
Napa County FC&WCD	North Bay Aqueduct	D403B			29.03	7.71		
Solano County WA	North Bay Aqueduct	D403C			47.76	21.83		
Fairfield, Vacaville and Benicia Agreement	North Bay Aqueduct	D403D	31.60					
City of Antioch	City of Antioch	D406B	18.0					
Total North Delta			49.6	0.0	76.79	29.55	0.0	211.0
South Delta								
Delta Water Supply Project	City of Stockton	D514A	32.4					
Total South Delta			0.0	0.0	0.0	0.0	0.0	0.0
Total			82.0	0.0	76.79	29.55	0.0	211.0

Table 17. SWP South of Delta Contract Amounts as modeled in CSII

SWP CONTRACTOR	Geographic Location/ Reaches Used	CALSIM II Diversion	Table A Amount (TAF)		SWP Max Article 21 Demand (TAF/yr)	Losses (TAF/yr)
			Ag	M&I		
Alameda Co. FC&WCD, Zone 7	SBA reaches 1-4	D810		80.62		
	SBA reaches 5-6	D813				
		Total		80.62		
Alameda County WD	SBA reaches 7-8	D814		42.00	2.35	
Santa Clara Valley WD	SBA reach 9	D815		100.00	32.12	
Oak Flat WD	CA reach 2A	D802	5.70		0.05	
County of Kings	CA reaches 6-8D	D847	9.31		13.58	
Dudley Ridge WD	CA reach 8D	D849	45.35		37.32	
Empire West Side ID	CA reach 8C	D846	3.00		2.16	
Kern County Water Agency	CA reaches 3, 9-13B	D851	608.86	134.60		
	CA reaches 14A-C	D859	99.20		543.69	
	CA reaches 15A-16A	D863	59.40			
	CA reach 31A	D867	80.67			
		Total		848.13	134.60	543.69
Tulare Lake Basin WSD	CA reaches 8C-8D	D848	87.47		69.67	
San Luis Obispo Co. FC&WCD	CA reaches 33A-35	D869		25.00	0.99	
Santa Barbara Co. FC&WCD	CA reach 33A	D870		45.49	8.17	
Antelope Valley-East Kern WA	CA reaches 18a, 19-20B, 22A-B, 29A, 29F	D877		144.84	26.52	
Santa Clarita Valley WA	CA reach 31A	D868	12.70		2.94	
	CA reach 30	D896		82.50		
		Total	12.70	82.50	2.94	
Coachella Valley WD	CA reach 26A, 28H, 28J	D883		138.35	14.54	
Crestline-Lake Arrowhead WA	CA reach 24	D25		5.80		
Desert WA	CA reach 26A, 26H	D884		55.57	5.86	
Littlerock Creek ID	CA reach 21	D879		2.30		
Mojave WA	CA reaches 19, 20A 22B, 24	D881		85.80		
Metropolitan WDSC	CA reach 26A	D885		1911.50	129.78	
	CA reach 30	D895			107.03	
	CA reaches 28G-H	D899			39.49	
	CA reach 28J	D27			9.87	
	CA reaches 10A, 12E, 14C	D851B				

SWP CONTRACTOR	Geographic Location/ Reaches Used	CALSIM II Diversion	Table A Amount (TAF)		SWP Max Article 21 Demand (TAF/yr)	Losses (TAF/yr)
			Ag	M&I		
		Total		1911.50	286.17	
Palmdale WD	CA reaches 20A-B	D878		21.30	1.98	
San Bernardino Valley MWD	CA reach 24	D886		102.60	4.41	
San Gabriel Valley MWD	CA reach 26A	D887		28.80	5.52	
San Geronio Pass WA	CA reach 26A	D888		17.30	0.02	
Ventura County FCD	CA reach 29H	D28		3.15		
	CA reach 30	D29		16.85	40.92	
	Total			20.00	40.92	
SWP Losses	CA reaches 1-2	D803				7.70
	SBA reaches 1-9	D816				0.60
	CA reach 3	D824				10.80
	CA reach 4	D826				2.60
	CA reach 5	D827				3.90
	CA reach 6	D828				1.20
	CA reach 7	D829				1.60
	CA reaches 8C-13B	D854				11.90
	Wheeler Ridge PP and CA reaches 14A-C	D862				3.60
	Chrisman PP and CA reaches 15A-18A	D864				1.80
	Pearblossom PP and CA reaches 17-21	D880				5.10
	Mojave PP and CA reaches 22A-23	D882				4.00
	REC and CA reaches 24-28J	D889				1.40
	CA reaches 29A-29F	D891				1.90
	Castaic PWP and CA reach 29H	D893				3.10
	REC and CA reach 30	D894				2.40
Total						63.60
Total			1011.66	3044.37	1100.09	63.6

Key:

ACOE = Army Corps of Engineers
Ag = agricultural
BDCP = Bay-Delta Conservation Plan
BO = Biological Opinion
CALFED = CALFED Bay-Delta Program
CCWD = Contra Costa Water District
cfs = cubic feet per second
CVP = Central Valley Project
CVPIA = Central Valley Project Improvement Act
D-xxxx = Water Right Decision
CDFW = California Department of Fish and Game
DMC = Delta-Mendota canal
DWR = California Department of Water Resources
EBMUD = East Bay Municipal Utility District
EIS = Environmental Impact Statement
FC&WSD = Flood Control and Water Service District
FERC = Federal Energy Regulatory Commission
FRSA = Feather River Service Area
FRWP = Freeport Regional Water Project
FWS = Fish and Wildlife Service
KCWA = Kern County Water Agency
LYRA = Lower Yuba River Accord
MAF/yr = million acre-feet per year
M&I = municipal and industrial
MWD = Metropolitan Water District
NAA = No Action Alternative
NEPA = National Environmental Policy Act
NMFS = National Marine Fisheries Service
NPS = National Park Service
PCWA = Placer County Water Agency
PP = Pumping Plant
Reclamation = United States Department of the Interior, Bureau of Reclamation
ROD = Record of Decision
SBA = South Bay Aqueduct
SWP = State Water Project
SWRCB = State Water Resources Control Board
TAF = thousand acre-feet
TAF/month = thousand acre-feet per month
TAF/yr = thousand acre-feet per year
USFWS = United States Fish and Wildlife Service
VAMP = Vernalis Adaptive Management Plan
WR = water right
yr = year

Model Input Data

Article 21 Demands – Existing Conditions

The Article 21 demands used in the 2019 SWP Delivery Capability Report (DCR) are shown in Table 18 and Table 19. These demands are different from those used in the 2017 DCR Report. Table 18 shows the maximum monthly Article 21 caps that were assumed during normal hydrology conditions and Table 19 shows the Article 21 demand pattern caps during Kern wet years. A Kern wet year is defined as a year when the annual Kern River flow is greater than 1,500 TAF. There are nine Kern wet years in the simulation period of 1922 – 2003 (1941, 1952, 1969, 1978, 1980, 1983, 1986, 1995, and 1998).

Table 18. 2019 Monthly Maximums - DCR Article 21 Demands in Normal Years¹

Month	Kern County Water Agency Ag (TAF)	Other Ag (TAF)	Metropolitan Water District M&I (TAF)	North Bay Aqueduct M&I (TAF)	Other M&I (TAF)	Total (TAF)
Oct	0	0	0	6	0	6
Nov	122	38	0	6	0	166
Dec	122	41	0	6	0	169
Jan	122	54	142	6	30	355
Feb	122	54	142	6	34	358
Mar	122	54	142	6	53	377
Apr	122	54	142	6	48	372
May	122	52	142	6	40	362
Jun	122	38	0	6	51	217
Jul	0	0	0	6	41	48
Aug	0	0	0	6	1	7
Sep	0	0	0	6	0	6

1. Values shown are the maximum amount that can be taken monthly based on historical deliveries from 2005-2018 and historical requests from 2011, 2017, and 2019. Code updates included logic which also sets a secondary annual Article 21 cap (Table 20). The actual capability of SWP water contractors to take this amount of Article 21 is not the sum of these maximum monthly values.

Table 19. 2019 Monthly Maximums - DCR Article 21 Demands in Kern Wet Years

Month	Kern County Water Agency Ag (TAF)	Other Ag (TAF)	Metropolitan Water District M&I (TAF)	North Bay Aqueduct M&I (TAF)	Other M&I (TAF)	Total (TAF)
Oct	0	0	0	6	0	6
Nov	0	0	0	6	0	6
Dec	0	0	0	6	0	6
Jan	0	0	142	6	30	178
Feb	0	0	142	6	34	182
Mar	0	0	142	6	53	201
Apr	0	0	142	6	48	196
May	0	0	142	6	40	188
Jun	0	0	0	6	51	57
Jul	0	0	0	6	41	48
Aug	0	0	0	6	1	7
Sep	0	0	0	6	0	6

Table 20 shows the new Article 21 maximum lookup table. These values were derived by taking the maximum of two parameters:

1. Maximum Article 21 annual delivery from 2005-2018.
2. Maximum Article 21 annual requests from 2011, 2017, and 2019.

Then the resulting value was scaled up by 20% to ensure that Article 21 annual demands are not strictly determined by historical data.

Contractors have the whole contract year to get up to but no more than the Table 20 values. In summary, if a contractor received Article 21 deliveries equal to their annual cap only halfway through the contract year, their remaining Article 21 deliveries would be zero.

Table 20. 2019 DCR Article 21 Annual Maximums

SWP Contractor	Original Article 21 Annual Max (TAF) – Either the max annual delivery (2005-2018) or request (2011, 2017, 2019)	Final Article 21 Annual Max (TAF) – Scaled by 20%
ALAMEDA COUNTY FC&WCD-ZONE 7	0.91	1.09
ALAMEDA COUNTY WD	1.96	2.35
ANTELOPE VALLEY-EAST KERN WA	22.10	26.52
SANTA CLARITA VALLEY WA - AG	2.45	2.94
SANTA CLARITA VALLEY WA - MI	0.00	0.00
CITY OF YUBA CITY	1.19	1.43
COACHELLA VALLEY WD	12.12	14.54
COUNTY OF BUTTE	0.00	0.00
COUNTY OF KINGS	11.32	13.58
CRESTLINE-LAKE ARROWHEAD WA	0.00	0.00
DESERT WA	4.88	5.86
DUDLEY RIDGE WD	31.10	37.32
EMPIRE WEST SIDE ID	1.80	2.16
KERN COUNTY WA	453.08	543.69
LITTLEROCK CREEK ID	0.00	0.00
METROPOLITAN WDSC	238.48	286.17
MOJAVE WA	0.00	0.00
NAPA COUNTY FC&WCD	6.43	7.71
OAK FLAT WD	0.04	0.05
PALMDALE WD	1.65	1.98

SWP Contractor	Original Article 21 Annual Max (TAF) – Either the max annual delivery (2005-2018) or request (2011, 2017, 2019)	Final Article 21 Annual Max (TAF) – Scaled by 20%
SAN BERNARDINO VALLEY MWD	3.68	4.41
SAN GABRIEL VALLEY MWD	4.60	5.52
SAN GORGONIO PASS WA	0.02	0.02
SAN LUIS OBISPO COUNTY FC&WCD	0.83	0.99
SANTA BARBARA COUNTY FC&WCD	6.81	8.17
SANTA CLARA VALLEY WD	26.77	32.12
SOLANO COUNTY WA	18.20	21.83
TULARE LAKE BASIN WSD	58.06	69.67
VENTURA COUNTY WPD	34.10	40.92

Table A Amounts and Article 56 Carryover

The State Water Project Contractors' Article 56 carryover storage used in the 2019 DCR is shown in Table 21. This data is different to that used in the 2017 DCR Report. 60% demand patterns are now also included where previously only 100%, 50%, and 30% patterns were considered.

The 2019 DCR Table A amounts reflect the 2019 maximum Table A contract as reported in the California State Water Project Bulletin 132-18¹. Meanwhile, Table A demand patterns and Article 56 requests are based on the 2014-2019 Initial Requests sent to the State Water Project Analysis Office (SWPAO) (Source: FIXED_BST_SWP_SOD_2019DCR_August2020.xlsm).

¹ Management of the California State Water Project Bulletin 132-18: Appendix B – Data and Computations Used to Determine 2019 Water Charges

https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/State-Water-Project/Management/Bulletin-132/Bulletin-132/Files/B132-18-Appendix_B.pdf

Table 21. 2019 DCR Table A Demand and Article 56 Carryover (Existing Conditions)

Contractor Name	Table A amount (TAF)	Table A request for given demand level (TAF)				Article 56 request for given demand level (TAF)			
		100%	60%	50%	30%	100%	60%	50%	30%
ALAMEDA COUNTY FC&WCD-ZONE 7	80.62	65.68	37.75	30.84	15.98	14.94	10.62	9.47	8.21
ALAMEDA COUNTY WD	42.00	29.51	14.70	13.60	6.18	12.49	10.50	7.40	6.42
ANTELOPE VALLEY-EAST KERN WA	144.84	81.39	64.80	57.75	35.25	63.45	22.10	14.67	8.21
SANTA CLARITA WA - AG	12.70	12.70	7.62	1.52	0.11			4.83	3.70
CITY OF YUBA CITY	9.60	4.80	3.47	3.62	2.88	4.80	2.29	1.18	
COACHELLA VALLEY WD	138.35	69.18	66.87	57.65	41.51	69.18	16.14	11.53	
COUNTY OF BUTTE	27.50	27.50	16.50	13.75	8.25				
COUNTY OF KINGS	9.31	9.31	5.58	4.65	2.79				
CRESTLINE-LAKE ARROWHEAD WA	5.80	2.90	1.97	1.93	0.98	2.90	1.51	0.97	0.76
DESERT WA	55.75	27.88	26.95	22.30	16.73	27.88	6.50	5.58	
DUDLEY RIDGE WD	45.35	33.76	19.95	16.51	10.42	11.59	7.26	6.17	3.18
EMPIRE WEST SIDE ID	3.00	2.63	1.63	1.38	0.86	0.38	0.17	0.12	0.04
KERN COUNTY WA - AG	848.13	766.73	483.15	410.77	249.39	81.40	25.73	13.29	5.05
LITTLEROCK CREEK ID	2.30	2.30	1.38	1.15	0.69				
METROPOLITAN WDSC	1911.50	1711.50	1032.12	855.75	473.45	200.00	114.78	100.00	100.00
MOJAVE WA	85.80	48.12	26.91	31.89	19.59	37.68	24.57	11.01	6.15
NAPA COUNTY FC&WCD	29.03	17.68	9.43	7.26	4.00	11.35	7.98	7.26	4.71
OAK FLAT WD	5.70	2.98	1.91	1.82	1.25	2.72	1.51	1.03	0.46
PALMDALE WD	21.30	21.30	8.54	8.74	5.07		4.24	1.91	1.32
SAN BERNARDINO VALLEY MWD	102.60	92.60	55.62	46.38	27.89	10.00	5.94	4.92	2.89
SAN GABRIEL VALLEY MWD	28.80	28.80	17.28	14.40	8.64				
SAN GORGONIO PASS WA	17.30	13.14	8.94	7.56	4.53	4.16	1.44	1.09	0.66
SAN LUIS OBISPO COUNTY FC&WCD	25.00	13.59	7.34	7.08	3.64	11.41	7.66	5.43	3.86
SANTA BARBARA COUNTY FC&WCD	45.49	34.96	26.00	21.97	13.65	10.53	1.29	0.77	
SANTA CLARA VALLEY WD	100.00	80.74	56.18	46.99	28.80	19.26	3.82	3.01	1.20
SOLANO COUNTY WA	47.76	23.89	18.12	17.91	11.98	23.87	10.53	5.97	2.35
TULARE LAKE BASIN WSD	87.47	87.47	52.48	43.74	26.24				
VENTURA COUNTY WPD	20.00	20.00	12.00	10.00	6.00				
KERN COUNTY WA - MI	134.60	134.60	80.76	67.30	40.38				
SANTA CLARITA WA - MI	82.50	34.41	31.12	36.42	24.75	48.09	18.38	4.83	
Total	4,170.09	3,502.02	2,197.11	1,862.61	1,091.88	668.06	304.94	222.43	159.15

Documentation on the Updated CalSim II State Water Project Table A, Carryover, and Article 21 Demands and Demand Patterns

Objectives

- Update Table A, Carryover, and Article 21 demand and demand pattern wresl input files and SV demand timeseries
 - Add 60% allocation demand and demand patterns
- Explain the corresponding code changes performed on Article 21 and Carryover deliveries

Methods

Data Sources

- Bulletin 132-18 Max Table A amounts
- 2005-2018 State Water Project Analysis Office (SWPAO) Water File Historical Deliveries, Detailed
- 2014-2019 Initial Requests for Table A and Carryover water (30%, 50%, 60%, and 100% demand and demand patterns)
- 2011, 2017, and 2019 Article 21 Annual Requests – This data was considered per the DCR 2019 Draft Final Contractor Comments.

Tools

- FIXED_BST_SWP_SOD_2019DCR_August2020_Public – The same tool used for DCR 2017 was used and modified accordingly.
- Article21_Patterns_2019DCR_August2020_Public – A new tool was developed solely for the development of Article 21 monthly and annual demands.

Table A and Article 56

- Reviewed **Bulletin 132-18** with the Input Assumptions Max Table A amounts
- Took average of **2014-2019 Initial Requests**
 - However, sometimes the % allocation would be exceeded (averaged 50% Table A and CO demands would exceed 50% of the contractor’s max Table A amount). This is because some contractors only request CO in 1 or 2 years, which would skew the CO demands on the higher side. When this happens, the Table A demands were obtained first, then the CO would be adjusted last to make sure the % allocation was not exceeded. The CO demand will never exceed the max throughout the 2014-2019 initial request data. Some contractor demands are variable annually more than those of other contractors. This was also considered when updating CO demand.

Carryover delivery periods were also refined based on historical data patterns. This is provided in section, “Article 56 deliveries refinements”.

Article 21

- Updated Article 21 annual and monthly delivery patterns according to SWP historical deliveries (2005-2018) and historical requests (2011, 2017, and 2019).
 - Added new lookup table that sets annual Article 21 cap for each contractor
 - Added new SV timeseries for the following delivery arcs. WRESL code was modified accordingly to accommodate the new Article 21 demands:
 - D29 – Ventura County
 - D887 – San Gabriel Valley
 - D847 – County of Kings
 - D870 – Santa Barbara Co. FC&WCD
 - D403C – Solano County Water Agency
 - D204 – Yuba City
 - D802A – Oak Flat Water Agency
 - D878 – Palmdale
 - D886 – San Bernardino Valley
 - D888 – San Geronio Pass
 - D869 – San Luis Obispo County

Updating the SWP Table A and Article 56 Demands

Summary of steps

1. Obtain **initial request demand patterns** data from SWPAO
2. Obtain **Bulletin 132-18 Appendix B Table B-4**
3. Update the “**FIXED_BST_SWP_SOD_2019DCR_August2020_Public**” Excel workbook with the latest maximum Table A contractual amounts and demand patterns data from 30, 50, 60, and 100 percent allocation – This is arguably the most time-consuming part because of the data-entry nature of this process.
4. Go to the “**Control**” sheet to choose your output wresl tables directory
5. Take the new input table files from the Excel workbook and replace the ones in `\conv\Run\Lookup`, `\conv\Run\Lookup\origWSI`, and `\conv\Run\Lookup\WSIDtraining`
6. Regenerate WSI-DI curves
7. Run actual final study

Table A and Article 56 demands were obtained from SWPAO. SWP contractors send their demand patterns based on four percent allocations: 30, 50, 60, and 100%. The latest dataset used to generate the CalSim II demand patterns tables included initial requests from 2014-2019.

The initial request demand patterns were inputted into the “**FIXED_BST_SWP_SOD**” Excel workbook. That workbook contains sheets for all four percent allocations (100, 60, 50, 30%). For example, sheet “100” contains 100% allocation demand patterns that contractors sent to SWPAO. All the other sheets labelled with “100_...” or “..._100” post-process that raw initial request demand patterns for a certain percent allocation. The same process is applied to the other three percent allocation demand patterns.

The Maximum Contractual Table A amounts were also updated in the “**FIXED_BST_SWP_SOD**” Excel file within the “Input Assumptions” sheet. The data source comes from **SWPAO Bulletin 132-18** document

which details the maximum Table A contractor amounts until the year of 2035. 2019 maximum table A amounts were inputs to the tool.

Once all the initial request demand patterns are loaded into the Excel workbook, there will be 10 new wresl table lookup files ready to be generated using the “Control” sheet (Figure 1). First, select a working directory where you want the files to be generated in. Lastly, click on “write on input files” which will be generated. table files in that desired folder.

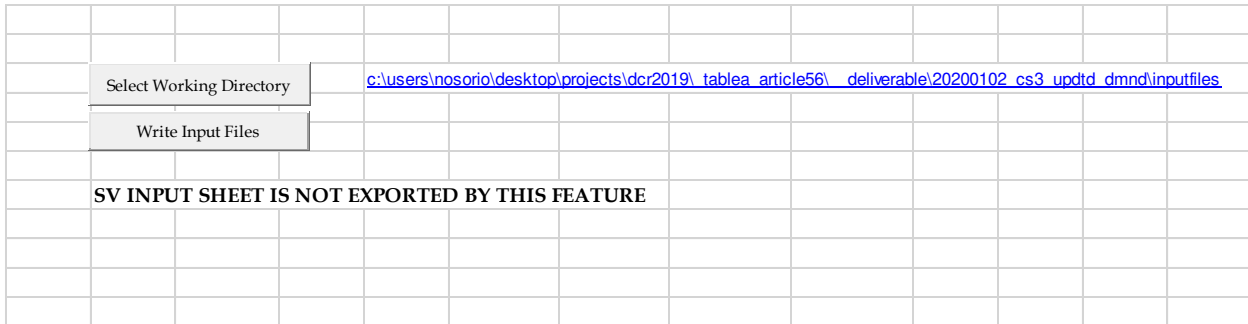


Figure 1. Control sheet which selects the directory where the updated lookup table files will be generated in

The 10 generated wresl table lookup files are as listed:

1. TableA
2. AnnualReqDel_swp
3. CAM_SWPDem
4. Swp_table_a
5. Swp_3_tablea
6. Swp_3pattern_demands
7. Swp_3_tablea for WSIDI curve generation
8. Swp_3pattern_demands for WSIDI curve generation
9. Swp_carryover
10. Swp_3pattern_SLrule

These files will overwrite existing ones located in **\conv\Run\Lookup**, **\conv\Run\Lookup\origWSI**, and **\conv\Run\Lookup\WSIDIttraining**.

This document assumes that the reader knows how to retrain WSIDI curves and will not provide detailed explanation. Overwrite the WSIDI training lookup table files, **swp_3_tablea.table** and **swp_3pattern_demands.table** inside the WSIDI training folder. The same process applies to the similarly named files to be kept in the original WSI folder.

Article 56 deliveries refinements

Motivations

There are two main carryover refinements conducted:

1. Carryover allocation separation – North of Delta and South of Delta
2. Carryover distributed delivery months

The NOD and SOD carryover allocation were distinguished because of the initial negative impacts on NOD carryover deliveries. NOD contractors were not receiving their requested carryover water due to San Luis spills south of the Delta. The separation was designed so that NOD contractors do not lose carryover water through spills to the same degree of the SOD contractors.

Carryover delivery months in CalSim II have been confined between January to March for all SWP contractors. However, the 2005-2018 SWP historical deliveries data revealed that most contractors can take carryover water throughout the year, typically during the early winter months, and especially during dry years. The following files were updated to model the variable carryover delivery months based on San Luis storage and water year type.

Files changed/added

- Wsi_swp.wresl
- Delcar_swp.wresl
- swp_contractor_perdel_A.wresl
- carryover_allocation.wresl

Updating the Article 21 demands

Summary of steps

1. Calculate the **annual maximum** Article 21 delivery for each contractor
 - a. Obtain the **2005-2018 SWP Historical deliveries** and **2011, 2017 and 2019 Article 21 requests data**. The State Water Project Analysis Office (SWPAO) shared these datasets after fulfilling an SWP contractor request that maximum requests be considered in the Article 21 demands derivation.
 - b. Calculate the maximum annual historical delivery from 2005-2018 for each contractor
Calculate the maximum annual historical request between 2011, 2017, and 2019 for each contractor
 - c. Take the maximum of both parameters
 - d. Create a new lookup table, **swp_art21_ann_max.table**, which sets the annual Article 21 cap each contractor can take
2. Calculate the **monthly maximum** Article 21 delivery for each contractor.
 - a. Obtain the **2005-2018 SWP Historical deliveries** data
 - b. Calculate the global monthly maximum Article 21 delivered in all months from 2005-2018.
 - c. Use that monthly maximum in all months a contractor has taken Article 21 historically.
3. With the monthly maximum Article 21 deliveries data, modify the State variables DSS file.
 - a. Update the Article 21 demands timeseries (PART C: DEMAND-SWP-IN)
 - b. And/or add new timeseries demands for contractors whose demands used to be hardcoded as zero in the CalSim code.

The next section will go over an example of County of King's updated Article 21 demands using historical actual delivered and requests data. This example was selected because there was a stark difference in what the contractor historically requested between what they received.

Annual Limit to Article 21 Deliveries

Table 22 shows County of Kings’ (KC for onward) SWP Article 21 requests from 2011, 2017, and 2019. The Max column contains the maximum Article 21 request during that time period which was 11.315 TAF for KC. Table 24 shows the historical monthly and annual deliveries from 2005-2018. The maximum annual historical delivery was 1.172 TAF.

The greatest between the request and delivered was the former. As a result, KC’s Article 21 preliminary demands are set to 11.315 TAF. That value is then scaled up by 20% so County of Kings’ final Article 21 annual demand is 13.578 TAF (Table 24). Table 23 shows the other SWP contractors like KC whose annual requests were higher than their actual deliveries.

Table 22. Historical requested Article 21 water from 2011, 2017, and 2019 with the maximum calculated request – County of Kings

Contractor	Requested Article 21 (Acre-feet)			
	2011	2017	2019	Max
COUNTY OF KINGS	11,315	1922	1107	11315

Table 23. 9 SWP contractors whose maximum Article 21 historical requests were higher than those of the maximum historical deliveries. The last column values are their respective Article 21 demands before the 20% scaling up.

Contractor	Max del from 2005-2018 (TAF)	Max request between 2011, 2017, 2019 (TAF)
ANTELOPE VALLEY-EAST KERN WA	17.40	22.10
COACHELLA VALLEY WD	0.00	12.12
COUNTY OF KINGS	1.17	11.32
DESERT WA	0.00	4.88
DUDLEY RIDGE WD	28.20	31.10
SAN BERNARDINO VALLEY MWD	0.06	3.68
SAN GABRIEL VALLEY MWD	3.06	4.60
SANTA BARBARA COUNTY FC&WCD	4.72	6.81
VENTURA COUNTY WPD	10.00	34.10

Table 24. Historical delivered Article 21 water from 2005-2018 along with calculated maximum requested – County of Kings. Months June to November were hidden because there were no deliveries and to maximum table space.

COUNTY OF KINGS						Final Scaled 20%	
						13.578	
						Req. Max (TAF)	Ann. Max (TAF)
						11.315	1.172
Year	JAN	FEB	MAR	APR	MAY	DEC	Actual Tot
2005	0.256	0	0	0	0	0	0.256
2006	0	0	0	0	0	0	0
2007	0	0.117	0.071	0	0	0	0.188
2008	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0
2011	0	0	0	0.238	0	0	0.238
2012	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0
2017	0	0	0.406	0.546	0.22	0	1.172
2018	0	0	0	0	0	0	0
							Max of Monthly Maxes
Monthly Maxes	0.26	0.12	0.41	0.55	0.22		0.55
Monthly pattern	1	1	1	1	1	0	
SV DSS Max input	0.546	0.546	0.546	0.546	0.546	0	2.730
Revised SV	13.578	13.578	13.578	13.578	13.578	0	67.89

Monthly Limit to Article 21 Deliveries

From the Delivery Capability Report 2017 Technical Addendum, “the monthly patterns represent the maximum amount that can be taken monthly. The actual capability of SWP contractors take this amount of Article 21 is not the sum of the maximum monthly values.”

Table 24 shows an example of how the Article 21 State Variable HEC-DSS (SV DSS) (Table 26) demands were derived for County of Kings.

Historical monthly data from 2005-2018 was processed to calculate the maximum Article 21 deliveries in each month. This process informs two main components to update the Article 21 demands:

1. Monthly pattern – When can a contractor take Article 21 deliveries?
2. Monthly maximum – What is the most Article 21 delivered in any month throughout 2005-2018?

However, there are cases when the annual maximum is based on the requests which means the monthly data may not be available to use for the monthly demands. As a result, there are two cases on how to set the monthly demands given the patterns shown in Table 25.

Table 25. Two cases on determining the monthly Article 21 demand input depending on the whether the annual historical delivery or request was higher.

Case	Annual Maximum Source	Monthly Demand Input
1	Historical deliveries	Global monthly maximum found from historical data
2	Historical requests	Same as the annual maximum set by the historical request

County of Kings Example

For example, the DEM_D847_PIN County of Kings timeseries consists of demands from January to May. This is because County of Kings took Article 21 deliveries in those same months from 2005-2018 (Table 24).


The demands in those months are 13.578 TAF in all months because Case 2 applies. The most County of Kings received historically in a year was only 1.17 TAF while their annual maximum request from 2011, 2017, and 2019 was 11.315 TAF. (Recall that the final annual limit is scaled by 20%)

The issue is that the current global monthly maximum is 0.55 TAF. If the monthly maximum was set to 0.55 TAF and multiplied in all five months, theoretically, Kings County could only receive at most 2.730 TAF in a year, significantly less than the final scaled 20% annual maximum of 13.578 TAF.

As a result, due to the unavailable historical data, all the demands are set to the calculated annual maximum which is 13.578 TAF. This means that Kings County has January to May to take up to 13.578 TAF and not any more than that due to the constraint in the code.

A separate Excel workbook called “Article21_Patterns_2019DCR_August2020_Public” shows how the Article 21 SV DSS demands were calculated for each State Water Contractor within the model.

Table 26. SV DSS DEM_D847_PIN County of Kings Article 21 demand.

 /CALSIM/DEM_D84... - □ ×

File Edit View Help

Ordinate	Date / Time	DEM_D847_PIN DEMAND-SW... 2020D09E
Units		TAF
Type		PER-AVER
1	31 Oct 21, 24:00	0.000
2	30 Nov 21, 24:00	0.000
3	31 Dec 21, 24:00	0.000
4	31 Jan 22, 24:00	13.578
5	28 Feb 22, 24:00	13.578
6	31 Mar 22, 24:00	13.578
7	30 Apr 22, 24:00	13.578
8	31 May 22, 24:00	13.578
9	30 Jun 22, 24:00	0.000
10	31 Jul 22, 24:00	0.000
11	31 Aug 22, 24:00	0.000
12	30 Sep 22, 24:00	0.000

Article 21 delivery refinements

Motivations

The availability of 2005-2018 historical delivery provides useful information on how to improve the previous Article 21 demands and delivery patterns. Article 21 assumptions have not been updated since the 2011 Delivery Reliability Report (DRR). The following code changes are grounded on realistic historical Article 21 deliveries, requests, and monthly patterns.

Files changed/added

Swp_art21_ann_max.table – See section: Annual Limit to Article 21 Deliveries.

- Swp_demands_s.wresl
 - Defines the new and modified Article 21 SV DSS demands (DEM_PIN)
 - Defines the new Article 21 annual maximums each contractor can take. (DEM_PIN_ANN_MAX) Values come from the lookup table. Total Article 21 deliveries can never exceed this annual limit value.
- Sumswpdel.wresl
 - Keeps track of each contractor's Jan-Dec Article 21 deliveries (annual running total). (ANN_total_PIN)
 - Dynamically calculates the decreasing Article 21 water "pool" monthly. (limit_PIN_annual)
 - Example: If the annual maximum is 180 TAF, and a contractor received 50 TAF in January (start of SWP contract year), then limit_PIN_annual in February is 130 TAF.
- Swp_bound_del.wresl
 - Updated so that each Article 21 delivery arc is the minimum between the SV DSS monthly demand or the dynamically calculated Article 21 running limit total (limit_PIN_annual).
 - Example
 - Contractor A's annual Article 21 maximum is 180 TAF. Contractor A received 50 TAF in January. Then limit_PIN_annual in February would be $180 - 50 = 130$ TAF.
 - February is a surplus month. Contractor A SV DSS monthly demand for February is also still 50 TAF.
 - What bounds this contractor's February Article 21 delivery?
 - $\text{Min}(\text{dem_PIN}, \text{limit_PIN_annual}) = \text{min}(50, 130) = 50$ TAF.

Adding 60 percent allocation logic

The CalSim II model has been limited to only utilizing 30, 50, and 100 percent allocations. Adding a 60 percent logic was proposed because the contractors have historically sent 60 percent demand patterns to SWPAO. In sum, this code change of adding 60 percent allocation logic to utilize 60 percent demand patterns aims to better represent operations in the model.

Previous code

```
define swp_demprofile {
  case low {
    condition percent_act < 35.
    value 30.}
  case lowmed {
    condition percent_act < 45.
    value 30. + (50. - 30.)*(percent_act - 35.)/(45. - 35.)}
  case med {
    condition percent_act < 60.
    value 50.}
  case medhigh {
    condition percent_act < 70.
    value 50. + (100. - 50.)*(percent_act - 60.)/(70. - 60.)}
  case high {
    condition always
    value 100}
}
```

Updated code including 60 percent allocation

```
define swp_demprofile {  
  case lowest {  
    condition percent_act < 35.  
    value 30.}  
  case low {  
    condition percent_act < 40.  
    value 30. + (50. - 30.)*(percent_act - 35.)/(40. - 35.)}  
  case lowmed {  
    condition percent_act < 55.  
    value 50.  
    case medhigh {  
      condition percent_act < 65.  
      value 60.}  
    case high {  
      condition percent_act < 80.  
      value 60. + (100. - 60.)*(percent_act - 65.)/(80. - 65.)}  
    case highest {  
      condition always  
      value 100}  
  }  
}
```



Appendix A: Existing Conditions

Appendix A: Existing Conditions

Simulation Results for Existing Conditions

The deliveries shown in this report, as with previous report updates, only include those State Water Project Contractors that rely on delivery of water from the Sacramento-San Joaquin Delta; therefore, State Water Project Contractors in the Feather River area and upstream (i.e., Butte County, Plumas County Flood Control and Water Conservation District, and Yuba City) are excluded from this analysis. This section of the Technical Addendum presents results for the Existing Conditions scenario.

SWP Table A Deliveries

Figure A-1 shows a comparison of SWP Table A delivery exceedance curves from the 2017 report update and the 2019 update. The Table A deliveries for State Water Project Contractors under Existing Conditions are shown in Table A-1 on the following page. The results for individual Contractor Table A deliveries are included at the end of this appendix.

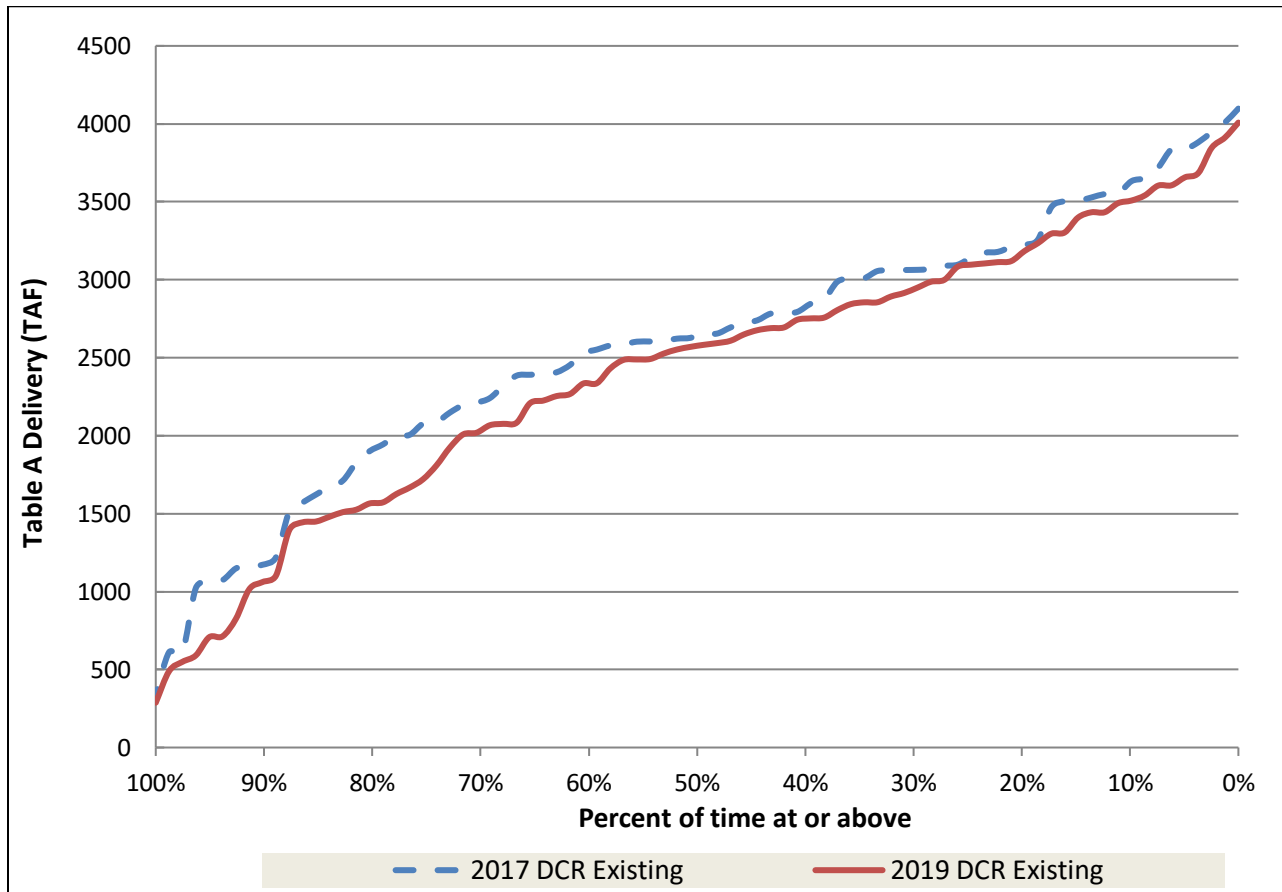


Figure A-1. Comparison of SWP Table A Delivery Probability for Existing Conditions

How to interpret Table A-1 SWP Deliveries

Year	SWP Table A Demands	SWP Table A Delivery		Probability Curve (percent of time at or above given value)			
		Annual Volume (TAF)	Percent of Maximum SWP Table A	Year	SWP Table A Delivery (TAF)	Exceedance Frequency	Percent of Maximum SWP Table A
1922	4,133	2,595	63%	1983	4,008	0%	97%

Contract Year from January to December

The Maximum Annual Table A. Assume that demands are always the maximum which is 4,133 TAF.

Actual Table A from current contract year and Article 56 from current contract year delivered (except for Feather River deliveries). This means that the Article 56 delivered in this year was requested in the previous contract year.

Annual Volume divided by the SWP Table A demands maximum amount of 4,133 TAF.

Table A-1. SWP Table A Deliveries for Existing Conditions

Year	SWP Table A Demands	SWP Table A Delivery		Probability Curve (percent of time at or above given value)			
		Annual Volume (TAF)	Percent of Maximum SWP Table A	Year	SWP Table A Delivery (TAF)	Exceedance Frequency	Percent of Maximum SWP Table A
1922	4,133	2,583	62%	1983	4,008	0%	97%
1923	4,133	2,856	69%	1998	3,913	1%	95%
1924	4,133	826	20%	1938	3,846	2%	93%
1925	4,133	1,062	26%	1967	3,684	4%	89%
1926	4,133	1,626	39%	1952	3,657	5%	88%
1927	4,133	2,694	65%	1969	3,606	6%	87%
1928	4,133	2,892	70%	1958	3,604	7%	87%
1929	4,133	1,445	35%	1943	3,541	9%	86%
1930	4,133	591	14%	1995	3,508	10%	85%
1931	4,133	1,525	37%	1982	3,491	11%	84%
1932	4,133	1,103	27%	1996	3,433	12%	83%
1933	4,133	1,572	38%	1941	3,433	14%	83%
1934	4,133	713	17%	1974	3,399	15%	82%
1935	4,133	2,844	69%	1942	3,303	16%	80%
1936	4,133	2,267	55%	1980	3,295	17%	80%
1937	4,133	2,757	67%	1999	3,235	19%	78%
1938	4,133	3,846	93%	1975	3,184	20%	77%
1939	4,133	2,489	60%	1997	3,120	21%	75%
1940	4,133	2,225	54%	1970	3,113	22%	75%
1941	4,133	3,433	83%	1984	3,105	23%	75%
1942	4,133	3,303	80%	1956	3,097	25%	75%
1943	4,133	3,541	86%	1979	3,084	26%	75%
1944	4,133	1,809	44%	1968	3,000	27%	73%
1945	4,133	2,649	64%	1986	2,987	28%	72%
1946	4,133	2,609	63%	2000	2,950	30%	71%
1947	4,133	2,254	55%	1953	2,915	31%	71%
1948	4,133	1,923	47%	1928	2,892	32%	70%
1949	4,133	1,510	37%	1923	2,856	33%	69%
1950	4,133	2,008	49%	1978	2,855	35%	69%
1951	4,133	2,744	66%	1935	2,844	36%	69%
1952	4,133	3,657	88%	1973	2,806	37%	68%
1953	4,133	2,915	71%	1937	2,757	38%	67%
1954	4,133	2,676	65%	1985	2,752	40%	67%
1955	4,133	1,667	40%	1951	2,744	41%	66%
1956	4,133	3,097	75%	1927	2,694	42%	65%
1957	4,133	2,553	62%	1966	2,690	43%	65%
1958	4,133	3,604	87%	1954	2,676	44%	65%
1959	4,133	2,431	59%	1945	2,649	46%	64%
1960	4,133	2,083	50%	1946	2,609	47%	63%
1961	4,133	1,396	34%	1963	2,594	48%	63%
1962	4,133	2,067	50%	1922	2,583	49%	62%
1963	4,133	2,594	63%	1972	2,570	51%	62%
1964	4,133	2,486	60%	1957	2,553	52%	62%

Year	SWP Table A Demands	SWP Table A Delivery		Probability Curve (percent of time at or above given value)			
		Annual Volume (TAF)	Percent of Maximum SWP Table A	Year	SWP Table A Delivery (TAF)	Exceedance Frequency	Percent of Maximum SWP Table A
1965	4,133	2,208	53%	1981	2,526	53%	61%
1966	4,133	2,690	65%	1993	2,492	54%	60%
1967	4,133	3,684	89%	1939	2,489	56%	60%
1968	4,133	3,000	73%	1964	2,486	57%	60%
1969	4,133	3,606	87%	1959	2,431	58%	59%
1970	4,133	3,113	75%	1971	2,336	59%	57%
1971	4,133	2,336	57%	1976	2,335	60%	56%
1972	4,133	2,570	62%	1936	2,267	62%	55%
1973	4,133	2,806	68%	1947	2,254	63%	55%
1974	4,133	3,399	82%	1940	2,225	64%	54%
1975	4,133	3,184	77%	1965	2,208	65%	53%
1976	4,133	2,335	56%	1960	2,083	67%	50%
1977	4,133	288	7%	2003	2,076	68%	50%
1978	4,133	2,855	69%	1962	2,067	69%	50%
1979	4,133	3,084	75%	1989	2,019	70%	49%
1980	4,133	3,295	80%	1950	2,008	72%	49%
1981	4,133	2,526	61%	1948	1,923	73%	47%
1982	4,133	3,491	84%	1944	1,809	74%	44%
1983	4,133	4,008	97%	2002	1,721	75%	42%
1984	4,133	3,105	75%	1955	1,667	77%	40%
1985	4,133	2,752	67%	1926	1,626	78%	39%
1986	4,133	2,987	72%	1933	1,572	79%	38%
1987	4,133	1,565	38%	1987	1,565	80%	38%
1988	4,133	490	12%	1931	1,525	81%	37%
1989	4,133	2,019	49%	1949	1,510	83%	37%
1990	4,133	550	13%	2001	1,480	84%	36%
1991	4,133	1,016	25%	1994	1,450	85%	35%
1992	4,133	708	17%	1929	1,445	86%	35%
1993	4,133	2,492	60%	1961	1,396	88%	34%
1994	4,133	1,450	35%	1932	1,103	89%	27%
1995	4,133	3,508	85%	1925	1,062	90%	26%
1996	4,133	3,433	83%	1991	1,016	91%	25%
1997	4,133	3,120	75%	1924	826	93%	20%
1998	4,133	3,913	95%	1934	713	94%	17%
1999	4,133	3,235	78%	1992	708	95%	17%
2000	4,133	2,950	71%	1930	591	96%	14%
2001	4,133	1,480	36%	1990	550	98%	13%
2002	4,133	1,721	42%	1988	490	99%	12%
2003	4,133	2,076	50%	1977	288	100%	7%
Average	4,133	2,414	58%	Average	2,414		58%
Minimum	4,133	288	7%	Minimum	288		7%
Maximum	4,133	4,008	97%	Maximum	4,008		97%

Article 21 Deliveries

Table A-2 below shows the State Water Project Contractors' Article 21 deliveries for the Existing Conditions scenario.

Table A-2. Article 21 Deliveries for Existing Conditions

SWP Table Article 21 Deliveries (TAF)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
1921										0	0	4	4
1922	6	6	6	5	2	0	0	0	0	0	0	2	27
1923	0	0	0	0	2	0	0	0	0	0	0	0	2
1924	0	2	0	0	0	0	0	0	0	0	0	6	8
1925	6	5	5	4	3	0	0	0	0	0	0	1	25
1926	6	5	0	4	0	0	0	0	0	0	4	5	23
1927	3	2	4	5	2	0	0	0	0	0	0	4	20
1928	0	0	0	0	0	3	0	0	0	0	0	4	8
1929	0	2	0	0	0	0	0	0	0	0	0	6	7
1930	6	5	5	4	0	0	0	0	0	0	0	0	21
1931	33	132	0	0	0	0	0	0	0	0	0	6	170
1932	6	6	0	0	3	0	0	0	0	0	0	0	15
1933	0	0	65	0	0	0	0	0	0	0	0	6	71
1934	6	0	0	0	0	0	0	0	0	0	4	6	16
1935	5	5	5	5	2	0	0	0	0	0	0	0	23
1936	0	0	0	0	2	0	0	0	2	0	0	0	4
1937	0	69	317	0	2	0	0	0	0	0	3	4	396
1938	0	0	98	214	155	0	0	0	0	0	0	4	472
1939	2	2	0	0	0	0	0	0	0	0	0	0	5
1940	3	2	4	5	2	0	0	0	0	0	0	4	21
1941	0	0	0	99	2	0	0	0	0	0	0	4	105
1942	0	0	0	0	0	0	0	0	0	0	0	4	4
1943	0	0	0	0	0	0	0	0	0	0	0	0	0
1944	3	2	2	1	0	0	0	0	0	0	4	5	16
1945	3	2	4	5	2	0	0	0	0	0	3	4	24
1946	0	0	0	0	0	0	0	0	2	0	0	4	6
1947	3	2	2	1	1	0	0	0	0	0	0	0	10
1948	3	0	4	5	2	1	0	0	0	0	0	4	20
1949	3	2	2	1	0	0	0	0	0	0	0	0	9
1950	3	2	4	5	0	0	0	0	0	2	3	12	31
1951	277	268	142	0	2	3	0	0	0	0	3	4	699
1952	0	0	0	107	106	0	0	0	0	0	0	4	217
1953	0	0	0	0	0	0	0	0	0	0	0	0	0
1954	0	0	0	0	0	0	0	0	0	0	3	4	7
1955	3	6	45	1	0	0	0	0	0	0	0	5	60
1956	87	294	213	5	2	0	0	0	0	0	0	4	605
1957	0	0	0	0	0	0	0	0	0	0	0	4	4
1958	0	0	98	179	76	0	0	0	0	0	0	4	357
1959	0	0	0	0	0	0	0	0	2	0	0	0	2
1960	0	3	2	0	0	0	0	0	0	0	0	5	10

SWP Table Article 21 Deliveries (TAF)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
1961	6	5	5	1	2	0	0	0	0	0	0	5	23
1962	0	2	4	5	0	0	0	0	0	2	0	4	17
1963	0	0	0	0	2	0	0	0	0	0	3	0	5
1964	3	2	2	1	0	0	0	0	0	0	4	5	16
1965	3	2	4	5	2	0	0	0	0	0	3	80	99
1966	108	120	24	0	0	0	0	0	0	0	3	4	260
1967	0	0	0	0	2	0	0	0	0	0	0	4	6
1968	0	0	0	0	0	4	0	0	0	0	0	4	8
1969	56	148	150	21	16	0	0	0	0	0	0	4	396
1970	144	107	178	0	0	3	0	0	0	0	3	4	438
1971	0	0	0	0	0	0	0	0	0	0	0	4	4
1972	0	0	0	0	1	0	0	0	0	0	3	4	8
1973	0	0	0	0	2	0	0	0	0	0	3	4	9
1974	0	0	0	0	2	0	0	0	0	0	0	0	2
1975	0	0	0	0	0	0	0	0	0	0	0	0	0
1976	0	2	0	1	0	0	0	0	0	6	0	6	15
1977	0	0	0	0	0	0	0	0	0	0	0	6	6
1978	5	5	5	5	2	0	0	0	0	0	0	4	26
1979	0	0	0	0	2	0	0	0	0	0	3	4	10
1980	0	65	167	0	2	0	0	0	0	0	0	4	239
1981	3	2	2	1	0	0	0	0	0	0	4	5	16
1982	3	2	4	97	2	0	0	0	0	1	3	4	116
1983	2	2	96	111	97	46	1	0	1	1	3	167	527
1984	179	194	161	0	0	3	0	0	0	0	3	4	544
1985	42	104	48	1	0	0	0	0	0	0	0	5	199
1986	3	2	4	5	2	0	0	0	0	0	0	0	16
1987	3	2	2	0	0	0	0	0	0	0	0	5	11
1988	6	5	0	4	0	0	0	0	0	0	4	6	24
1989	6	0	5	4	0	0	0	0	1	0	0	0	17
1990	6	4	4	0	4	0	0	0	0	0	0	0	18
1991	0	0	5	5	4	0	0	0	0	0	0	0	14
1992	0	5	5	5	0	0	0	0	0	0	0	6	21
1993	5	5	5	5	2	1	0	0	0	0	0	4	27
1994	3	2	2	1	1	0	0	0	0	0	0	6	14
1995	5	5	5	5	18	0	1	0	0	0	0	3	43
1996	0	0	0	0	0	0	0	0	0	0	0	4	4
1997	79	136	234	0	0	3	0	0	0	0	3	4	458
1998	0	4	121	111	83	0	1	0	1	0	3	4	328
1999	0	0	0	0	0	0	0	0	0	0	0	4	4
2000	0	68	89	0	0	0	0	0	0	0	0	0	157
2001	3	2	2	1	0	0	0	0	0	0	4	5	16
2002	6	0	5	4	2	0	0	0	0	0	0	5	21
2003	3	2	4	5	2	0	0	0	0				20
Average	14	22	29	13	8	1	0	0	0	0	1	6	94
Minimum	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum	277	294	317	214	155	46	1	0	2	6	4	167	699

SWP Exports from the Sacramento-San Joaquin Delta

Table A-3 below shows the SWP Exports from the Delta for the Existing Conditions scenario.

Table A-3. SWP Exports for Existing Conditions

SWP Exports from the Delta (TAF)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
1921										292	218	443	953
1922	182	202	229	57	179	360	411	311	397	233	397	209	3,167
1923	290	170	126	54	37	113	411	366	195	243	200	212	2,417
1924	143	148	18	23	18	18	18	18	33	145	176	182	942
1925	166	144	122	57	46	71	151	18	140	145	173	228	1,462
1926	162	136	18	54	18	61	378	18	146	154	397	167	1,711
1927	148	162	135	182	37	128	411	311	397	269	397	438	3,016
1928	176	146	184	54	37	106	411	311	357	144	304	314	2,543
1929	186	145	109	56	27	18	18	18	43	75	72	162	930
1930	167	135	124	51	27	207	312	18	141	129	142	132	1,585
1931	161	143	61	18	18	18	18	18	30	62	93	441	1,081
1932	171	214	170	41	37	44	116	18	120	121	132	191	1,377
1933	225	274	267	38	37	18	18	18	40	93	85	289	1,403
1934	166	148	118	18	18	18	18	18	35	68	167	202	994
1935	177	168	241	378	37	112	411	411	158	201	210	249	2,753
1936	129	340	147	54	37	137	411	411	397	252	172	256	2,742
1937	180	475	400	69	58	314	258	160	153	207	397	280	2,950
1938	264	526	518	397	411	397	411	311	397	362	349	436	4,780
1939	210	191	187	40	37	101	158	18	129	154	125	255	1,606
1940	150	176	207	272	37	109	410	311	397	136	261	199	2,665
1941	198	447	356	329	70	248	411	311	397	279	396	198	3,639
1942	254	237	230	327	53	222	411	311	397	289	397	176	3,304
1943	339	290	518	65	38	129	410	311	397	257	239	288	3,281
1944	174	167	142	46	37	157	295	18	148	184	397	230	1,997
1945	175	314	227	51	37	116	411	343	161	266	397	284	2,783
1946	185	191	210	43	37	113	411	411	397	212	265	313	2,789
1947	171	162	119	39	28	104	105	18	144	243	253	198	1,584
1948	122	67	125	39	37	128	411	411	397	256	213	272	2,478
1949	162	154	165	36	37	18	240	18	150	127	166	171	1,444
1950	133	138	122	43	37	112	411	311	239	240	397	533	2,715
1951	389	335	260	47	37	107	369	311	397	225	397	177	3,052
1952	297	250	375	352	343	366	411	311	397	253	340	437	4,133
1953	165	233	178	47	37	124	411	311	397	262	397	235	2,799
1954	124	133	123	52	37	109	408	311	397	202	375	433	2,706
1955	182	158	105	43	37	18	18	19	181	154	291	341	1,547
1956	599	373	347	49	51	257	411	311	397	332	296	434	3,856
1957	170	136	139	46	37	106	348	311	397	369	397	167	2,623
1958	157	169	342	397	364	315	411	311	397	312	309	436	3,920
1959	131	155	129	38	37	102	405	411	226	160	141	159	2,094
1960	235	145	113	27	45	97	380	219	152	140	325	184	2,062
1961	169	131	115	36	37	95	18	18	149	104	206	153	1,232
1962	140	197	141	58	37	105	411	292	164	411	378	156	2,492

SWP Exports from the Delta (TAF)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
1963	151	150	125	185	37	115	410	311	397	324	397	318	2,919
1964	175	130	105	36	37	113	392	18	138	185	336	175	1,840
1965	235	219	172	263	37	140	409	311	397	211	397	454	3,245
1966	221	188	142	42	37	104	403	411	158	178	397	177	2,457
1967	178	140	232	397	308	397	411	311	397	399	397	434	4,003
1968	259	196	183	37	37	102	392	411	250	301	312	434	2,914
1969	408	216	245	197	254	397	411	311	397	411	382	188	3,817
1970	599	384	307	38	37	105	411	311	378	119	397	179	3,264
1971	163	141	144	51	37	120	411	311	397	224	233	434	2,665
1972	165	140	108	38	37	101	411	399	194	314	397	165	2,469
1973	173	194	214	52	37	114	411	311	397	363	397	193	2,856
1974	240	170	201	241	37	164	411	311	397	408	359	443	3,384
1975	179	219	249	50	37	198	411	311	397	411	397	272	3,130
1976	152	154	130	44	42	88	410	245	118	86	139	45	1,651
1977	136	95	29	18	18	18	18	18	109	23	103	160	745
1978	169	237	235	79	75	234	411	311	397	236	383	438	3,205
1979	217	273	242	54	49	107	411	411	185	235	386	436	3,006
1980	381	336	274	53	46	240	411	211	397	268	224	435	3,275
1981	177	150	143	46	28	101	411	20	147	198	397	166	1,985
1982	205	526	466	397	110	289	411	311	397	411	397	533	4,454
1983	488	250	254	260	256	348	338	311	397	411	397	407	4,117
1984	465	422	279	51	37	113	403	311	397	347	397	433	3,656
1985	174	156	142	52	37	102	332	18	213	197	318	435	2,178
1986	127	526	518	78	59	174	411	250	397	310	300	241	3,392
1987	169	147	127	42	18	18	18	18	121	81	104	163	1,027
1988	165	104	39	44	18	18	18	18	71	18	267	180	963
1989	163	98	111	52	37	98	411	18	199	183	119	115	1,604
1990	163	139	110	36	39	155	18	18	97	64	108	117	1,063
1991	26	118	154	52	37	18	18	18	41	95	109	154	843
1992	88	148	145	36	18	18	18	18	124	18	29	181	842
1993	177	166	209	37	37	160	411	311	397	227	203	430	2,765
1994	158	146	104	37	44	84	18	42	166	105	126	170	1,200
1995	170	145	518	397	411	373	411	311	397	272	303	169	3,877
1996	248	522	464	57	176	163	411	311	397	165	397	533	3,844
1997	599	420	360	41	40	130	354	311	397	226	391	434	3,703
1998	181	439	325	326	367	397	411	311	397	411	397	179	4,141
1999	336	451	267	45	37	133	410	311	397	221	350	416	3,375
2000	134	460	217	47	37	106	411	311	397	208	228	220	2,776
2001	177	153	136	51	36	18	18	18	180	67	268	178	1,302
2002	163	177	121	36	37	101	207	75	140	66	148	173	1,444
2003	145	151	118	39	37	98	410	311	397				2,658
Average	210	222	203	101	71	141	311	218	268	217	283	276	2,521
Minimum	26	67	18	18	18	18	18	18	30	18	29	45	745
Maximum	599	526	518	397	411	397	411	411	397	411	397	533	4,780

This page intentionally left blank.

Individual Contractor Table A Deliveries - Existing Conditions

The tables on the following pages show the Table A without Article 56 carryover and Total Table A deliveries for each State Water Contractor for the Existing Conditions scenario.

Individual Contractor Tables SWP Table A Deliveries Description

The sum of the current CY Table A only and Article 56 (requested from previous CY).

The Total Table A delivery divided by the Maximum Table A delivered over the Sept 1921-Oct 2003 period of record.

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	48	0	48	61%	1983	79	0%	100%

Contract year (CY) from January to December (Jan-Dec)

This column shows just Table A deliveries without the carryover from the contract year Jan-Dec.

This column just represents Article 56 deliveries delivered in the current CY. This means that these Article 56 requests were made in the previous CY as the CalSim carryover implementation is single year only. In other words, if a contractor requested carryover in the previous CY, then this amount must be delivered within the current CY. There is a risk that not all carryover requested in the previous CY will be delivered in the current CY due to carryover spills. These spills occur under three SWP San Luis conditions:

1. Reaches dead pool (55 TAF)
2. Reaches flood levels (1067 TAF) and Article 21 is delivered
3. Has insufficient storage at the beginning of January (start of CY)

Table A-4. Alameda County FC&WCD-Zone 7: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	48	0	48	60%	1983	80	0%	100%
1923	46	9	55	69%	1998	76	1%	96%
1924	10	8	18	22%	1938	75	2%	94%
1925	19	1	20	25%	1967	72	4%	91%
1926	29	2	31	39%	1952	71	5%	90%
1927	48	4	52	65%	1958	70	6%	89%
1928	47	9	56	70%	1969	69	7%	87%
1929	22	8	30	37%	1943	69	9%	87%
1930	10	0	10	13%	1995	68	10%	86%
1931	28	0	28	35%	1996	68	11%	85%
1932	18	4	22	28%	1941	67	12%	85%
1933	28	1	29	36%	1974	67	14%	84%
1934	11	4	15	19%	1982	66	15%	83%
1935	53	1	55	69%	1980	64	16%	81%
1936	38	3	41	52%	1942	64	17%	81%
1937	49	4	53	67%	1999	63	19%	79%
1938	66	9	75	94%	1975	61	20%	77%
1939	46	12	58	73%	1997	61	21%	77%
1940	40	0	40	51%	1970	60	22%	76%
1941	61	6	67	85%	1984	59	23%	75%
1942	50	14	64	81%	1986	59	25%	75%
1943	58	11	69	87%	1956	59	26%	75%
1944	27	7	33	42%	1979	59	27%	74%
1945	48	3	51	64%	1939	58	28%	73%
1946	42	8	50	63%	1968	58	30%	72%
1947	39	5	44	55%	2000	57	31%	72%
1948	34	0	35	44%	1928	56	32%	70%
1949	25	5	30	37%	1953	56	33%	70%
1950	35	3	38	48%	1923	55	35%	69%
1951	50	2	52	65%	1973	55	36%	69%
1952	61	10	71	90%	1935	55	37%	69%
1953	42	14	56	70%	1978	54	38%	68%
1954	45	6	52	65%	1937	53	40%	67%
1955	28	2	30	38%	1927	52	41%	65%
1956	58	2	59	75%	1951	52	42%	65%
1957	36	13	49	61%	1954	52	43%	65%
1958	66	5	70	89%	1981	51	44%	64%
1959	32	15	47	59%	1976	51	46%	64%
1960	36	4	40	50%	1945	51	47%	64%
1961	23	5	28	35%	1966	51	48%	64%
1962	36	3	39	49%	1946	50	49%	63%
1963	45	5	50	63%	1985	50	51%	63%
1964	41	7	48	61%	1963	50	52%	63%
1965	37	6	43	54%	1972	49	53%	62%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	48	2	51	64%	1957	49	54%	61%
1967	63	9	72	91%	1964	48	56%	61%
1968	43	14	58	72%	1922	48	57%	60%
1969	66	4	69	87%	1959	47	58%	59%
1970	50	11	60	76%	1993	46	59%	58%
1971	35	10	45	56%	1971	45	60%	56%
1972	44	5	49	62%	1947	44	62%	55%
1973	48	7	55	69%	1965	43	63%	54%
1974	58	9	67	84%	1936	41	64%	52%
1975	48	13	61	77%	1989	41	65%	51%
1976	43	8	51	64%	1940	40	67%	51%
1977	5	0	5	6%	1960	40	68%	50%
1978	54	1	54	68%	1962	39	69%	49%
1979	47	12	59	74%	1950	38	70%	48%
1980	58	7	64	81%	2003	37	72%	47%
1981	38	13	51	64%	1948	35	73%	44%
1982	66	0	66	83%	1944	33	74%	42%
1983	66	14	80	100%	2002	32	75%	41%
1984	50	10	59	75%	1926	31	77%	39%
1985	49	1	50	63%	1987	31	78%	38%
1986	50	9	59	75%	1955	30	79%	38%
1987	20	10	31	38%	1929	30	80%	37%
1988	8	2	10	13%	1949	30	81%	37%
1989	40	1	41	51%	1994	29	83%	37%
1990	9	0	10	12%	2001	29	84%	37%
1991	18	1	19	24%	1933	29	85%	36%
1992	12	2	14	18%	1961	28	86%	35%
1993	45	1	46	58%	1931	28	88%	35%
1994	22	7	29	37%	1932	22	89%	28%
1995	66	3	68	86%	1925	20	90%	25%
1996	56	11	68	85%	1991	19	91%	24%
1997	50	11	61	77%	1924	18	93%	22%
1998	66	11	76	96%	1934	15	94%	19%
1999	48	15	63	79%	1992	14	95%	18%
2000	50	7	57	72%	1930	10	96%	13%
2001	19	10	29	37%	1988	10	98%	13%
2002	30	2	32	41%	1990	10	99%	12%
2003	37	0	37	47%	1977	5	100%	6%
Average	41	6	47	59%		47		59%
Maximum	66	15	80	100%		80		100%
Minimum	5	0	5	6%		5		6%

Table A-5. Alameda County WD: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	21	0	21	53%	1983	41	0%	100%
1923	21	8	29	71%	1998	39	1%	95%
1924	5	7	12	30%	1938	38	2%	93%
1925	9	1	10	25%	1967	37	4%	90%
1926	14	2	16	38%	1952	36	5%	89%
1927	22	3	25	61%	1943	35	6%	87%
1928	21	8	29	72%	1942	34	7%	84%
1929	11	8	18	45%	1974	34	9%	83%
1930	5	0	5	13%	1999	34	10%	83%
1931	13	0	14	33%	1941	34	11%	82%
1932	9	3	12	29%	1958	33	12%	82%
1933	14	1	14	35%	1969	33	14%	80%
1934	6	3	8	21%	1975	33	15%	80%
1935	24	1	25	61%	1980	32	16%	79%
1936	18	2	20	49%	1968	31	17%	77%
1937	22	3	25	62%	1995	31	19%	77%
1938	30	8	38	93%	1979	31	20%	77%
1939	21	10	31	75%	1996	31	21%	77%
1940	18	0	18	45%	1939	31	22%	75%
1941	28	6	34	82%	1953	30	23%	75%
1942	23	12	34	84%	1997	30	25%	74%
1943	26	9	35	87%	1986	30	26%	74%
1944	13	3	16	40%	1970	30	27%	74%
1945	21	3	24	59%	1982	30	28%	73%
1946	19	8	27	65%	1984	30	30%	73%
1947	18	5	22	55%	1928	29	31%	72%
1948	17	0	17	42%	2000	29	32%	71%
1949	12	4	16	39%	1981	29	33%	71%
1950	17	2	19	48%	1923	29	35%	71%
1951	22	2	24	59%	1957	28	36%	69%
1952	28	9	36	89%	1973	28	37%	69%
1953	19	12	30	75%	1959	28	38%	69%
1954	20	6	27	65%	1956	27	40%	67%
1955	14	2	15	38%	1976	27	41%	65%
1956	26	1	27	67%	1946	27	42%	65%
1957	17	11	28	69%	1954	27	43%	65%
1958	30	4	33	82%	1971	26	44%	63%
1959	16	12	28	69%	1937	25	46%	62%
1960	17	3	21	51%	1964	25	47%	62%
1961	11	4	15	37%	1935	25	48%	61%
1962	18	2	20	49%	1927	25	49%	61%
1963	20	4	24	59%	1978	25	51%	60%
1964	19	7	25	62%	1965	24	52%	59%
1965	18	6	24	59%	1951	24	53%	59%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	22	2	23	58%	1945	24	54%	59%
1967	28	8	37	90%	1963	24	56%	59%
1968	19	12	31	77%	1972	24	57%	58%
1969	30	3	33	80%	1966	23	58%	58%
1970	22	8	30	74%	2003	23	59%	57%
1971	17	9	26	63%	1985	23	60%	56%
1972	20	4	24	58%	1947	22	62%	55%
1973	22	7	28	69%	1922	21	63%	53%
1974	26	8	34	83%	1993	21	64%	52%
1975	22	11	33	80%	1960	21	65%	51%
1976	19	7	27	65%	1936	20	67%	49%
1977	2	0	2	6%	1962	20	68%	49%
1978	24	0	25	60%	1989	20	69%	48%
1979	21	10	31	77%	1950	19	70%	48%
1980	26	6	32	79%	1987	19	72%	46%
1981	18	11	29	71%	1929	18	73%	45%
1982	30	0	30	73%	1940	18	74%	45%
1983	30	11	41	100%	2001	18	75%	45%
1984	22	7	30	73%	1994	18	77%	44%
1985	22	1	23	56%	1948	17	78%	42%
1986	23	7	30	74%	2002	16	79%	40%
1987	10	9	19	46%	1944	16	80%	40%
1988	4	2	6	14%	1949	16	81%	39%
1989	19	1	20	48%	1926	16	83%	38%
1990	5	0	5	12%	1955	15	84%	38%
1991	9	1	10	24%	1961	15	85%	37%
1992	6	2	8	18%	1933	14	86%	35%
1993	20	1	21	52%	1931	14	88%	33%
1994	11	7	18	44%	1924	12	89%	30%
1995	29	2	31	77%	1932	12	90%	29%
1996	25	6	31	77%	1925	10	91%	25%
1997	23	8	30	74%	1991	10	93%	24%
1998	30	9	39	95%	1934	8	94%	21%
1999	21	12	34	83%	1992	8	95%	18%
2000	22	7	29	71%	1988	6	96%	14%
2001	9	9	18	45%	1930	5	98%	13%
2002	15	2	16	40%	1990	5	99%	12%
2003	23	0	23	57%	1977	2	100%	6%
Average	19	5	24	58%		24		58%
Maximum	30	12	41	100%		41		100%
Minimum	2	0	2	6%		2		6%

Table A-6. Antelope Valley-East Kern WA: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	74	0	74	54%	1999	138	0%	100%
1923	76	28	104	75%	1983	137	1%	100%
1924	19	21	40	29%	1968	137	2%	100%
1925	35	1	36	26%	1953	132	4%	96%
1926	52	2	54	40%	1975	129	5%	94%
1927	73	6	79	57%	1979	128	6%	93%
1928	75	30	105	77%	1942	128	7%	93%
1929	35	20	56	41%	1959	122	9%	89%
1930	19	1	20	14%	1998	121	10%	88%
1931	51	0	51	37%	1957	121	11%	88%
1932	35	6	40	29%	1938	114	12%	83%
1933	52	1	53	38%	1943	114	14%	83%
1934	21	6	27	20%	1952	113	15%	82%
1935	66	1	67	49%	1967	108	16%	79%
1936	69	6	75	55%	1970	106	17%	77%
1937	72	7	79	57%	1928	105	19%	77%
1938	81	33	114	83%	1923	104	20%	75%
1939	33	49	83	60%	1984	104	21%	75%
1940	70	1	71	52%	1997	103	22%	75%
1941	76	13	89	64%	1974	100	23%	73%
1942	68	59	128	93%	1971	100	25%	73%
1943	72	41	114	83%	1946	99	26%	72%
1944	49	12	61	44%	1986	94	27%	69%
1945	75	5	80	58%	2000	93	28%	68%
1946	73	26	99	72%	1981	92	30%	67%
1947	68	10	79	57%	1980	91	31%	66%
1948	63	1	64	46%	1954	90	32%	66%
1949	47	7	54	39%	1996	90	33%	66%
1950	64	3	68	49%	1958	89	35%	65%
1951	70	3	73	53%	1969	89	36%	64%
1952	76	37	113	82%	1941	89	37%	64%
1953	73	59	132	96%	1964	88	38%	64%
1954	77	13	90	66%	1973	88	40%	64%
1955	52	4	56	40%	1972	85	41%	62%
1956	71	3	74	54%	1963	85	42%	62%
1957	65	56	121	88%	1995	84	43%	61%
1958	81	7	89	65%	1939	83	44%	60%
1959	59	63	122	89%	1976	83	46%	60%
1960	65	7	72	52%	1982	82	47%	60%
1961	44	7	51	37%	1965	80	48%	59%
1962	67	3	69	50%	1945	80	49%	58%
1963	77	8	85	62%	1927	79	51%	57%
1964	72	16	88	64%	1993	79	52%	57%
1965	67	13	80	59%	1947	79	53%	57%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	73	3	77	56%	1937	79	54%	57%
1967	78	30	108	79%	1987	78	56%	57%
1968	76	61	137	100%	1985	78	57%	57%
1969	81	7	89	64%	1966	77	58%	56%
1970	70	36	106	77%	1936	75	59%	55%
1971	64	37	100	73%	1956	74	60%	54%
1972	78	7	85	62%	1922	74	62%	54%
1973	73	14	88	64%	1951	73	63%	53%
1974	72	29	100	73%	2001	73	64%	53%
1975	73	56	129	94%	1960	72	65%	52%
1976	56	26	83	60%	1940	71	67%	52%
1977	9	1	9	7%	2003	70	68%	51%
1978	67	1	67	49%	1962	69	69%	50%
1979	76	52	128	93%	1950	68	70%	49%
1980	71	19	91	66%	1935	67	72%	49%
1981	48	43	92	67%	1978	67	73%	49%
1982	81	1	82	60%	1948	64	74%	46%
1983	81	56	137	100%	1944	61	75%	44%
1984	70	34	104	75%	1994	58	77%	42%
1985	74	4	78	57%	2002	58	78%	42%
1986	69	26	94	69%	1929	56	79%	41%
1987	38	40	78	57%	1955	56	80%	40%
1988	15	2	17	12%	1926	54	81%	40%
1989	44	1	44	32%	1949	54	83%	39%
1990	18	1	18	13%	1933	53	84%	38%
1991	34	1	35	26%	1961	51	85%	37%
1992	23	2	25	18%	1931	51	86%	37%
1993	77	1	79	57%	1989	44	88%	32%
1994	42	16	58	42%	1932	40	89%	29%
1995	81	3	84	61%	1924	40	90%	29%
1996	70	20	90	66%	1925	36	91%	26%
1997	69	34	103	75%	1991	35	93%	26%
1998	81	40	121	88%	1934	27	94%	20%
1999	74	63	138	100%	1992	25	95%	18%
2000	70	23	93	68%	1930	20	96%	14%
2001	36	37	73	53%	1990	18	98%	13%
2002	55	2	58	42%	1988	17	99%	12%
2003	70	1	70	51%	1977	9	100%	7%
Average	61	19	80	58%		80		58%
Maximum	81	63	138	100%		138		100%
Minimum	9	0	9	7%		9		7%

Table A-7. Santa Clarita Valley WA: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedence Frequency (%)	Percent of Maximum Table A
1922	45	0	45	49%	1999	91	0%	100%
1923	47	22	69	75%	1968	90	1%	99%
1924	12	17	29	32%	1953	90	2%	99%
1925	24	1	24	26%	1975	87	4%	95%
1926	34	1	35	39%	1959	86	5%	94%
1927	44	4	48	53%	1979	86	6%	94%
1928	47	23	70	76%	1957	85	7%	93%
1929	28	16	44	48%	1939	80	9%	88%
1930	13	0	13	14%	1942	77	10%	85%
1931	33	0	33	37%	1998	77	11%	84%
1932	23	4	27	29%	1981	76	12%	83%
1933	34	0	34	38%	1943	73	14%	80%
1934	14	4	18	20%	1952	73	15%	80%
1935	38	1	39	42%	1938	73	16%	79%
1936	46	3	49	54%	1983	70	17%	77%
1937	44	4	48	52%	1971	70	19%	77%
1938	47	26	73	79%	1928	70	20%	76%
1939	43	37	80	88%	1923	69	21%	75%
1940	44	0	44	49%	1967	69	22%	75%
1941	44	11	54	60%	1970	68	23%	74%
1942	41	37	77	85%	1976	66	25%	73%
1943	42	32	73	80%	1984	66	26%	73%
1944	32	7	39	43%	1946	66	27%	73%
1945	46	3	49	53%	1997	65	28%	71%
1946	46	20	66	73%	1974	64	30%	70%
1947	43	9	51	56%	2000	60	31%	66%
1948	41	0	42	46%	1954	59	32%	65%
1949	31	5	36	39%	1964	58	33%	64%
1950	42	2	44	48%	1980	57	35%	62%
1951	42	2	44	48%	1973	56	36%	62%
1952	44	29	73	80%	1987	56	37%	62%
1953	45	45	90	99%	1986	55	38%	61%
1954	48	11	59	65%	1965	55	40%	60%
1955	34	3	37	41%	1941	54	41%	60%
1956	41	2	43	47%	1972	54	42%	59%
1957	43	42	85	93%	1963	53	43%	58%
1958	45	5	50	54%	1969	53	44%	58%
1959	38	48	86	94%	2001	53	46%	58%
1960	43	4	47	52%	1996	52	47%	57%
1961	29	5	34	37%	1947	51	48%	56%
1962	44	1	45	49%	1958	50	49%	54%
1963	48	5	53	58%	1993	49	51%	54%
1964	45	13	58	64%	1936	49	52%	54%
1965	44	11	55	60%	1945	49	53%	53%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedence Frequency (%)	Percent of Maximum Table A
1966	45	2	47	51%	1985	48	54%	53%
1967	45	23	69	75%	1927	48	56%	53%
1968	44	46	90	99%	1937	48	57%	52%
1969	47	6	53	58%	1982	47	58%	52%
1970	42	26	68	74%	1960	47	59%	52%
1971	42	28	70	77%	1995	47	60%	51%
1972	49	5	54	59%	1966	47	62%	51%
1973	45	12	56	62%	1989	46	63%	50%
1974	41	22	64	70%	2003	45	64%	49%
1975	45	42	87	95%	1922	45	65%	49%
1976	46	20	66	73%	1962	45	67%	49%
1977	6	0	6	7%	1940	44	68%	49%
1978	39	0	39	42%	1929	44	69%	48%
1979	47	39	86	94%	1950	44	70%	48%
1980	41	15	57	62%	1951	44	72%	48%
1981	43	33	76	83%	1956	43	73%	47%
1982	47	0	47	52%	1948	42	74%	46%
1983	47	23	70	77%	1994	41	75%	45%
1984	42	25	66	73%	1944	39	77%	43%
1985	45	3	48	53%	1935	39	78%	42%
1986	41	15	55	61%	1978	39	79%	42%
1987	25	31	56	62%	2002	37	80%	41%
1988	10	1	11	12%	1955	37	81%	41%
1989	45	0	46	50%	1949	36	83%	39%
1990	12	0	12	13%	1926	35	84%	39%
1991	23	0	23	26%	1933	34	85%	38%
1992	15	1	16	18%	1961	34	86%	37%
1993	48	1	49	54%	1931	33	88%	37%
1994	28	13	41	45%	1924	29	89%	32%
1995	46	1	47	51%	1932	27	90%	29%
1996	40	12	52	57%	1925	24	91%	26%
1997	41	24	65	71%	1991	23	93%	26%
1998	47	30	77	84%	1934	18	94%	20%
1999	43	48	91	100%	1992	16	95%	18%
2000	42	18	60	66%	1930	13	96%	14%
2001	24	29	53	58%	1990	12	98%	13%
2002	36	1	37	41%	1988	11	99%	12%
2003	45	0	45	49%	1977	6	100%	7%
Average	39	14	52	57%		52		57%
Maximum	49	48	91	100%		91		100%
Minimum	6	0	6	7%		6		7%

Table A-8. Coachella Valley WD: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	70	0	70	51%	1939	138	0%	100%
1923	74	27	101	73%	1968	138	0%	100%
1924	19	19	38	27%	1999	138	0%	100%
1925	36	0	36	26%	1953	138	4%	99%
1926	51	0	51	37%	1981	131	5%	94%
1927	69	5	73	53%	1979	130	6%	94%
1928	73	30	102	74%	1975	130	7%	94%
1929	42	21	64	46%	1959	126	9%	91%
1930	19	0	19	14%	1957	124	10%	90%
1931	49	0	49	36%	1942	123	11%	89%
1932	35	4	39	28%	1998	111	12%	80%
1933	50	0	50	36%	1943	105	14%	76%
1934	22	5	26	19%	1952	103	15%	75%
1935	56	0	56	41%	1938	103	16%	74%
1936	68	6	73	53%	1928	102	17%	74%
1937	67	5	72	52%	2003	102	19%	73%
1938	69	33	103	74%	1923	101	20%	73%
1939	69	69	138	100%	1971	100	21%	72%
1940	70	0	71	51%	1970	98	22%	71%
1941	64	9	74	53%	1946	98	23%	71%
1942	61	62	123	89%	1997	98	25%	70%
1943	61	44	105	76%	1967	96	26%	69%
1944	48	11	60	43%	1976	93	27%	68%
1945	71	3	74	54%	1983	93	28%	67%
1946	73	25	98	71%	1974	89	30%	64%
1947	68	10	78	56%	1985	88	31%	64%
1948	61	0	62	45%	1984	88	32%	63%
1949	47	6	52	38%	1986	86	33%	62%
1950	63	1	64	46%	2000	86	35%	62%
1951	64	3	66	48%	1954	86	36%	62%
1952	64	39	103	75%	1964	84	37%	61%
1953	73	64	138	99%	1972	83	38%	60%
1954	76	10	86	62%	1963	83	40%	60%
1955	50	12	62	45%	1987	81	41%	59%
1956	61	2	63	45%	1973	80	42%	58%
1957	64	61	124	90%	1996	79	43%	57%
1958	69	6	75	54%	1980	78	44%	57%
1959	57	69	126	91%	1947	78	46%	56%
1960	63	5	69	50%	1993	77	47%	55%
1961	44	6	50	36%	1965	75	48%	54%
1962	65	0	65	47%	2001	75	49%	54%
1963	77	6	83	60%	1958	75	51%	54%
1964	72	12	84	61%	1969	75	52%	54%
1965	66	10	75	54%	1945	74	53%	54%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	69	3	72	52%	1989	74	54%	53%
1967	66	30	96	69%	1941	74	56%	53%
1968	72	66	138	100%	1927	73	57%	53%
1969	69	6	75	54%	1936	73	58%	53%
1970	64	34	98	71%	1937	72	59%	52%
1971	62	38	100	72%	1966	72	60%	52%
1972	78	6	83	60%	1940	71	62%	51%
1973	69	10	80	58%	1922	70	63%	51%
1974	61	28	89	64%	1982	70	64%	50%
1975	69	61	130	94%	1995	69	65%	50%
1976	65	29	93	68%	1960	69	67%	50%
1977	9	0	9	7%	1951	66	68%	48%
1978	57	0	57	41%	1962	65	69%	47%
1979	73	57	130	94%	1950	64	70%	46%
1980	61	18	78	57%	1929	64	72%	46%
1981	70	61	131	94%	1956	63	73%	45%
1982	69	0	70	50%	1955	62	74%	45%
1983	69	24	93	67%	1948	62	75%	45%
1984	63	25	88	63%	1944	60	77%	43%
1985	70	19	88	64%	1978	57	78%	41%
1986	62	24	86	62%	1935	56	79%	41%
1987	38	43	81	59%	1994	55	80%	40%
1988	15	0	15	11%	2002	54	81%	39%
1989	74	0	74	53%	1949	52	83%	38%
1990	18	0	19	13%	1926	51	84%	37%
1991	35	0	35	25%	1933	50	85%	36%
1992	23	0	23	17%	1961	50	86%	36%
1993	77	0	77	55%	1931	49	88%	36%
1994	42	13	55	40%	1932	39	89%	28%
1995	69	0	69	50%	1924	38	90%	27%
1996	59	19	79	57%	1925	36	91%	26%
1997	62	36	98	70%	1991	35	93%	25%
1998	69	42	111	80%	1934	26	94%	19%
1999	69	69	138	100%	1992	23	95%	17%
2000	64	22	86	62%	1930	19	96%	14%
2001	36	39	75	54%	1990	19	98%	13%
2002	54	0	54	39%	1988	15	99%	11%
2003	101	1	102	73%	1977	9	100%	7%
Average	59	19	78	56%		78		56%
Maximum	101	69	138	100%		138		100%
Minimum	9	0	9	7%		9		7%

Table A-9. County of Kings: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	7	0	7	70%	1938	9	0%	100%
1923	6	0	6	67%	1958	9	0%	100%
1924	1	0	1	14%	1969	9	0%	100%
1925	2	0	2	26%	1982	9	0%	100%
1926	4	0	4	40%	1983	9	0%	100%
1927	7	0	7	71%	1998	9	0%	100%
1928	6	0	6	68%	1995	9	7%	100%
1929	3	0	3	31%	1967	9	9%	96%
1930	1	0	1	14%	1941	9	10%	93%
1931	4	0	4	39%	1952	9	10%	93%
1932	2	0	2	25%	1943	8	12%	89%
1933	4	0	4	40%	1974	8	14%	88%
1934	1	0	1	16%	1956	8	15%	88%
1935	8	0	8	81%	1980	8	16%	88%
1936	5	0	5	53%	1996	8	17%	86%
1937	7	0	7	73%	1978	8	19%	82%
1938	9	0	9	100%	1935	8	20%	81%
1939	3	0	3	30%	1942	7	21%	76%
1940	5	0	5	57%	1997	7	22%	75%
1941	9	0	9	93%	1986	7	23%	75%
1942	7	0	7	76%	1984	7	25%	74%
1943	8	0	8	89%	1951	7	26%	74%
1944	3	0	3	37%	2000	7	27%	74%
1945	6	0	6	69%	1970	7	28%	74%
1946	6	0	6	60%	1937	7	30%	73%
1947	5	0	5	56%	1985	7	31%	72%
1948	5	0	5	48%	1966	7	32%	71%
1949	3	0	3	35%	1927	7	33%	71%
1950	5	0	5	50%	1975	7	35%	71%
1951	7	0	7	74%	1973	7	36%	71%
1952	9	0	9	93%	1922	7	37%	70%
1953	6	0	6	60%	1999	6	38%	70%
1954	6	0	6	65%	1945	6	40%	69%
1955	4	0	4	40%	1928	6	41%	68%
1956	8	0	8	88%	1979	6	42%	68%
1957	5	0	5	50%	1923	6	43%	67%
1958	9	0	9	100%	1954	6	44%	65%
1959	4	0	4	45%	1993	6	46%	65%
1960	5	0	5	50%	1963	6	47%	64%
1961	3	0	3	32%	1972	6	48%	64%
1962	5	0	5	51%	1968	6	49%	62%
1963	6	0	6	64%	1946	6	51%	60%
1964	5	0	5	59%	1953	6	52%	60%
1965	5	0	5	52%	1964	5	53%	59%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	7	0	7	71%	1940	5	54%	57%
1967	9	0	9	96%	1947	5	56%	56%
1968	6	0	6	62%	1936	5	57%	53%
1969	9	0	9	100%	1965	5	58%	52%
1970	7	0	7	74%	1962	5	59%	51%
1971	5	0	5	49%	1989	5	60%	51%
1972	6	0	6	64%	1957	5	62%	50%
1973	7	0	7	71%	1960	5	63%	50%
1974	8	0	8	88%	1950	5	64%	50%
1975	7	0	7	71%	1976	5	65%	49%
1976	5	0	5	49%	1971	5	67%	49%
1977	1	0	1	6%	2003	5	68%	49%
1978	8	0	8	82%	1948	5	69%	48%
1979	6	0	6	68%	1959	4	70%	45%
1980	8	0	8	88%	2002	4	72%	43%
1981	3	0	3	36%	1926	4	73%	40%
1982	9	0	9	100%	1933	4	74%	40%
1983	9	0	9	100%	1955	4	75%	40%
1984	7	0	7	74%	1931	4	77%	39%
1985	7	0	7	72%	1944	3	78%	37%
1986	7	0	7	75%	1981	3	79%	36%
1987	3	0	3	28%	1949	3	80%	35%
1988	1	0	1	11%	1961	3	81%	32%
1989	5	0	5	51%	1929	3	83%	31%
1990	1	0	1	13%	1994	3	84%	31%
1991	2	0	2	25%	1939	3	85%	30%
1992	2	0	2	17%	1987	3	86%	28%
1993	6	0	6	65%	2001	2	88%	26%
1994	3	0	3	31%	1925	2	89%	26%
1995	9	0	9	100%	1932	2	90%	25%
1996	8	0	8	86%	1991	2	91%	25%
1997	7	0	7	75%	1992	2	93%	17%
1998	9	0	9	100%	1934	1	94%	16%
1999	6	0	6	70%	1930	1	95%	14%
2000	7	0	7	74%	1924	1	96%	14%
2001	2	0	2	26%	1990	1	98%	13%
2002	4	0	4	43%	1988	1	99%	11%
2003	5	0	5	49%	1977	1	100%	6%
Average	5	0	5	59%		5		59%
Maximum	9	0	9	100%		9		100%
Minimum	1	0	1	6%		1		6%

Table A-10. Crestline-Lake Arrowhead WA: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	3	0	3	47%	1999	6	0%	100%
1923	3	1	4	75%	1983	5	1%	99%
1924	1	1	2	35%	1968	5	2%	99%
1925	1	0	1	25%	1953	5	4%	96%
1926	2	0	2	39%	1975	5	5%	93%
1927	3	0	3	54%	1959	5	6%	92%
1928	3	2	4	76%	1979	5	7%	91%
1929	2	1	3	49%	1942	5	9%	91%
1930	1	0	1	13%	1939	5	10%	90%
1931	2	0	2	34%	1957	5	11%	90%
1932	1	0	2	30%	1998	5	12%	87%
1933	2	0	2	36%	1938	5	14%	83%
1934	1	0	1	21%	1943	5	15%	83%
1935	2	0	2	45%	1952	5	16%	82%
1936	3	0	3	51%	1981	4	17%	81%
1937	3	0	3	54%	1967	4	19%	79%
1938	3	2	5	83%	1928	4	20%	76%
1939	3	2	5	90%	1971	4	21%	76%
1940	2	0	2	45%	1923	4	22%	75%
1941	3	1	4	65%	1970	4	23%	74%
1942	2	3	5	91%	1974	4	25%	74%
1943	3	2	5	83%	1976	4	26%	73%
1944	2	0	2	42%	1984	4	27%	72%
1945	3	0	3	54%	1946	4	28%	72%
1946	3	1	4	72%	1997	4	30%	72%
1947	2	1	3	56%	2000	4	31%	67%
1948	2	0	2	43%	1980	4	32%	66%
1949	2	0	2	40%	1954	4	33%	66%
1950	2	0	3	49%	1941	4	35%	65%
1951	2	0	3	49%	1964	4	36%	64%
1952	3	2	5	82%	1973	4	37%	64%
1953	3	3	5	96%	1986	3	38%	63%
1954	3	1	4	66%	1958	3	40%	62%
1955	2	0	2	39%	1969	3	41%	61%
1956	3	0	3	49%	1965	3	42%	61%
1957	2	3	5	90%	1987	3	43%	61%
1958	3	0	3	62%	1996	3	44%	60%
1959	2	3	5	92%	1963	3	46%	58%
1960	2	0	3	52%	1972	3	47%	58%
1961	2	0	2	38%	2001	3	48%	57%
1962	2	0	3	49%	1995	3	49%	57%
1963	3	0	3	58%	1947	3	51%	56%
1964	3	1	4	64%	1937	3	52%	54%
1965	3	1	3	61%	1945	3	53%	54%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	3	0	3	51%	1927	3	54%	54%
1967	3	2	4	79%	1982	3	56%	53%
1968	3	3	5	99%	1960	3	57%	52%
1969	3	0	3	61%	1993	3	58%	52%
1970	2	2	4	74%	1985	3	59%	51%
1971	2	2	4	76%	1936	3	60%	51%
1972	3	0	3	58%	1966	3	62%	51%
1973	3	1	4	64%	1962	3	63%	49%
1974	3	2	4	74%	1956	3	64%	49%
1975	3	3	5	93%	1929	3	65%	49%
1976	3	1	4	73%	1951	3	67%	49%
1977	0	0	0	6%	1950	3	68%	49%
1978	2	0	2	44%	1989	3	69%	48%
1979	3	2	5	91%	1922	3	70%	47%
1980	3	1	4	66%	1994	3	72%	47%
1981	2	2	4	81%	2003	3	73%	46%
1982	3	0	3	53%	1940	2	74%	45%
1983	3	3	5	99%	1935	2	75%	45%
1984	2	2	4	72%	1978	2	77%	44%
1985	3	0	3	51%	1948	2	78%	43%
1986	2	1	3	63%	1944	2	79%	42%
1987	1	2	3	61%	2002	2	80%	41%
1988	1	0	1	14%	1949	2	81%	40%
1989	3	0	3	48%	1955	2	83%	39%
1990	1	0	1	12%	1926	2	84%	39%
1991	1	0	1	25%	1961	2	85%	38%
1992	1	0	1	19%	1933	2	86%	36%
1993	3	0	3	52%	1924	2	88%	35%
1994	2	1	3	47%	1931	2	89%	34%
1995	3	0	3	57%	1932	2	90%	30%
1996	2	1	3	60%	1925	1	91%	25%
1997	2	2	4	72%	1991	1	93%	25%
1998	3	2	5	87%	1934	1	94%	21%
1999	3	3	6	100%	1992	1	95%	19%
2000	2	1	4	67%	1988	1	96%	14%
2001	1	2	3	57%	1930	1	98%	13%
2002	2	0	2	41%	1990	1	99%	12%
2003	3	0	3	46%	1977	0	100%	6%
Average	2	1	3	58%		3		58%
Maximum	3	3	6	100%		6		100%
Minimum	0	0	0	6%		0		6%

Table A-11. Desert WA: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	28	0	28	51%	1968	56	0%	100%
1923	30	11	41	73%	1939	56	1%	100%
1924	8	8	15	27%	1999	56	1%	100%
1925	14	0	14	26%	1953	55	4%	99%
1926	20	0	20	36%	1981	53	5%	94%
1927	28	2	30	54%	1983	52	6%	94%
1928	29	12	41	74%	1979	52	7%	94%
1929	17	9	26	46%	1975	52	9%	94%
1930	8	0	8	14%	1959	50	10%	91%
1931	20	0	20	35%	2003	50	11%	90%
1932	14	2	16	29%	1957	50	12%	89%
1933	20	0	20	36%	1942	50	14%	89%
1934	9	2	11	20%	1998	45	15%	80%
1935	23	0	23	41%	1943	42	16%	76%
1936	27	2	29	52%	1976	42	17%	75%
1937	27	3	29	53%	1952	42	19%	75%
1938	28	13	41	74%	1938	41	20%	74%
1939	28	28	56	100%	1928	41	21%	74%
1940	28	0	28	51%	1970	41	22%	74%
1941	26	4	30	53%	1923	41	23%	73%
1942	25	25	50	89%	1984	40	25%	72%
1943	25	18	42	76%	1971	40	26%	71%
1944	19	5	24	43%	1946	39	27%	71%
1945	29	2	30	54%	1997	39	28%	70%
1946	29	10	39	71%	1967	39	30%	69%
1947	27	4	31	56%	1974	36	31%	64%
1948	24	0	25	44%	1985	36	32%	64%
1949	19	3	22	39%	1986	35	33%	62%
1950	25	0	25	45%	2000	35	35%	62%
1951	26	1	27	48%	1954	35	36%	62%
1952	26	16	42	75%	1972	34	37%	61%
1953	29	26	55	99%	1964	34	38%	61%
1954	31	4	35	62%	1963	34	40%	61%
1955	20	5	25	44%	1987	33	41%	59%
1956	24	1	25	46%	1973	32	42%	58%
1957	25	24	50	89%	1996	32	43%	57%
1958	28	3	31	55%	1980	32	44%	57%
1959	23	28	50	91%	1947	31	46%	56%
1960	25	3	28	50%	1993	31	47%	55%
1961	18	3	21	37%	1958	31	48%	55%
1962	26	0	26	46%	2001	30	49%	54%
1963	31	3	34	61%	1945	30	51%	54%
1964	29	5	34	61%	1969	30	52%	54%
1965	26	4	30	53%	1927	30	53%	54%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	28	1	29	52%	1965	30	54%	53%
1967	27	12	39	69%	1989	30	56%	53%
1968	29	27	56	100%	1941	30	57%	53%
1969	28	2	30	54%	1937	29	58%	53%
1970	26	15	41	74%	1966	29	59%	52%
1971	25	15	40	71%	1936	29	60%	52%
1972	31	3	34	61%	1940	28	62%	51%
1973	28	4	32	58%	1922	28	63%	51%
1974	24	11	36	64%	1982	28	64%	50%
1975	28	25	52	94%	1995	28	65%	50%
1976	30	12	42	75%	1960	28	67%	50%
1977	4	0	4	7%	1951	27	68%	48%
1978	23	0	23	41%	1962	26	69%	46%
1979	30	23	52	94%	1929	26	70%	46%
1980	24	7	32	57%	1956	25	72%	46%
1981	28	24	53	94%	1950	25	73%	45%
1982	28	0	28	50%	1955	25	74%	44%
1983	28	25	52	94%	1948	25	75%	44%
1984	26	15	40	72%	1944	24	77%	43%
1985	28	8	36	64%	1978	23	78%	41%
1986	25	10	35	62%	1935	23	79%	41%
1987	15	17	33	59%	1994	22	80%	40%
1988	6	0	6	11%	1949	22	81%	39%
1989	30	0	30	53%	2002	21	83%	38%
1990	7	0	7	13%	1961	21	84%	37%
1991	14	0	14	25%	1926	20	85%	36%
1992	9	0	9	17%	1933	20	86%	36%
1993	31	0	31	55%	1931	20	88%	35%
1994	17	5	22	40%	1932	16	89%	29%
1995	28	0	28	50%	1924	15	90%	27%
1996	24	8	32	57%	1925	14	91%	26%
1997	25	14	39	70%	1991	14	93%	25%
1998	28	17	45	80%	1934	11	94%	20%
1999	28	28	56	100%	1992	9	95%	17%
2000	26	9	35	62%	1930	8	96%	14%
2001	15	16	30	54%	1990	7	98%	13%
2002	21	0	21	38%	1988	6	99%	11%
2003	50	0	50	90%	1977	4	100%	7%
Average	24	8	32	57%		32		57%
Maximum	50	28	56	100%		56		100%
Minimum	4	0	4	7%		4		7%

Table A-12. Dudley Ridge WD: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	25	0	25	57%	1983	44	0%	100%
1923	25	6	31	71%	1998	42	1%	94%
1924	6	6	11	26%	1938	41	2%	92%
1925	11	0	11	25%	1967	39	4%	88%
1926	16	1	17	37%	1952	39	5%	88%
1927	26	2	28	63%	1943	38	6%	86%
1928	25	7	32	72%	1942	37	7%	84%
1929	13	5	18	41%	1999	37	9%	83%
1930	6	0	6	14%	1958	37	10%	83%
1931	15	0	15	35%	1974	36	11%	82%
1932	11	2	13	29%	1969	36	12%	82%
1933	16	0	16	36%	1975	36	14%	81%
1934	7	2	9	20%	1941	36	15%	80%
1935	27	0	28	63%	1996	35	16%	80%
1936	21	2	23	51%	1968	35	17%	78%
1937	26	3	29	65%	1995	35	19%	78%
1938	34	7	41	92%	1979	35	20%	78%
1939	24	9	33	74%	1980	34	21%	78%
1940	22	0	22	50%	1982	34	22%	77%
1941	31	4	36	80%	1997	34	23%	76%
1942	26	11	37	84%	1953	34	25%	76%
1943	30	8	38	86%	1970	33	26%	76%
1944	15	4	19	42%	1986	33	27%	74%
1945	25	2	27	62%	1984	33	28%	74%
1946	23	6	29	65%	1939	33	30%	74%
1947	21	3	25	56%	1928	32	31%	72%
1948	19	0	19	43%	2000	31	32%	71%
1949	14	3	17	39%	1923	31	33%	71%
1950	19	1	21	47%	1956	31	35%	69%
1951	26	1	27	62%	1973	30	36%	68%
1952	31	8	39	88%	1957	30	37%	67%
1953	23	11	34	76%	1959	29	38%	66%
1954	25	4	29	65%	1946	29	40%	65%
1955	16	1	17	38%	1954	29	41%	65%
1956	30	1	31	69%	1937	29	42%	65%
1957	20	10	30	67%	1927	28	43%	63%
1958	34	3	37	83%	1935	28	44%	63%
1959	18	12	29	66%	1978	28	46%	63%
1960	20	3	22	51%	1963	28	47%	62%
1961	13	3	17	37%	1951	27	48%	62%
1962	20	1	21	48%	1945	27	49%	62%
1963	24	3	28	62%	1964	27	51%	62%
1964	22	5	27	62%	1972	27	52%	61%
1965	20	4	25	55%	1966	27	53%	61%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	26	1	27	61%	1985	27	54%	61%
1967	32	7	39	88%	1971	27	56%	60%
1968	24	11	35	78%	1981	26	57%	59%
1969	34	2	36	82%	1922	25	58%	57%
1970	26	7	33	76%	1993	25	59%	56%
1971	19	7	27	60%	1947	25	60%	56%
1972	24	3	27	61%	1965	25	62%	55%
1973	26	5	30	68%	1976	25	63%	55%
1974	30	7	36	82%	1936	23	64%	51%
1975	26	10	36	81%	1960	22	65%	51%
1976	19	6	25	55%	1940	22	67%	50%
1977	3	0	3	7%	1962	21	68%	48%
1978	28	0	28	63%	1950	21	69%	47%
1979	25	9	35	78%	2003	21	70%	46%
1980	30	5	34	78%	1987	20	72%	44%
1981	16	10	26	59%	1948	19	73%	43%
1982	34	0	34	77%	2001	19	74%	42%
1983	34	11	44	100%	1944	19	75%	42%
1984	26	7	33	74%	1989	18	77%	41%
1985	26	1	27	61%	1929	18	78%	41%
1986	26	7	33	74%	1994	18	79%	40%
1987	12	8	20	44%	2002	18	80%	40%
1988	5	1	5	12%	1949	17	81%	39%
1989	18	0	18	41%	1955	17	83%	38%
1990	5	0	6	13%	1961	17	84%	37%
1991	11	0	11	25%	1926	17	85%	37%
1992	7	1	8	18%	1933	16	86%	36%
1993	24	1	25	56%	1931	15	88%	35%
1994	13	5	18	40%	1932	13	89%	29%
1995	34	1	35	78%	1924	11	90%	26%
1996	29	6	35	80%	1925	11	91%	25%
1997	26	7	34	76%	1991	11	93%	25%
1998	34	8	42	94%	1934	9	94%	20%
1999	25	12	37	83%	1992	8	95%	18%
2000	26	5	31	71%	1930	6	96%	14%
2001	11	8	19	42%	1990	6	98%	13%
2002	17	1	18	40%	1988	5	99%	12%
2003	20	0	21	46%	1977	3	100%	7%
Average	22	4	26	58%		26		58%
Maximum	34	12	44	100%		44		100%
Minimum	3	0	3	7%		3		7%

Table A-13. Empire West Side ID: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	2	0	2	64%	1983	3	0%	100%
1923	2	0	2	69%	1998	3	1%	96%
1924	0	0	1	18%	1938	3	2%	95%
1925	1	0	1	26%	1967	3	4%	91%
1926	1	0	1	39%	1969	3	5%	90%
1927	2	0	2	66%	1958	3	6%	90%
1928	2	0	2	70%	1952	3	7%	90%
1929	1	0	1	36%	1982	3	9%	88%
1930	0	0	0	14%	1996	3	10%	88%
1931	1	0	1	38%	1995	3	11%	88%
1932	1	0	1	27%	1943	3	12%	86%
1933	1	0	1	39%	1941	3	14%	85%
1934	0	0	1	17%	1974	2	15%	83%
1935	2	0	2	71%	1980	2	16%	81%
1936	2	0	2	55%	1942	2	17%	79%
1937	2	0	2	68%	1956	2	19%	78%
1938	3	0	3	95%	1970	2	20%	77%
1939	2	0	2	69%	1999	2	21%	77%
1940	2	0	2	55%	1997	2	22%	77%
1941	2	0	3	85%	1984	2	23%	76%
1942	2	0	2	79%	1975	2	25%	76%
1943	2	0	3	86%	1986	2	26%	74%
1944	1	0	1	44%	1979	2	27%	74%
1945	2	0	2	65%	1978	2	28%	72%
1946	2	0	2	62%	2000	2	30%	72%
1947	2	0	2	56%	1935	2	31%	71%
1948	1	0	1	47%	1968	2	32%	71%
1949	1	0	1	36%	1985	2	33%	70%
1950	1	0	1	48%	1928	2	35%	70%
1951	2	0	2	68%	1923	2	36%	69%
1952	2	0	3	90%	1939	2	37%	69%
1953	2	0	2	68%	1953	2	38%	68%
1954	2	0	2	65%	1973	2	40%	68%
1955	1	0	1	42%	1951	2	41%	68%
1956	2	0	2	78%	1937	2	42%	68%
1957	1	0	2	59%	1927	2	43%	66%
1958	3	0	3	90%	1966	2	44%	66%
1959	1	0	2	56%	1945	2	46%	65%
1960	1	0	1	50%	1954	2	47%	65%
1961	1	0	1	34%	1922	2	48%	64%
1962	1	0	1	50%	1981	2	49%	63%
1963	2	0	2	63%	1963	2	51%	63%
1964	2	0	2	60%	1946	2	52%	62%
1965	1	0	2	53%	1976	2	53%	62%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	2	0	2	66%	1972	2	54%	62%
1967	3	0	3	91%	1993	2	56%	61%
1968	2	0	2	71%	1964	2	57%	60%
1969	3	0	3	90%	1957	2	58%	59%
1970	2	0	2	77%	1947	2	59%	56%
1971	1	0	2	55%	1959	2	60%	56%
1972	2	0	2	62%	1989	2	62%	56%
1973	2	0	2	68%	1936	2	63%	55%
1974	2	0	2	83%	1971	2	64%	55%
1975	2	0	2	76%	1940	2	65%	55%
1976	2	0	2	62%	1965	2	67%	53%
1977	0	0	0	7%	1960	1	68%	50%
1978	2	0	2	72%	1962	1	69%	50%
1979	2	0	2	74%	1950	1	70%	48%
1980	2	0	2	81%	1948	1	72%	47%
1981	2	0	2	63%	1944	1	73%	44%
1982	3	0	3	88%	1955	1	74%	42%
1983	3	0	3	100%	2002	1	75%	41%
1984	2	0	2	76%	2003	1	77%	40%
1985	2	0	2	70%	1926	1	78%	39%
1986	2	0	2	74%	1933	1	79%	39%
1987	1	0	1	36%	1931	1	80%	38%
1988	0	0	0	11%	1949	1	81%	36%
1989	2	0	2	56%	1987	1	83%	36%
1990	0	0	0	13%	1929	1	84%	36%
1991	1	0	1	25%	1994	1	85%	34%
1992	0	0	1	17%	2001	1	86%	34%
1993	2	0	2	61%	1961	1	88%	34%
1994	1	0	1	34%	1932	1	89%	27%
1995	3	0	3	88%	1925	1	90%	26%
1996	2	0	3	88%	1991	1	91%	25%
1997	2	0	2	77%	1924	1	93%	18%
1998	3	0	3	96%	1934	1	94%	17%
1999	2	0	2	77%	1992	1	95%	17%
2000	2	0	2	72%	1930	0	96%	14%
2001	1	0	1	34%	1990	0	98%	13%
2002	1	0	1	41%	1988	0	99%	11%
2003	1	0	1	40%	1977	0	100%	7%
Average	2	0	2	59%		2		59%
Maximum	3	0	3	100%		3		100%
Minimum	0	0	0	7%		0		7%

Table A-14. Kern County WA-AG: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	560	0	560	66%	1983	848	0%	100%
1923	545	34	579	68%	1998	818	1%	96%
1924	115	26	141	17%	1938	808	2%	95%
1925	217	1	218	26%	1969	780	4%	92%
1926	335	1	336	40%	1967	774	5%	91%
1927	565	5	570	67%	1958	773	6%	91%
1928	548	37	586	69%	1982	770	7%	91%
1929	221	28	249	29%	1995	766	9%	90%
1930	117	2	119	14%	1952	762	10%	90%
1931	324	0	325	38%	1996	739	11%	87%
1932	213	5	218	26%	1943	734	12%	86%
1933	331	1	333	39%	1941	730	14%	86%
1934	131	5	137	16%	1974	710	15%	84%
1935	622	1	623	73%	1980	696	16%	82%
1936	444	35	479	56%	1956	675	17%	80%
1937	574	6	580	68%	1942	666	19%	78%
1938	767	41	808	95%	1984	650	20%	77%
1939	304	81	385	45%	1970	649	21%	77%
1940	472	3	475	56%	1997	648	22%	76%
1941	715	15	730	86%	1999	639	23%	75%
1942	590	76	666	78%	1975	635	25%	75%
1943	681	53	734	86%	1978	627	26%	74%
1944	311	70	380	45%	1986	626	27%	74%
1945	557	4	561	66%	1935	623	28%	73%
1946	492	32	524	62%	1979	615	30%	73%
1947	406	15	421	50%	2000	611	31%	72%
1948	405	3	408	48%	1985	600	32%	71%
1949	291	6	297	35%	1968	587	33%	69%
1950	414	2	416	49%	1928	586	35%	69%
1951	583	3	586	69%	1951	586	36%	69%
1952	715	47	762	90%	1937	580	37%	68%
1953	491	76	567	67%	1973	580	38%	68%
1954	531	15	547	64%	1923	579	40%	68%
1955	332	17	349	41%	1927	570	41%	67%
1956	673	2	675	80%	1966	570	42%	67%
1957	418	71	490	58%	1953	567	43%	67%
1958	767	7	773	91%	1945	561	44%	66%
1959	376	81	457	54%	1922	560	46%	66%
1960	418	6	424	50%	1954	547	47%	64%
1961	270	7	277	33%	1963	534	48%	63%
1962	428	2	430	51%	1993	530	49%	63%
1963	527	7	534	63%	1972	529	51%	62%
1964	484	19	503	59%	1946	524	52%	62%
1965	433	15	448	53%	1964	503	53%	59%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	567	3	570	67%	1957	490	54%	58%
1967	736	37	774	91%	1936	479	56%	56%
1968	509	78	587	69%	1940	475	57%	56%
1969	767	13	780	92%	1976	473	58%	56%
1970	580	69	649	77%	1959	457	59%	54%
1971	408	46	455	54%	1971	455	60%	54%
1972	522	7	529	62%	1981	452	62%	53%
1973	563	16	580	68%	1965	448	63%	53%
1974	674	36	710	84%	1962	430	64%	51%
1975	564	72	635	75%	1960	424	65%	50%
1976	436	37	473	56%	1947	421	67%	50%
1977	55	3	58	7%	1950	416	68%	49%
1978	627	0	627	74%	1948	408	69%	48%
1979	549	67	615	73%	2003	388	70%	46%
1980	672	24	696	82%	1939	385	72%	45%
1981	381	71	452	53%	1944	380	73%	45%
1982	767	3	770	91%	1989	377	74%	44%
1983	767	81	848	100%	2002	356	75%	42%
1984	583	67	650	77%	1955	349	77%	41%
1985	572	28	600	71%	1926	336	78%	40%
1986	588	38	626	74%	1933	333	79%	39%
1987	234	51	286	34%	1931	325	80%	38%
1988	91	1	92	11%	1949	297	81%	35%
1989	377	1	377	44%	1987	286	83%	34%
1990	110	3	113	13%	1994	278	84%	33%
1991	210	1	211	25%	1961	277	85%	33%
1992	140	1	141	17%	2001	269	86%	32%
1993	530	1	530	63%	1929	249	88%	29%
1994	258	19	278	33%	1932	218	89%	26%
1995	765	2	766	90%	1925	218	90%	26%
1996	658	81	739	87%	1991	211	91%	25%
1997	588	60	648	76%	1992	141	93%	17%
1998	767	52	818	96%	1924	141	94%	17%
1999	558	81	639	75%	1934	137	95%	16%
2000	582	28	611	72%	1930	119	96%	14%
2001	222	47	269	32%	1990	113	98%	13%
2002	355	1	356	42%	1988	92	99%	11%
2003	385	3	388	46%	1977	58	100%	7%
Average	469	27	495	58%		495		58%
Maximum	767	81	848	100%		848		100%
Minimum	55	0	58	7%		58		7%

Table A-15. Kern County WA-MI: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	94	0	94	70%	1958	135	0%	100%
1923	91	0	91	67%	1969	135	0%	100%
1924	18	0	18	14%	1982	135	0%	100%
1925	35	0	35	26%	1983	135	0%	100%
1926	54	0	54	40%	1998	135	0%	100%
1927	96	0	96	71%	1938	135	0%	100%
1928	92	0	92	68%	1995	134	7%	100%
1929	41	0	41	31%	1967	129	9%	96%
1930	19	0	19	14%	1952	125	10%	93%
1931	52	0	52	39%	1941	125	10%	93%
1932	34	0	34	25%	1943	120	12%	89%
1933	54	0	54	40%	1974	118	14%	88%
1934	21	0	21	16%	1956	118	15%	88%
1935	109	0	109	81%	1980	118	16%	88%
1936	72	0	72	53%	1996	116	17%	86%
1937	98	0	98	73%	1978	110	19%	82%
1938	135	0	135	100%	1935	109	20%	81%
1939	47	0	47	35%	1942	102	21%	76%
1940	77	0	77	57%	1997	102	22%	75%
1941	125	0	125	93%	1986	101	23%	75%
1942	102	0	102	76%	1984	100	25%	74%
1943	120	0	120	89%	1951	100	26%	74%
1944	50	0	50	37%	2000	100	27%	74%
1945	93	0	93	69%	1970	99	28%	74%
1946	81	0	81	60%	1937	98	30%	73%
1947	75	0	75	56%	1985	97	31%	72%
1948	65	0	65	48%	1966	96	32%	71%
1949	47	0	47	35%	1927	96	33%	71%
1950	67	0	67	50%	1975	95	35%	71%
1951	100	0	100	74%	1973	95	36%	71%
1952	125	0	125	93%	1922	94	37%	70%
1953	80	0	80	60%	1999	94	38%	70%
1954	88	0	88	65%	1945	93	40%	69%
1955	54	0	54	40%	1928	92	41%	68%
1956	118	0	118	88%	1979	91	42%	68%
1957	67	0	67	50%	1923	91	43%	67%
1958	135	0	135	100%	1954	88	44%	65%
1959	61	0	61	45%	1993	87	46%	65%
1960	67	0	67	50%	1963	87	47%	64%
1961	43	0	43	32%	1972	85	48%	64%
1962	69	0	69	51%	1968	83	49%	62%
1963	87	0	87	64%	1946	81	51%	60%
1964	79	0	79	59%	1953	80	52%	60%
1965	70	0	70	52%	1964	79	53%	59%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	96	0	96	71%	1940	77	54%	57%
1967	129	0	129	96%	1947	75	56%	56%
1968	83	0	83	62%	1936	72	57%	53%
1969	135	0	135	100%	1965	70	58%	52%
1970	99	0	99	74%	1962	69	59%	51%
1971	66	0	66	49%	2003	68	60%	51%
1972	85	0	85	64%	1957	67	62%	50%
1973	95	0	95	71%	1960	67	63%	50%
1974	118	0	118	88%	1950	67	64%	50%
1975	95	0	95	71%	1976	66	65%	49%
1976	66	0	66	49%	1971	66	67%	49%
1977	9	0	9	6%	1948	65	68%	48%
1978	110	0	110	82%	1981	64	69%	47%
1979	91	0	91	68%	1959	61	70%	45%
1980	118	0	118	88%	2002	57	72%	43%
1981	64	0	64	47%	1989	55	73%	41%
1982	135	0	135	100%	1926	54	74%	40%
1983	135	0	135	100%	1933	54	75%	40%
1984	100	0	100	74%	1955	54	77%	40%
1985	97	0	97	72%	1931	52	78%	39%
1986	101	0	101	75%	1944	50	79%	37%
1987	37	0	37	28%	1939	47	80%	35%
1988	14	0	14	11%	1949	47	81%	35%
1989	55	0	55	41%	1961	43	83%	32%
1990	18	0	18	13%	1929	41	84%	31%
1991	34	0	34	25%	1994	41	85%	31%
1992	22	0	22	17%	1987	37	86%	28%
1993	87	0	87	65%	2001	35	88%	26%
1994	41	0	41	31%	1925	35	89%	26%
1995	134	0	134	100%	1932	34	90%	25%
1996	116	0	116	86%	1991	34	91%	25%
1997	102	0	102	75%	1992	22	93%	17%
1998	135	0	135	100%	1934	21	94%	16%
1999	94	0	94	70%	1930	19	95%	14%
2000	100	0	100	74%	1924	18	96%	14%
2001	35	0	35	26%	1990	18	98%	13%
2002	57	0	57	43%	1988	14	99%	11%
2003	68	0	68	51%	1977	9	100%	6%
Average	79	0	79	59%		79		59%
Maximum	135	0	135	100%		135		100%
Minimum	9	0	9	6%		9		6%

Table A-16. Littlerock Creek ID: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	2	0	2	70%	1958	2	0%	100%
1923	2	0	2	67%	1982	2	0%	100%
1924	0	0	0	14%	1938	2	0%	100%
1925	1	0	1	26%	1983	2	0%	100%
1926	1	0	1	40%	1998	2	0%	100%
1927	2	0	2	71%	1969	2	0%	100%
1928	2	0	2	68%	1995	2	7%	100%
1929	1	0	1	31%	1967	2	9%	96%
1930	0	0	0	14%	1941	2	10%	93%
1931	1	0	1	39%	1952	2	10%	93%
1932	1	0	1	25%	1943	2	12%	89%
1933	1	0	1	40%	1974	2	14%	88%
1934	0	0	0	16%	1956	2	15%	88%
1935	2	0	2	81%	1980	2	16%	88%
1936	1	0	1	53%	1996	2	17%	86%
1937	2	0	2	73%	1978	2	19%	82%
1938	2	0	2	100%	1935	2	20%	81%
1939	1	0	1	40%	1942	2	21%	76%
1940	1	0	1	57%	1997	2	22%	75%
1941	2	0	2	93%	1986	2	23%	75%
1942	2	0	2	76%	1984	2	25%	74%
1943	2	0	2	89%	1951	2	26%	74%
1944	1	0	1	37%	2000	2	27%	74%
1945	2	0	2	69%	1970	2	28%	74%
1946	1	0	1	60%	1937	2	30%	73%
1947	1	0	1	56%	1985	2	31%	72%
1948	1	0	1	48%	1966	2	32%	71%
1949	1	0	1	35%	1927	2	33%	71%
1950	1	0	1	50%	1975	2	35%	71%
1951	2	0	2	74%	1973	2	36%	71%
1952	2	0	2	93%	1922	2	37%	70%
1953	1	0	1	60%	1999	2	38%	70%
1954	1	0	1	65%	1945	2	40%	69%
1955	1	0	1	40%	1928	2	41%	68%
1956	2	0	2	88%	1979	2	42%	68%
1957	1	0	1	50%	1923	2	43%	67%
1958	2	0	2	100%	1954	1	44%	65%
1959	1	0	1	45%	1993	1	46%	65%
1960	1	0	1	50%	1963	1	47%	64%
1961	1	0	1	32%	1972	1	48%	64%
1962	1	0	1	51%	1968	1	49%	62%
1963	1	0	1	64%	1946	1	51%	60%
1964	1	0	1	59%	1953	1	52%	60%
1965	1	0	1	52%	1964	1	53%	59%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	2	0	2	71%	1940	1	54%	57%
1967	2	0	2	96%	1947	1	56%	56%
1968	1	0	1	62%	1989	1	57%	55%
1969	2	0	2	100%	1936	1	58%	53%
1970	2	0	2	74%	1976	1	59%	53%
1971	1	0	1	49%	1965	1	60%	52%
1972	1	0	1	64%	1962	1	62%	51%
1973	2	0	2	71%	1957	1	63%	50%
1974	2	0	2	88%	1960	1	64%	50%
1975	2	0	2	71%	1950	1	65%	50%
1976	1	0	1	53%	1971	1	67%	49%
1977	0	0	0	6%	1948	1	68%	48%
1978	2	0	2	82%	2003	1	69%	47%
1979	2	0	2	68%	1981	1	70%	47%
1980	2	0	2	88%	1959	1	72%	45%
1981	1	0	1	47%	2002	1	73%	43%
1982	2	0	2	100%	1926	1	74%	40%
1983	2	0	2	100%	1933	1	75%	40%
1984	2	0	2	74%	1955	1	77%	40%
1985	2	0	2	72%	1939	1	78%	40%
1986	2	0	2	75%	1931	1	79%	39%
1987	1	0	1	28%	1944	1	80%	37%
1988	0	0	0	11%	1949	1	81%	35%
1989	1	0	1	55%	1961	1	83%	32%
1990	0	0	0	13%	1929	1	84%	31%
1991	1	0	1	25%	1994	1	85%	31%
1992	0	0	0	17%	1987	1	86%	28%
1993	1	0	1	65%	2001	1	88%	26%
1994	1	0	1	31%	1925	1	89%	26%
1995	2	0	2	100%	1932	1	90%	25%
1996	2	0	2	86%	1991	1	91%	25%
1997	2	0	2	75%	1992	0	93%	17%
1998	2	0	2	100%	1934	0	94%	16%
1999	2	0	2	70%	1930	0	95%	14%
2000	2	0	2	74%	1924	0	96%	14%
2001	1	0	1	26%	1990	0	98%	13%
2002	1	0	1	43%	1988	0	99%	11%
2003	1	0	1	47%	1977	0	100%	6%
Average	1	0	1	59%		1		59%
Maximum	2	0	2	100%		2		100%
Minimum	0	0	0	6%		0		6%

Table A-17. Metropolitan WDSC: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	1,234	0	1,234	66%	1983	1,880	0%	100%
1923	1,196	105	1,302	69%	1998	1,847	1%	98%
1924	246	91	337	18%	1938	1,830	2%	97%
1925	466	14	480	26%	1958	1,762	4%	94%
1926	726	26	752	40%	1969	1,757	5%	93%
1927	1,247	40	1,287	68%	1967	1,755	6%	93%
1928	1,205	111	1,316	70%	1995	1,738	7%	92%
1929	556	84	640	34%	1952	1,724	9%	92%
1930	251	8	260	14%	1982	1,718	10%	91%
1931	703	2	704	37%	1996	1,669	11%	89%
1932	458	39	497	26%	1941	1,661	12%	88%
1933	721	8	729	39%	1943	1,658	14%	88%
1934	282	40	322	17%	1974	1,613	15%	86%
1935	1,388	16	1,404	75%	1980	1,581	16%	84%
1936	963	78	1,041	55%	1956	1,520	17%	81%
1937	1,269	45	1,314	70%	1942	1,497	19%	80%
1938	1,712	118	1,830	97%	1997	1,447	20%	77%
1939	1,002	156	1,157	62%	1984	1,445	21%	77%
1940	1,031	7	1,037	55%	1970	1,436	22%	76%
1941	1,596	66	1,661	88%	1999	1,429	23%	76%
1942	1,310	186	1,497	80%	1975	1,419	25%	75%
1943	1,520	138	1,658	88%	1986	1,418	26%	75%
1944	672	157	829	44%	1978	1,406	27%	75%
1945	1,226	37	1,263	67%	1935	1,404	28%	75%
1946	1,075	101	1,176	63%	2000	1,378	30%	73%
1947	1,002	53	1,056	56%	1979	1,369	31%	73%
1948	877	7	884	47%	1928	1,316	32%	70%
1949	626	48	674	36%	1973	1,315	33%	70%
1950	897	35	931	50%	1937	1,314	35%	70%
1951	1,291	22	1,314	70%	1951	1,314	36%	70%
1952	1,596	129	1,724	92%	1968	1,303	37%	69%
1953	1,074	186	1,260	67%	1923	1,302	38%	69%
1954	1,163	69	1,232	66%	1927	1,287	40%	68%
1955	720	18	737	39%	1985	1,279	41%	68%
1956	1,502	18	1,520	81%	1966	1,274	42%	68%
1957	907	176	1,082	58%	1945	1,263	43%	67%
1958	1,712	50	1,762	94%	1953	1,260	44%	67%
1959	815	200	1,015	54%	1922	1,234	46%	66%
1960	906	45	951	51%	1954	1,232	47%	66%
1961	580	50	630	34%	1963	1,204	48%	64%
1962	928	32	960	51%	1972	1,190	49%	63%
1963	1,153	51	1,204	64%	1946	1,176	51%	63%
1964	1,058	77	1,135	60%	1993	1,175	52%	63%
1965	938	68	1,006	53%	1939	1,157	53%	62%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	1,251	23	1,274	68%	1981	1,148	54%	61%
1967	1,644	111	1,755	93%	1964	1,135	56%	60%
1968	1,111	192	1,303	69%	1957	1,082	57%	58%
1969	1,712	46	1,757	93%	1947	1,056	58%	56%
1970	1,285	151	1,436	76%	1936	1,041	59%	55%
1971	885	126	1,012	54%	1940	1,037	60%	55%
1972	1,141	49	1,190	63%	1959	1,015	62%	54%
1973	1,242	73	1,315	70%	1976	1,014	63%	54%
1974	1,504	108	1,613	86%	1971	1,012	64%	54%
1975	1,243	176	1,419	75%	1965	1,006	65%	53%
1976	917	97	1,014	54%	1989	992	67%	53%
1977	117	7	124	7%	1962	960	68%	51%
1978	1,400	6	1,406	75%	1960	951	69%	51%
1979	1,206	164	1,369	73%	1950	931	70%	50%
1980	1,501	80	1,581	84%	2003	929	72%	49%
1981	1,012	136	1,148	61%	1948	884	73%	47%
1982	1,712	7	1,718	91%	1944	829	74%	44%
1983	1,712	169	1,880	100%	2002	797	75%	42%
1984	1,293	152	1,445	77%	1926	752	77%	40%
1985	1,263	17	1,279	68%	1955	737	78%	39%
1986	1,306	112	1,418	75%	1933	729	79%	39%
1987	503	135	639	34%	1931	704	80%	37%
1988	194	28	222	12%	1949	674	81%	36%
1989	983	8	992	53%	1929	640	83%	34%
1990	236	7	243	13%	1987	639	84%	34%
1991	452	13	465	25%	1994	634	85%	34%
1992	301	25	326	17%	1961	630	86%	34%
1993	1,159	17	1,175	63%	2001	605	88%	32%
1994	555	78	634	34%	1932	497	89%	26%
1995	1,707	31	1,738	92%	1925	480	90%	26%
1996	1,469	199	1,669	89%	1991	465	91%	25%
1997	1,306	141	1,447	77%	1924	337	93%	18%
1998	1,712	136	1,847	98%	1992	326	94%	17%
1999	1,229	200	1,429	76%	1934	322	95%	17%
2000	1,290	88	1,378	73%	1930	260	96%	14%
2001	477	128	605	32%	1990	243	98%	13%
2002	771	26	797	42%	1988	222	99%	12%
2003	921	8	929	49%	1977	124	100%	7%
Average	1,043	77	1,119	60%		1,119		60%
Maximum	1,712	200	1,880	100%		1,880		100%
Minimum	117	0	124	7%		124		7%

Table A-18. Mojave WA: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	39	0	39	48%	1983	81	0%	100%
1923	39	21	60	74%	1999	77	1%	94%
1924	11	19	29	36%	1968	74	2%	91%
1925	20	1	21	26%	1942	74	4%	91%
1926	30	2	32	39%	1998	74	5%	90%
1927	39	4	43	53%	1975	72	6%	89%
1928	39	22	61	75%	1953	72	7%	88%
1929	24	17	42	51%	1959	71	9%	88%
1930	11	0	11	14%	1938	71	10%	88%
1931	29	0	29	36%	1957	71	11%	87%
1932	20	4	24	30%	1979	70	12%	86%
1933	30	1	30	37%	1952	70	14%	86%
1934	12	4	17	21%	1943	69	15%	85%
1935	39	1	40	49%	1939	69	16%	85%
1936	40	3	43	53%	1967	68	17%	84%
1937	39	5	44	54%	1974	64	19%	78%
1938	48	23	71	88%	1971	61	20%	75%
1939	40	29	69	85%	1928	61	21%	75%
1940	35	0	35	43%	1981	61	22%	75%
1941	45	14	59	72%	1923	60	23%	74%
1942	39	35	74	91%	1970	60	25%	74%
1943	43	26	69	85%	1941	59	26%	72%
1944	28	7	35	43%	1997	59	27%	72%
1945	39	4	43	53%	1984	59	28%	72%
1946	37	20	57	70%	1980	58	30%	72%
1947	34	11	46	56%	1976	57	31%	70%
1948	36	0	37	45%	1946	57	32%	70%
1949	27	5	32	40%	2000	57	33%	69%
1950	37	3	40	49%	1969	56	35%	68%
1951	39	2	41	51%	1973	55	36%	67%
1952	45	25	70	86%	1986	54	37%	66%
1953	37	35	72	88%	1954	54	38%	66%
1954	39	15	54	66%	1958	54	40%	66%
1955	30	4	33	41%	1996	53	41%	66%
1956	42	2	44	54%	1964	52	42%	64%
1957	37	33	71	87%	1965	51	43%	63%
1958	48	6	54	66%	1995	50	44%	61%
1959	34	38	71	88%	1982	48	46%	59%
1960	37	5	42	52%	1987	48	47%	59%
1961	25	6	31	38%	2001	46	48%	56%
1962	38	2	40	50%	1947	46	49%	56%
1963	39	6	45	55%	1963	45	51%	55%
1964	36	16	52	64%	1972	44	52%	54%
1965	39	13	51	63%	1956	44	53%	54%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	39	3	42	51%	1937	44	54%	54%
1967	46	22	68	84%	2003	44	56%	54%
1968	38	36	74	91%	1927	43	57%	53%
1969	48	7	56	68%	1936	43	58%	53%
1970	39	21	60	74%	1945	43	59%	53%
1971	37	25	61	75%	1985	42	60%	52%
1972	39	5	44	54%	1960	42	62%	52%
1973	39	16	55	67%	1966	42	63%	51%
1974	42	22	64	78%	1929	42	64%	51%
1975	39	33	72	89%	1951	41	65%	51%
1976	38	19	57	70%	1994	41	67%	50%
1977	5	0	5	7%	1962	40	68%	50%
1978	39	0	40	49%	1993	40	69%	49%
1979	39	31	70	86%	1935	40	70%	49%
1980	42	16	58	72%	1978	40	72%	49%
1981	35	26	61	75%	1950	40	73%	49%
1982	48	0	48	59%	1922	39	74%	48%
1983	48	33	81	100%	1989	37	75%	46%
1984	39	20	59	72%	1948	37	77%	45%
1985	39	3	42	52%	1940	35	78%	43%
1986	39	15	54	66%	1944	35	79%	43%
1987	22	26	48	59%	2002	33	80%	41%
1988	9	2	10	13%	1955	33	81%	41%
1989	37	1	37	46%	1949	32	83%	40%
1990	10	0	11	13%	1926	32	84%	39%
1991	20	1	21	25%	1961	31	85%	38%
1992	13	2	15	18%	1933	30	86%	37%
1993	39	1	40	49%	1924	29	88%	36%
1994	24	17	41	50%	1931	29	89%	36%
1995	48	2	50	61%	1932	24	90%	30%
1996	41	12	53	66%	1925	21	91%	26%
1997	39	20	59	72%	1991	21	93%	25%
1998	48	26	74	90%	1934	17	94%	21%
1999	39	38	77	94%	1992	15	95%	18%
2000	39	18	57	69%	1930	11	96%	14%
2001	21	25	46	56%	1990	11	98%	13%
2002	32	2	33	41%	1988	10	99%	13%
2003	44	0	44	54%	1977	5	100%	7%
Average	35	13	47	58%		47		58%
Maximum	48	38	81	100%		81		100%
Minimum	5	0	5	7%		5		7%

Table A-19. Napa County FC&WCD: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	18	0	18	60%	1942	29	0%	100%
1923	17	11	28	96%	1943	29	0%	100%
1924	8	11	19	64%	1953	29	0%	100%
1925	14	2	15	53%	1970	29	0%	100%
1926	14	6	20	68%	1971	29	0%	100%
1927	18	6	24	81%	1975	29	0%	100%
1928	18	11	29	99%	1983	29	0%	100%
1929	8	11	19	66%	1984	29	0%	100%
1930	14	2	15	53%	1996	29	0%	100%
1931	8	6	14	48%	1997	29	0%	100%
1932	14	2	15	53%	1998	29	0%	100%
1933	8	6	14	48%	1999	29	0%	100%
1934	8	2	10	33%	1941	29	15%	100%
1935	17	2	18	63%	1958	29	15%	100%
1936	17	11	27	94%	1974	29	15%	100%
1937	17	11	27	94%	1952	29	15%	100%
1938	18	11	28	98%	1928	29	20%	99%
1939	14	11	25	87%	1954	29	20%	99%
1940	18	6	23	81%	1957	29	20%	99%
1941	18	11	29	100%	2000	29	20%	99%
1942	18	11	29	100%	1938	28	25%	98%
1943	18	11	29	100%	1963	28	25%	98%
1944	14	11	25	87%	1967	28	25%	98%
1945	17	6	23	78%	1969	28	25%	98%
1946	17	11	27	94%	1951	28	30%	97%
1947	14	11	25	84%	1973	28	30%	97%
1948	17	6	23	78%	1980	28	30%	97%
1949	14	11	25	84%	1959	28	33%	96%
1950	17	6	23	78%	1966	28	33%	96%
1951	18	11	28	97%	1968	28	33%	96%
1952	18	11	29	100%	1972	28	33%	96%
1953	18	11	29	100%	1923	28	38%	96%
1954	18	11	29	99%	1979	28	38%	96%
1955	14	11	25	86%	1936	27	41%	94%
1956	18	6	24	81%	1937	27	41%	94%
1957	18	11	29	99%	1946	27	41%	94%
1958	18	11	29	100%	1939	25	44%	87%
1959	17	11	28	96%	1944	25	44%	87%
1960	14	11	25	84%	1964	25	44%	87%
1961	14	6	20	68%	1985	25	44%	87%
1962	17	6	23	78%	1987	25	44%	87%
1963	18	11	28	98%	1955	25	51%	86%
1964	14	11	25	87%	1981	25	51%	86%
1965	18	6	24	81%	2001	25	51%	86%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	17	11	28	96%	1947	25	54%	84%
1967	18	11	28	98%	1949	25	54%	84%
1968	17	11	28	96%	1960	25	54%	84%
1969	18	11	28	98%	1927	24	58%	81%
1970	18	11	29	100%	1956	24	58%	81%
1971	18	11	29	100%	1965	24	58%	81%
1972	17	11	28	96%	1982	24	58%	81%
1973	18	11	28	97%	1986	24	58%	81%
1974	18	11	29	100%	1940	23	64%	81%
1975	18	11	29	100%	2003	23	65%	80%
1976	8	11	19	67%	1945	23	67%	78%
1977	8	2	10	33%	1948	23	67%	78%
1978	18	2	19	66%	1950	23	67%	78%
1979	17	11	28	96%	1962	23	67%	78%
1980	18	11	28	97%	1926	20	72%	68%
1981	14	11	25	86%	1961	20	72%	68%
1982	18	6	24	81%	2002	20	72%	68%
1983	18	11	29	100%	1976	19	75%	67%
1984	18	11	29	100%	1994	19	77%	66%
1985	14	11	25	87%	1929	19	77%	66%
1986	18	6	24	81%	1995	19	79%	66%
1987	14	11	25	87%	1978	19	80%	66%
1988	8	6	14	48%	1993	19	80%	66%
1989	14	2	15	53%	1924	19	83%	64%
1990	8	6	14	48%	1935	18	84%	63%
1991	8	2	10	33%	1922	18	85%	60%
1992	8	2	10	33%	1925	15	86%	53%
1993	18	2	19	66%	1930	15	86%	53%
1994	8	11	19	66%	1932	15	86%	53%
1995	18	2	19	66%	1989	15	86%	53%
1996	18	11	29	100%	1931	14	91%	48%
1997	18	11	29	100%	1933	14	91%	48%
1998	18	11	29	100%	1988	14	91%	48%
1999	18	11	29	100%	1990	14	91%	48%
2000	18	11	29	99%	1934	10	96%	33%
2001	14	11	25	86%	1977	10	96%	33%
2002	14	6	20	68%	1991	10	96%	33%
2003	17	6	23	80%	1992	10	96%	33%
Average	15	8	24	82%		24		82%
Maximum	18	11	29	100%		29		100%
Minimum	8	0	10	33%		10		33%

Table A-20. Oak Flat WD: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	3	0	3	48%	1983	5	0%	100%
1923	3	1	4	75%	1999	5	1%	99%
1924	1	1	2	36%	1968	5	2%	97%
1925	1	0	1	26%	1953	5	4%	94%
1926	2	0	2	37%	1942	5	5%	93%
1927	3	0	3	55%	1975	5	6%	92%
1928	3	1	4	76%	1979	5	7%	90%
1929	1	1	2	44%	1959	5	9%	90%
1930	1	0	1	14%	1998	5	10%	89%
1931	2	0	2	34%	1957	5	11%	88%
1932	1	0	2	32%	1938	5	12%	85%
1933	2	0	2	35%	1952	5	14%	84%
1934	1	0	1	23%	1943	5	15%	84%
1935	2	0	2	46%	1967	4	16%	81%
1936	2	0	3	51%	1928	4	17%	76%
1937	3	0	3	56%	1974	4	19%	76%
1938	3	2	5	85%	1923	4	20%	75%
1939	1	2	4	66%	1970	4	21%	75%
1940	2	0	2	45%	1971	4	22%	74%
1941	3	1	4	68%	1984	4	23%	73%
1942	2	3	5	93%	1997	4	25%	72%
1943	3	2	5	84%	1946	4	26%	72%
1944	2	0	2	42%	2000	4	27%	68%
1945	3	0	3	54%	1980	4	28%	68%
1946	3	1	4	72%	1981	4	30%	68%
1947	2	1	3	57%	1976	4	31%	68%
1948	2	0	2	42%	1941	4	32%	68%
1949	2	0	2	42%	1939	4	33%	66%
1950	2	0	3	47%	1954	4	35%	66%
1951	2	0	3	51%	1973	4	36%	66%
1952	3	2	5	84%	1958	3	37%	65%
1953	3	3	5	94%	1964	3	38%	65%
1954	3	1	4	66%	1986	3	40%	65%
1955	2	0	2	39%	1969	3	41%	64%
1956	3	0	3	52%	1996	3	42%	62%
1957	2	2	5	88%	1965	3	43%	61%
1958	3	1	3	65%	1963	3	44%	59%
1959	2	3	5	90%	1987	3	46%	59%
1960	2	0	3	52%	1972	3	47%	59%
1961	2	1	2	38%	1995	3	48%	58%
1962	2	0	3	47%	2001	3	49%	58%
1963	3	1	3	59%	1947	3	51%	57%
1964	2	1	3	65%	1937	3	52%	56%
1965	2	1	3	61%	1982	3	53%	56%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	3	0	3	52%	1927	3	54%	55%
1967	3	1	4	81%	1945	3	56%	54%
1968	3	3	5	97%	1966	3	57%	52%
1969	3	0	3	64%	1960	3	58%	52%
1970	3	2	4	75%	1956	3	59%	52%
1971	2	2	4	74%	1985	3	60%	52%
1972	3	1	3	59%	1993	3	62%	51%
1973	3	1	4	66%	1951	3	63%	51%
1974	3	1	4	76%	1936	3	64%	51%
1975	3	2	5	92%	1994	3	65%	49%
1976	2	1	4	68%	1922	3	67%	48%
1977	0	0	0	7%	1989	3	68%	48%
1978	2	0	2	46%	1962	3	69%	47%
1979	3	2	5	90%	1950	3	70%	47%
1980	3	1	4	68%	1935	2	72%	46%
1981	1	2	4	68%	1978	2	73%	46%
1982	3	0	3	56%	1940	2	74%	45%
1983	3	2	5	100%	1929	2	75%	44%
1984	2	1	4	73%	1948	2	77%	42%
1985	3	0	3	52%	1949	2	78%	42%
1986	2	1	3	65%	1944	2	79%	42%
1987	1	2	3	59%	2002	2	80%	39%
1988	1	0	1	13%	2003	2	81%	39%
1989	3	0	3	48%	1955	2	83%	39%
1990	1	0	1	13%	1961	2	84%	38%
1991	1	0	1	25%	1926	2	85%	37%
1992	1	0	1	18%	1924	2	86%	36%
1993	3	0	3	51%	1933	2	88%	35%
1994	2	1	3	49%	1931	2	89%	34%
1995	3	0	3	58%	1932	2	90%	32%
1996	3	1	3	62%	1925	1	91%	26%
1997	2	1	4	72%	1991	1	93%	25%
1998	3	2	5	89%	1934	1	94%	23%
1999	3	3	5	99%	1992	1	95%	18%
2000	2	1	4	68%	1930	1	96%	14%
2001	1	2	3	58%	1990	1	98%	13%
2002	2	0	2	39%	1988	1	99%	13%
2003	2	0	2	39%	1977	0	100%	7%
Average	2	1	3	58%		3		58%
Maximum	3	3	5	100%		5		100%
Minimum	0	0	0	7%		0		7%

Table A-21. Palmdale WD: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	13	0	13	62%	1998	21	0%	100%
1923	12	2	14	65%	1938	21	0%	100%
1924	3	2	5	23%	1941	21	0%	100%
1925	5	0	5	25%	1967	21	0%	100%
1926	8	0	8	38%	1969	21	0%	100%
1927	14	1	14	67%	1982	21	0%	100%
1928	12	2	14	66%	1983	21	0%	100%
1929	6	2	8	37%	1995	21	0%	100%
1930	3	0	3	13%	1958	21	0%	100%
1931	8	0	8	35%	1952	21	11%	98%
1932	5	1	6	27%	1980	20	12%	96%
1933	8	0	8	37%	1974	20	14%	96%
1934	3	1	4	18%	1943	20	15%	92%
1935	17	0	17	82%	1956	19	16%	89%
1936	10	0	10	48%	1996	18	17%	86%
1937	14	1	15	70%	1978	18	19%	82%
1938	20	1	21	100%	1935	17	20%	82%
1939	6	0	6	27%	1986	17	21%	79%
1940	10	0	10	46%	2000	16	22%	77%
1941	19	2	21	100%	1973	16	23%	76%
1942	15	0	15	72%	1942	15	25%	72%
1943	19	1	20	92%	1997	15	26%	72%
1944	7	0	7	34%	1951	15	27%	72%
1945	13	1	14	64%	1937	15	28%	70%
1946	10	2	12	57%	1984	15	30%	70%
1947	10	2	11	54%	1970	15	31%	69%
1948	9	0	9	44%	1927	14	32%	67%
1949	7	1	8	37%	1966	14	33%	66%
1950	10	1	10	47%	1928	14	35%	66%
1951	15	0	15	72%	1954	14	36%	65%
1952	20	1	21	98%	1923	14	37%	65%
1953	10	0	10	48%	1985	14	38%	65%
1954	11	3	14	65%	1945	14	40%	64%
1955	8	1	8	39%	1975	13	41%	63%
1956	19	0	19	89%	1922	13	42%	62%
1957	10	0	10	46%	1999	13	43%	61%
1958	20	1	21	100%	1964	13	44%	59%
1959	9	0	9	41%	1965	13	46%	59%
1960	10	1	11	50%	1979	12	47%	58%
1961	6	1	7	35%	1963	12	48%	57%
1962	10	0	10	49%	1946	12	49%	57%
1963	11	1	12	57%	1972	12	51%	55%
1964	10	3	13	59%	1947	11	52%	54%
1965	10	2	13	59%	1993	11	53%	54%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	14	0	14	66%	1960	11	54%	50%
1967	20	2	21	100%	1968	11	56%	50%
1968	11	0	11	50%	1971	11	57%	50%
1969	20	1	21	100%	1962	10	58%	49%
1970	15	0	15	69%	1936	10	59%	48%
1971	9	1	11	50%	1953	10	60%	48%
1972	11	1	12	55%	1950	10	62%	47%
1973	13	3	16	76%	1940	10	63%	46%
1974	19	2	20	96%	1957	10	64%	46%
1975	13	0	13	63%	1976	10	65%	45%
1976	8	1	10	45%	1948	9	67%	44%
1977	1	0	1	6%	2003	9	68%	43%
1978	17	0	18	82%	1959	9	69%	41%
1979	12	0	12	58%	1994	9	70%	41%
1980	19	2	20	96%	2002	9	72%	40%
1981	7	0	7	34%	1955	8	73%	39%
1982	21	0	21	100%	1926	8	74%	38%
1983	21	0	21	100%	1929	8	75%	37%
1984	15	0	15	70%	1933	8	77%	37%
1985	14	0	14	65%	1949	8	78%	37%
1986	15	2	17	79%	1989	8	79%	36%
1987	6	1	6	30%	1931	8	80%	35%
1988	2	0	3	12%	1961	7	81%	35%
1989	8	0	8	36%	1981	7	83%	34%
1990	3	0	3	13%	1944	7	84%	34%
1991	5	0	5	24%	1987	6	85%	30%
1992	3	0	4	17%	2001	6	86%	29%
1993	11	0	11	54%	1939	6	88%	27%
1994	6	3	9	41%	1932	6	89%	27%
1995	21	0	21	100%	1925	5	90%	25%
1996	18	0	18	86%	1991	5	91%	24%
1997	15	0	15	72%	1924	5	93%	23%
1998	21	1	21	100%	1934	4	94%	18%
1999	13	0	13	61%	1992	4	95%	17%
2000	15	2	16	77%	1930	3	96%	13%
2001	5	1	6	29%	1990	3	98%	13%
2002	8	0	9	40%	1988	3	99%	12%
2003	9	0	9	43%	1977	1	100%	6%
Average	11	1	12	57%		12		57%
Maximum	21	3	21	100%		21		100%
Minimum	1	0	1	6%		1		6%

Table A-22. San Bernardino Valley MWD: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	67	0	67	65%	1983	103	0%	100%
1923	64	5	70	68%	1998	99	1%	97%
1924	14	5	18	18%	1938	99	2%	96%
1925	26	0	26	25%	1958	95	4%	93%
1926	39	1	40	39%	1969	95	5%	93%
1927	67	2	69	67%	1967	95	6%	92%
1928	65	6	71	69%	1995	93	7%	91%
1929	31	4	35	34%	1982	93	9%	91%
1930	14	0	14	14%	1952	93	10%	90%
1931	38	0	38	37%	1941	90	11%	87%
1932	25	2	27	26%	1996	89	12%	87%
1933	39	0	39	38%	1943	89	14%	87%
1934	16	2	18	17%	1974	87	15%	85%
1935	75	0	76	74%	1980	85	16%	83%
1936	52	4	56	55%	1956	82	17%	80%
1937	68	2	71	69%	1942	80	19%	78%
1938	93	6	99	96%	1984	78	20%	76%
1939	64	8	72	70%	1970	78	21%	76%
1940	55	0	56	54%	1997	78	22%	76%
1941	86	3	90	87%	1999	76	23%	74%
1942	71	9	80	78%	1986	76	25%	74%
1943	82	7	89	87%	1978	76	26%	74%
1944	36	8	45	44%	1975	76	27%	74%
1945	66	2	68	66%	1935	76	28%	74%
1946	58	5	63	61%	2000	74	30%	72%
1947	54	3	57	55%	1979	73	31%	71%
1948	47	0	48	47%	1939	72	32%	70%
1949	34	2	37	36%	1951	71	33%	69%
1950	48	1	50	48%	1973	71	35%	69%
1951	70	1	71	69%	1937	71	36%	69%
1952	86	6	93	90%	1928	71	37%	69%
1953	58	9	67	65%	1923	70	38%	68%
1954	63	4	66	64%	1968	69	40%	68%
1955	39	1	40	39%	1927	69	41%	67%
1956	81	1	82	80%	1985	69	42%	67%
1957	49	9	58	56%	1966	69	43%	67%
1958	93	2	95	93%	1945	68	44%	66%
1959	44	10	54	53%	1953	67	46%	65%
1960	49	2	51	50%	1922	67	47%	65%
1961	32	2	34	34%	1954	66	48%	64%
1962	50	1	51	50%	1976	65	49%	63%
1963	62	3	65	63%	1963	65	51%	63%
1964	57	4	61	59%	1972	64	52%	62%
1965	51	3	54	53%	1946	63	53%	61%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	67	1	69	67%	1993	63	54%	61%
1967	89	6	95	92%	1981	62	56%	61%
1968	60	10	69	68%	1964	61	57%	59%
1969	93	2	95	93%	1989	59	58%	57%
1970	69	9	78	76%	2003	58	59%	57%
1971	48	6	54	53%	1957	58	60%	56%
1972	61	2	64	62%	1947	57	62%	55%
1973	67	4	71	69%	1936	56	63%	55%
1974	81	5	87	85%	1940	56	64%	54%
1975	67	9	76	74%	1971	54	65%	53%
1976	60	5	65	63%	1965	54	67%	53%
1977	6	0	7	7%	1959	54	68%	53%
1978	76	0	76	74%	1960	51	69%	50%
1979	65	8	73	71%	1962	51	70%	50%
1980	81	4	85	83%	1950	50	72%	48%
1981	55	7	62	61%	1948	48	73%	47%
1982	93	0	93	91%	1944	45	74%	44%
1983	93	10	103	100%	2002	42	75%	41%
1984	70	8	78	76%	1926	40	77%	39%
1985	68	1	69	67%	1955	40	78%	39%
1986	71	6	76	74%	1933	39	79%	38%
1987	28	7	35	34%	1931	38	80%	37%
1988	11	1	12	11%	1949	37	81%	36%
1989	58	0	59	57%	1929	35	83%	34%
1990	13	0	13	13%	1994	35	84%	34%
1991	25	0	25	25%	1987	35	85%	34%
1992	17	1	17	17%	1961	34	86%	34%
1993	62	0	63	61%	2001	33	88%	32%
1994	31	4	35	34%	1932	27	89%	26%
1995	92	1	93	91%	1925	26	90%	25%
1996	79	10	89	87%	1991	25	91%	25%
1997	71	7	78	76%	1924	18	93%	18%
1998	93	7	99	97%	1934	18	94%	17%
1999	66	10	76	74%	1992	17	95%	17%
2000	70	4	74	72%	1930	14	96%	14%
2001	26	6	33	32%	1990	13	98%	13%
2002	42	1	42	41%	1988	12	99%	11%
2003	58	0	58	57%	1977	7	100%	7%
Average	57	4	61	59%		61		59%
Maximum	93	10	103	100%		103		100%
Minimum	6	0	7	7%		7		7%

Table A-23. San Gabriel Valley MWD: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	20	0	20	70%	1969	29	0%	100%
1923	19	0	19	67%	1983	29	0%	100%
1924	4	0	4	14%	1938	29	0%	100%
1925	7	0	7	26%	1958	29	0%	100%
1926	12	0	12	40%	1982	29	0%	100%
1927	20	0	20	71%	1998	29	0%	100%
1928	20	0	20	68%	1995	29	7%	100%
1929	9	0	9	31%	1967	28	9%	96%
1930	4	0	4	14%	1952	27	10%	93%
1931	11	0	11	39%	1941	27	10%	93%
1932	7	0	7	25%	1943	26	12%	89%
1933	11	0	11	40%	1974	25	14%	88%
1934	4	0	4	16%	1956	25	15%	88%
1935	23	0	23	81%	1980	25	16%	88%
1936	15	0	15	53%	1996	25	17%	86%
1937	21	0	21	73%	1978	24	19%	82%
1938	29	0	29	100%	1935	23	20%	81%
1939	19	0	19	67%	1942	22	21%	76%
1940	17	0	17	57%	1997	22	22%	75%
1941	27	0	27	93%	1986	22	23%	75%
1942	22	0	22	76%	1984	21	25%	74%
1943	26	0	26	89%	1951	21	26%	74%
1944	11	0	11	37%	2000	21	27%	74%
1945	20	0	20	69%	1970	21	28%	74%
1946	17	0	17	60%	1937	21	30%	73%
1947	16	0	16	56%	1985	21	31%	72%
1948	14	0	14	48%	1966	21	32%	71%
1949	10	0	10	35%	1927	20	33%	71%
1950	14	0	14	50%	1975	20	35%	71%
1951	21	0	21	74%	1973	20	36%	71%
1952	27	0	27	93%	1922	20	37%	70%
1953	17	0	17	60%	1999	20	38%	70%
1954	19	0	19	65%	1945	20	40%	69%
1955	11	0	11	40%	1928	20	41%	68%
1956	25	0	25	88%	1979	20	42%	68%
1957	14	0	14	50%	1923	19	43%	67%
1958	29	0	29	100%	1939	19	44%	67%
1959	13	0	13	45%	1954	19	46%	65%
1960	14	0	14	50%	1993	19	47%	65%
1961	9	0	9	32%	1963	19	48%	64%
1962	15	0	15	51%	1972	18	49%	64%
1963	19	0	19	64%	1968	18	51%	62%
1964	17	0	17	59%	1976	18	52%	62%
1965	15	0	15	52%	1989	17	53%	60%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	21	0	21	71%	1946	17	54%	60%
1967	28	0	28	96%	1953	17	56%	60%
1968	18	0	18	62%	1964	17	57%	59%
1969	29	0	29	100%	1940	17	58%	57%
1970	21	0	21	74%	1981	17	59%	57%
1971	14	0	14	49%	1947	16	60%	56%
1972	18	0	18	64%	1936	15	62%	53%
1973	20	0	20	71%	1965	15	63%	52%
1974	25	0	25	88%	1962	15	64%	51%
1975	20	0	20	71%	1957	14	65%	50%
1976	18	0	18	62%	1960	14	67%	50%
1977	2	0	2	6%	1950	14	68%	50%
1978	24	0	24	82%	1971	14	69%	49%
1979	20	0	20	68%	1948	14	70%	48%
1980	25	0	25	88%	2003	13	72%	47%
1981	17	0	17	57%	1959	13	73%	45%
1982	29	0	29	100%	2002	12	74%	43%
1983	29	0	29	100%	1926	12	75%	40%
1984	21	0	21	74%	1933	11	77%	40%
1985	21	0	21	72%	1955	11	78%	40%
1986	22	0	22	75%	1931	11	79%	39%
1987	8	0	8	28%	1944	11	80%	37%
1988	3	0	3	11%	1949	10	81%	35%
1989	17	0	17	60%	1961	9	83%	32%
1990	4	0	4	13%	1929	9	84%	31%
1991	7	0	7	25%	1994	9	85%	31%
1992	5	0	5	17%	1987	8	86%	28%
1993	19	0	19	65%	2001	8	88%	26%
1994	9	0	9	31%	1925	7	89%	26%
1995	29	0	29	100%	1932	7	90%	25%
1996	25	0	25	86%	1991	7	91%	25%
1997	22	0	22	75%	1992	5	93%	17%
1998	29	0	29	100%	1934	4	94%	16%
1999	20	0	20	70%	1930	4	95%	14%
2000	21	0	21	74%	1924	4	96%	14%
2001	8	0	8	26%	1990	4	98%	13%
2002	12	0	12	43%	1988	3	99%	11%
2003	13	0	13	47%	1977	2	100%	6%
Average	17	0	17	60%		17		60%
Maximum	29	0	29	100%		29		100%
Minimum	2	0	2	6%		2		6%

Table A-24. San Geronio Pass WA: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	10	0	10	61%	1983	17	0%	100%
1923	10	2	12	71%	1998	16	1%	93%
1924	2	1	4	22%	1938	15	2%	90%
1925	4	0	4	26%	1952	15	4%	87%
1926	7	0	7	39%	1967	15	5%	86%
1927	10	0	11	64%	1999	14	6%	85%
1928	10	2	12	72%	1943	14	7%	85%
1929	5	1	6	38%	1942	14	9%	84%
1930	2	0	2	14%	1975	14	10%	83%
1931	6	0	6	37%	1968	14	11%	82%
1932	4	0	5	27%	1996	14	12%	81%
1933	6	0	7	38%	1958	14	14%	81%
1934	3	0	3	18%	1979	14	15%	81%
1935	11	0	11	64%	1969	14	16%	81%
1936	9	1	9	55%	1939	14	17%	80%
1937	10	0	11	64%	1974	13	19%	79%
1938	13	2	15	90%	1953	13	20%	79%
1939	10	3	14	80%	1995	13	21%	79%
1940	9	0	9	54%	1982	13	22%	78%
1941	12	1	13	77%	1997	13	23%	78%
1942	10	4	14	84%	1970	13	25%	77%
1943	12	3	14	85%	1941	13	26%	77%
1944	6	1	7	44%	1984	13	27%	76%
1945	10	0	11	63%	1980	13	28%	76%
1946	9	2	11	66%	1986	12	30%	73%
1947	9	1	10	56%	1928	12	31%	72%
1948	8	0	8	47%	1923	12	32%	71%
1949	6	1	6	37%	1981	12	33%	70%
1950	8	0	8	49%	2000	12	35%	70%
1951	10	0	11	63%	1957	12	36%	70%
1952	12	2	15	87%	1956	12	37%	69%
1953	9	4	13	79%	1976	12	38%	68%
1954	10	1	11	65%	1959	11	40%	68%
1955	6	0	7	40%	1973	11	41%	66%
1956	12	0	12	69%	1946	11	42%	66%
1957	8	4	12	70%	1954	11	43%	65%
1958	13	1	14	81%	1937	11	44%	64%
1959	7	4	11	68%	1978	11	46%	64%
1960	8	0	9	51%	1927	11	47%	64%
1961	5	1	6	35%	1935	11	48%	64%
1962	8	0	9	50%	1985	11	49%	64%
1963	10	1	11	63%	1945	11	51%	63%
1964	9	1	10	61%	1963	11	52%	63%
1965	8	1	9	55%	1951	11	53%	63%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	10	0	11	63%	1966	11	54%	63%
1967	13	2	15	86%	1972	11	56%	63%
1968	10	4	14	82%	1964	10	57%	61%
1969	13	1	14	81%	1971	10	58%	61%
1970	10	3	13	77%	1922	10	59%	61%
1971	8	2	10	61%	1993	10	60%	60%
1972	10	1	11	63%	1989	10	62%	57%
1973	10	1	11	66%	1947	10	63%	56%
1974	12	2	13	79%	1936	9	64%	55%
1975	10	4	14	83%	1965	9	65%	55%
1976	10	2	12	68%	1940	9	67%	54%
1977	1	0	1	7%	1960	9	68%	51%
1978	11	0	11	64%	1962	9	69%	50%
1979	10	3	14	81%	2003	8	70%	50%
1980	12	1	13	76%	1950	8	72%	49%
1981	9	3	12	70%	1948	8	73%	47%
1982	13	0	13	78%	1944	7	74%	44%
1983	13	4	17	100%	1987	7	75%	43%
1984	10	2	13	76%	2002	7	77%	42%
1985	10	0	11	64%	2001	7	78%	40%
1986	10	2	12	73%	1955	7	79%	40%
1987	5	3	7	43%	1926	7	80%	39%
1988	2	0	2	12%	1933	7	81%	38%
1989	10	0	10	57%	1929	6	83%	38%
1990	2	0	2	13%	1931	6	84%	37%
1991	4	0	4	25%	1949	6	85%	37%
1992	3	0	3	17%	1994	6	86%	36%
1993	10	0	10	60%	1961	6	88%	35%
1994	5	1	6	36%	1932	5	89%	27%
1995	13	0	13	79%	1925	4	90%	26%
1996	11	2	14	81%	1991	4	91%	25%
1997	10	3	13	78%	1924	4	93%	22%
1998	13	3	16	93%	1934	3	94%	18%
1999	10	4	14	85%	1992	3	95%	17%
2000	10	1	12	70%	1930	2	96%	14%
2001	4	2	7	40%	1990	2	98%	13%
2002	7	0	7	42%	1988	2	99%	12%
2003	8	0	8	50%	1977	1	100%	7%
Average	9	1	10	59%		10		59%
Maximum	13	4	17	100%		17		100%
Minimum	1	0	1	7%		1		7%

Table A-25. San Luis Obispo County FC&WCD: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	11	0	11	47%	1983	24	0%	100%
1923	11	6	18	74%	1999	22	1%	95%
1924	3	6	9	36%	1968	22	2%	92%
1925	5	1	6	25%	1942	22	4%	91%
1926	8	1	9	37%	1998	21	5%	90%
1927	11	2	13	56%	1975	21	6%	89%
1928	11	7	18	75%	1953	21	7%	89%
1929	6	5	12	50%	1938	21	9%	87%
1930	3	0	3	13%	1979	20	10%	86%
1931	8	0	8	32%	1952	20	11%	86%
1932	5	2	7	31%	1959	20	12%	85%
1933	8	0	8	34%	1943	20	14%	85%
1934	3	2	5	23%	1939	20	15%	85%
1935	11	1	12	49%	1957	20	16%	84%
1936	10	1	11	48%	1967	20	17%	84%
1937	11	2	14	57%	1974	19	19%	78%
1938	14	7	21	87%	1981	18	20%	76%
1939	11	9	20	85%	1928	18	21%	75%
1940	10	0	10	42%	1923	18	22%	74%
1941	13	4	17	72%	1970	17	23%	73%
1942	11	11	22	91%	1941	17	25%	72%
1943	12	8	20	85%	1971	17	26%	72%
1944	7	2	9	40%	1997	17	27%	72%
1945	11	2	13	55%	1984	17	28%	72%
1946	10	6	17	70%	1980	17	30%	72%
1947	10	4	13	56%	1946	17	31%	70%
1948	9	0	10	40%	1976	17	32%	70%
1949	7	3	10	41%	2000	16	33%	69%
1950	10	1	11	47%	1958	16	35%	69%
1951	11	1	12	51%	1973	16	36%	67%
1952	13	8	20	86%	1969	16	37%	67%
1953	10	11	21	89%	1954	16	38%	66%
1954	11	5	16	66%	1986	15	40%	65%
1955	8	1	9	38%	1964	15	41%	65%
1956	12	1	13	55%	1996	15	42%	64%
1957	10	10	20	84%	1995	15	43%	62%
1958	14	3	16	69%	1965	14	44%	59%
1959	9	11	20	85%	1963	14	46%	58%
1960	10	2	12	52%	1987	14	47%	58%
1961	7	3	9	40%	1982	14	48%	58%
1962	10	1	11	48%	1972	14	49%	58%
1963	11	3	14	58%	1937	14	51%	57%
1964	10	5	15	65%	1947	13	52%	56%
1965	10	4	14	59%	1927	13	53%	56%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	11	1	12	52%	2001	13	54%	56%
1967	13	7	20	84%	1945	13	56%	55%
1968	11	11	22	92%	1956	13	57%	55%
1969	14	2	16	67%	1966	12	58%	52%
1970	11	6	17	73%	1960	12	59%	52%
1971	10	7	17	72%	1951	12	60%	51%
1972	11	3	14	58%	1985	12	62%	51%
1973	11	5	16	67%	1929	12	63%	50%
1974	12	7	19	78%	1993	12	64%	49%
1975	11	10	21	89%	1935	12	65%	49%
1976	11	6	17	70%	1994	12	67%	49%
1977	1	0	1	6%	1936	11	68%	48%
1978	11	0	11	48%	1978	11	69%	48%
1979	11	9	20	86%	1962	11	70%	48%
1980	12	5	17	72%	1950	11	72%	47%
1981	8	10	18	76%	1922	11	73%	47%
1982	14	0	14	58%	2003	10	74%	44%
1983	14	10	24	100%	1940	10	75%	42%
1984	11	6	17	72%	1949	10	77%	41%
1985	11	1	12	51%	1948	10	78%	40%
1986	11	4	15	65%	1961	9	79%	40%
1987	6	8	14	58%	1944	9	80%	40%
1988	2	1	3	14%	2002	9	81%	40%
1989	9	0	9	38%	1955	9	83%	38%
1990	3	0	3	12%	1989	9	84%	38%
1991	5	1	6	24%	1926	9	85%	37%
1992	4	1	4	19%	1924	9	86%	36%
1993	11	1	12	49%	1933	8	88%	34%
1994	6	5	12	49%	1931	8	89%	32%
1995	14	1	15	62%	1932	7	90%	31%
1996	12	4	15	64%	1925	6	91%	25%
1997	11	6	17	72%	1991	6	93%	24%
1998	14	8	21	90%	1934	5	94%	23%
1999	11	11	22	95%	1992	4	95%	19%
2000	11	5	16	69%	1988	3	96%	14%
2001	6	8	13	56%	1930	3	98%	13%
2002	8	1	9	40%	1990	3	99%	12%
2003	10	0	10	44%	1977	1	100%	6%
Average	10	4	14	58%		14		58%
Maximum	14	11	24	100%		24		100%
Minimum	1	0	1	6%		1		6%

Table A-26. Santa Barbara County FC&WCD: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	28	0	28	63%	1983	45	0%	100%
1923	28	4	32	72%	1998	41	1%	93%
1924	6	2	8	19%	1938	40	2%	89%
1925	12	0	12	26%	1999	39	4%	87%
1926	18	0	18	40%	1952	38	5%	86%
1927	28	0	29	64%	1942	38	6%	85%
1928	28	4	32	73%	1967	38	7%	84%
1929	14	2	16	37%	1943	38	9%	84%
1930	6	0	6	14%	1975	37	10%	84%
1931	17	0	17	39%	1968	37	11%	84%
1932	12	0	12	26%	1979	37	12%	83%
1933	18	0	18	40%	1996	36	14%	82%
1934	7	0	7	17%	1953	36	15%	81%
1935	28	0	28	64%	1969	36	16%	80%
1936	24	2	26	58%	1958	35	17%	79%
1937	28	0	29	64%	1982	35	19%	79%
1938	35	5	40	89%	1997	35	20%	79%
1939	16	8	24	55%	1970	35	21%	79%
1940	25	0	26	57%	1995	35	22%	78%
1941	33	1	33	75%	1974	35	23%	78%
1942	28	10	38	85%	1984	34	25%	77%
1943	31	6	38	84%	1941	33	26%	75%
1944	17	4	20	46%	1980	33	27%	74%
1945	28	0	29	64%	1928	32	28%	73%
1946	26	3	30	67%	1986	32	30%	72%
1947	25	1	25	57%	1923	32	31%	72%
1948	22	0	22	49%	1957	32	32%	71%
1949	16	0	16	36%	2000	31	33%	70%
1950	22	0	22	50%	1956	31	35%	69%
1951	28	0	28	63%	1959	31	36%	69%
1952	33	6	38	86%	1946	30	37%	67%
1953	26	10	36	81%	1985	29	38%	66%
1954	28	1	29	65%	1973	29	40%	65%
1955	18	0	18	41%	1954	29	41%	65%
1956	31	0	31	69%	1937	29	42%	64%
1957	22	9	32	71%	1978	29	43%	64%
1958	35	0	35	79%	1945	29	44%	64%
1959	20	11	31	69%	1927	29	46%	64%
1960	22	0	23	51%	1963	28	47%	64%
1961	15	0	15	34%	1966	28	48%	64%
1962	23	0	23	51%	1972	28	49%	64%
1963	28	0	28	64%	1935	28	51%	64%
1964	26	1	27	61%	1951	28	52%	63%
1965	23	1	24	54%	1922	28	53%	63%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	28	0	28	64%	1993	28	54%	63%
1967	34	4	38	84%	1981	28	56%	63%
1968	27	10	37	84%	1971	27	57%	61%
1969	35	1	36	80%	1964	27	58%	61%
1970	28	7	35	79%	1936	26	59%	58%
1971	22	5	27	61%	1976	26	60%	57%
1972	28	0	28	64%	1940	26	62%	57%
1973	28	1	29	65%	1947	25	63%	57%
1974	31	4	35	78%	1939	24	64%	55%
1975	28	9	37	84%	1965	24	65%	54%
1976	22	4	26	57%	1962	23	67%	51%
1977	3	0	3	7%	1960	23	68%	51%
1978	29	0	29	64%	2003	23	69%	51%
1979	28	9	37	83%	1950	22	70%	50%
1980	31	2	33	74%	1948	22	72%	49%
1981	19	9	28	63%	1989	21	73%	46%
1982	35	0	35	79%	1944	20	74%	46%
1983	35	10	45	100%	2002	19	75%	43%
1984	28	6	34	77%	1987	19	77%	42%
1985	29	1	29	66%	1955	18	78%	41%
1986	28	4	32	72%	1926	18	79%	40%
1987	13	6	19	42%	1933	18	80%	40%
1988	5	0	5	11%	2001	18	81%	39%
1989	21	0	21	46%	1931	17	83%	39%
1990	6	0	6	14%	1929	16	84%	37%
1991	11	0	11	25%	1949	16	85%	36%
1992	8	0	8	17%	1994	15	86%	34%
1993	28	0	28	63%	1961	15	88%	34%
1994	14	1	15	34%	1932	12	89%	26%
1995	35	0	35	78%	1925	12	90%	26%
1996	30	6	36	82%	1991	11	91%	25%
1997	28	7	35	79%	1924	8	93%	19%
1998	35	6	41	93%	1992	8	94%	17%
1999	28	11	39	87%	1934	7	95%	17%
2000	28	3	31	70%	1930	6	96%	14%
2001	12	6	18	39%	1990	6	98%	14%
2002	19	0	19	43%	1988	5	99%	11%
2003	22	0	23	51%	1977	3	100%	7%
Average	23	3	26	59%		26		59%
Maximum	35	11	45	100%		45		100%
Minimum	3	0	3	7%		3		7%

Table A-27. Santa Clara Valley WD: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	63	0	63	64%	1983	99	0%	100%
1923	62	7	70	71%	1998	93	1%	94%
1924	13	5	18	19%	1938	90	2%	91%
1925	25	0	26	26%	1952	86	4%	87%
1926	39	0	39	40%	1967	86	5%	87%
1927	63	1	64	65%	1943	84	6%	85%
1928	62	8	70	71%	1996	83	7%	85%
1929	30	6	36	36%	1969	83	9%	84%
1930	14	0	14	14%	1958	82	10%	83%
1931	38	0	38	38%	1999	82	11%	83%
1932	25	1	26	27%	1942	82	12%	83%
1933	39	0	39	39%	1982	81	14%	82%
1934	15	1	17	17%	1995	81	15%	82%
1935	66	0	66	67%	1975	80	16%	81%
1936	52	4	56	57%	1974	79	17%	80%
1937	63	1	65	66%	1979	78	19%	79%
1938	81	9	90	91%	1968	78	20%	79%
1939	63	14	77	78%	1997	78	21%	79%
1940	55	0	56	56%	1941	77	22%	79%
1941	75	2	77	79%	1970	77	23%	78%
1942	64	18	82	83%	1939	77	25%	78%
1943	72	12	84	85%	1984	76	26%	77%
1944	36	8	44	45%	1980	75	27%	77%
1945	63	1	64	65%	1953	75	28%	77%
1946	58	7	64	65%	1981	72	30%	73%
1947	54	2	55	56%	1986	72	31%	73%
1948	47	0	47	48%	1956	71	32%	72%
1949	34	1	35	36%	1928	70	33%	71%
1950	48	1	49	49%	1923	70	35%	71%
1951	64	1	64	65%	2000	69	36%	70%
1952	75	11	86	87%	1976	66	37%	67%
1953	57	18	75	77%	1978	66	38%	67%
1954	62	2	64	65%	1935	66	40%	67%
1955	39	1	39	40%	1957	65	41%	66%
1956	71	1	71	72%	1973	65	42%	66%
1957	49	17	65	66%	1985	65	43%	66%
1958	81	2	82	83%	1937	65	44%	66%
1959	44	19	63	64%	1951	64	46%	65%
1960	49	1	50	51%	1927	64	47%	65%
1961	32	2	33	34%	1946	64	48%	65%
1962	50	0	50	51%	1966	64	49%	65%
1963	61	2	63	64%	1954	64	51%	65%
1964	57	3	60	61%	1945	64	52%	65%
1965	50	2	53	53%	1959	63	53%	64%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	63	1	64	65%	1922	63	54%	64%
1967	78	8	86	87%	1963	63	56%	64%
1968	59	18	78	79%	1972	63	57%	63%
1969	81	2	83	84%	1993	62	58%	63%
1970	63	14	77	78%	1964	60	59%	61%
1971	47	10	58	59%	1989	58	60%	59%
1972	61	1	63	63%	1971	58	62%	59%
1973	63	2	65	66%	2003	57	63%	58%
1974	71	8	79	80%	1936	56	64%	57%
1975	63	17	80	81%	1940	56	65%	56%
1976	59	7	66	67%	1947	55	67%	56%
1977	6	0	7	7%	1965	53	68%	53%
1978	66	0	66	67%	1962	50	69%	51%
1979	63	16	78	79%	1960	50	70%	51%
1980	71	5	75	77%	1950	49	72%	49%
1981	55	17	72	73%	1948	47	73%	48%
1982	81	0	81	82%	1944	44	74%	45%
1983	81	18	99	100%	2002	42	75%	42%
1984	64	12	76	77%	1955	39	77%	40%
1985	64	1	65	66%	1926	39	78%	40%
1986	64	8	72	73%	1987	39	79%	40%
1987	27	12	39	40%	1933	39	80%	39%
1988	11	0	11	11%	1931	38	81%	38%
1989	58	0	58	59%	2001	37	83%	37%
1990	13	0	13	13%	1929	36	84%	36%
1991	25	0	25	25%	1949	35	85%	36%
1992	16	0	17	17%	1994	33	86%	34%
1993	62	0	62	63%	1961	33	88%	34%
1994	30	3	33	34%	1932	26	89%	27%
1995	81	0	81	82%	1925	26	90%	26%
1996	69	14	83	85%	1991	25	91%	25%
1997	64	14	78	79%	1924	18	93%	19%
1998	81	12	93	94%	1992	17	94%	17%
1999	63	19	82	83%	1934	17	95%	17%
2000	64	6	69	70%	1930	14	96%	14%
2001	26	11	37	37%	1990	13	98%	13%
2002	41	0	42	42%	1988	11	99%	11%
2003	57	0	57	58%	1977	7	100%	7%
Average	53	6	59	60%		59		60%
Maximum	81	19	99	100%		99		100%
Minimum	6	0	7	7%		7		7%

Table A-28. Solano County WA: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	22	0	22	47%	1942	48	0%	100%
1923	20	22	42	88%	1943	48	0%	100%
1924	11	20	31	66%	1953	48	0%	100%
1925	20	1	21	43%	1970	48	0%	100%
1926	20	3	23	48%	1971	48	0%	100%
1927	24	3	27	56%	1975	48	0%	100%
1928	22	24	46	96%	1983	48	0%	100%
1929	11	22	34	70%	1984	48	0%	100%
1930	20	1	21	43%	1996	48	0%	100%
1931	11	3	14	30%	1997	48	0%	100%
1932	20	1	21	43%	1998	48	0%	100%
1933	11	3	14	30%	1999	48	0%	100%
1934	11	1	12	25%	1941	46	15%	97%
1935	20	1	21	43%	1952	46	15%	97%
1936	20	20	40	84%	1958	46	15%	97%
1937	20	20	40	84%	1974	46	15%	97%
1938	24	20	44	92%	1928	46	20%	96%
1939	20	24	44	92%	1954	46	20%	96%
1940	22	3	25	53%	1957	46	20%	96%
1941	24	22	46	97%	2000	46	20%	96%
1942	24	24	48	100%	1938	44	25%	92%
1943	24	24	48	100%	1963	44	25%	92%
1944	20	24	44	92%	1967	44	25%	92%
1945	20	3	23	48%	1969	44	25%	92%
1946	20	20	40	84%	1959	44	30%	92%
1947	20	20	40	84%	1966	44	30%	92%
1948	20	3	23	48%	1968	44	30%	92%
1949	20	20	40	84%	1972	44	30%	92%
1950	20	3	23	48%	1939	44	35%	92%
1951	22	20	42	89%	1944	44	35%	92%
1952	24	22	46	97%	1964	44	35%	92%
1953	24	24	48	100%	1985	44	35%	92%
1954	22	24	46	96%	1987	44	35%	92%
1955	20	22	42	88%	1951	42	41%	89%
1956	24	3	27	56%	1973	42	41%	89%
1957	22	24	46	96%	1980	42	41%	89%
1958	24	22	46	97%	1923	42	44%	88%
1959	20	24	44	92%	1979	42	44%	88%
1960	20	20	40	84%	1955	42	47%	88%
1961	20	3	23	48%	1981	42	47%	88%
1962	20	3	23	48%	2001	42	47%	88%
1963	24	20	44	92%	1936	40	51%	84%
1964	20	24	44	92%	1937	40	51%	84%
1965	24	3	27	56%	1946	40	51%	84%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	20	24	44	92%	1947	40	54%	84%
1967	24	20	44	92%	1949	40	54%	84%
1968	20	24	44	92%	1960	40	54%	84%
1969	24	20	44	92%	1976	35	58%	74%
1970	24	24	48	100%	1929	34	59%	70%
1971	24	24	48	100%	1994	34	59%	70%
1972	20	24	44	92%	1924	31	62%	66%
1973	22	20	42	89%	1927	27	63%	56%
1974	24	22	46	97%	1956	27	63%	56%
1975	24	24	48	100%	1965	27	63%	56%
1976	11	24	35	74%	1982	27	63%	56%
1977	11	1	12	25%	1986	27	63%	56%
1978	22	1	23	48%	2003	26	69%	54%
1979	20	22	42	88%	1940	25	70%	53%
1980	22	20	42	89%	1995	24	72%	51%
1981	20	22	42	88%	1945	23	73%	48%
1982	24	3	27	56%	1948	23	73%	48%
1983	24	24	48	100%	1950	23	73%	48%
1984	24	24	48	100%	1962	23	73%	48%
1985	20	24	44	92%	1961	23	78%	48%
1986	24	3	27	56%	1926	23	78%	48%
1987	20	24	44	92%	2002	23	78%	48%
1988	11	3	14	30%	1978	23	81%	48%
1989	20	1	21	43%	1993	23	81%	48%
1990	11	3	14	30%	1922	22	84%	47%
1991	11	1	12	25%	1935	21	85%	43%
1992	11	1	12	25%	1925	21	86%	43%
1993	22	1	23	48%	1930	21	86%	43%
1994	11	22	34	70%	1932	21	86%	43%
1995	24	1	24	51%	1989	21	86%	43%
1996	24	24	48	100%	1931	14	91%	30%
1997	24	24	48	100%	1933	14	91%	30%
1998	24	24	48	100%	1988	14	91%	30%
1999	24	24	48	100%	1990	14	91%	30%
2000	22	24	46	96%	1992	12	96%	25%
2001	20	22	42	88%	1934	12	96%	25%
2002	20	3	23	48%	1977	12	96%	25%
2003	23	3	26	54%	1991	12	96%	25%
Average	20	15	35	73%		35		73%
Maximum	24	24	48	100%		48		100%
Minimum	11	0	12	25%		12		25%

Table A-29. Tulare Lake Basin WSD: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	61	0	61	70%	1938	87	0%	100%
1923	59	0	59	67%	1958	87	0%	100%
1924	12	0	12	14%	1969	87	0%	100%
1925	23	0	23	26%	1982	87	0%	100%
1926	35	0	35	40%	1983	87	0%	100%
1927	62	0	62	71%	1998	87	0%	100%
1928	59	0	59	68%	1995	87	7%	100%
1929	27	0	27	31%	1967	84	9%	96%
1930	12	0	12	14%	1941	82	10%	93%
1931	34	0	34	39%	1952	82	10%	93%
1932	22	0	22	25%	1943	78	12%	89%
1933	35	0	35	40%	1974	77	14%	88%
1934	14	0	14	16%	1956	77	15%	88%
1935	71	0	71	81%	1980	77	16%	88%
1936	47	0	47	53%	1996	75	17%	86%
1937	63	0	63	73%	1978	72	19%	82%
1938	87	0	87	100%	1935	71	20%	81%
1939	33	0	33	38%	1942	66	21%	76%
1940	50	0	50	57%	1997	66	22%	75%
1941	82	0	82	93%	1986	66	23%	75%
1942	66	0	66	76%	1984	65	25%	74%
1943	78	0	78	89%	1951	65	26%	74%
1944	32	0	32	37%	2000	65	27%	74%
1945	61	0	61	69%	1970	65	28%	74%
1946	52	0	52	60%	1937	63	30%	73%
1947	49	0	49	56%	1985	63	31%	72%
1948	42	0	42	48%	1966	62	32%	71%
1949	30	0	30	35%	1927	62	33%	71%
1950	43	0	43	50%	1975	62	35%	71%
1951	65	0	65	74%	1973	62	36%	71%
1952	82	0	82	93%	1922	61	37%	70%
1953	52	0	52	60%	1999	61	38%	70%
1954	57	0	57	65%	1945	61	40%	69%
1955	35	0	35	40%	1928	59	41%	68%
1956	77	0	77	88%	1979	59	42%	68%
1957	44	0	44	50%	1923	59	43%	67%
1958	87	0	87	100%	1954	57	44%	65%
1959	39	0	39	45%	1993	57	46%	65%
1960	44	0	44	50%	1963	56	47%	64%
1961	28	0	28	32%	1972	56	48%	64%
1962	45	0	45	51%	1968	54	49%	62%
1963	56	0	56	64%	1946	52	51%	60%
1964	52	0	52	59%	1953	52	52%	60%
1965	45	0	45	52%	1964	52	53%	59%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	62	0	62	71%	1940	50	54%	57%
1967	84	0	84	96%	1947	49	56%	56%
1968	54	0	54	62%	1936	47	57%	53%
1969	87	0	87	100%	1965	45	58%	52%
1970	65	0	65	74%	1962	45	59%	51%
1971	43	0	43	49%	1957	44	60%	50%
1972	56	0	56	64%	1960	44	62%	50%
1973	62	0	62	71%	1976	44	63%	50%
1974	77	0	77	88%	1950	43	64%	50%
1975	62	0	62	71%	1989	43	65%	49%
1976	44	0	44	50%	1971	43	67%	49%
1977	6	0	6	6%	1948	42	68%	48%
1978	72	0	72	82%	1959	39	69%	45%
1979	59	0	59	68%	2003	39	70%	44%
1980	77	0	77	88%	2002	37	72%	43%
1981	35	0	35	40%	1926	35	73%	40%
1982	87	0	87	100%	1933	35	74%	40%
1983	87	0	87	100%	1955	35	75%	40%
1984	65	0	65	74%	1981	35	77%	40%
1985	63	0	63	72%	1931	34	78%	39%
1986	66	0	66	75%	1939	33	79%	38%
1987	24	0	24	28%	1944	32	80%	37%
1988	9	0	9	11%	1949	30	81%	35%
1989	43	0	43	49%	1961	28	83%	32%
1990	11	0	11	13%	1929	27	84%	31%
1991	22	0	22	25%	1994	27	85%	31%
1992	15	0	15	17%	1987	24	86%	28%
1993	57	0	57	65%	2001	23	88%	26%
1994	27	0	27	31%	1925	23	89%	26%
1995	87	0	87	100%	1932	22	90%	25%
1996	75	0	75	86%	1991	22	91%	25%
1997	66	0	66	75%	1992	15	93%	17%
1998	87	0	87	100%	1934	14	94%	16%
1999	61	0	61	70%	1930	12	95%	14%
2000	65	0	65	74%	1924	12	96%	14%
2001	23	0	23	26%	1990	11	98%	13%
2002	37	0	37	43%	1988	9	99%	11%
2003	39	0	39	44%	1977	6	100%	6%
Average	51	0	51	59%		51		59%
Maximum	87	0	87	100%		87		100%
Minimum	6	0	6	6%		6		6%

Table A-30. Ventura County WPD: Existing Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	14	0	14	70%	1958	20	0%	100%
1923	13	0	13	67%	1998	20	0%	100%
1924	3	0	3	14%	1938	20	0%	100%
1925	5	0	5	26%	1969	20	0%	100%
1926	8	0	8	40%	1982	20	0%	100%
1927	14	0	14	71%	1983	20	0%	100%
1928	14	0	14	68%	1995	20	7%	100%
1929	6	0	6	31%	2003	20	9%	98%
1930	3	0	3	14%	1967	19	10%	96%
1931	8	0	8	39%	1952	19	11%	93%
1932	5	0	5	25%	1941	19	11%	93%
1933	8	0	8	40%	1943	18	14%	89%
1934	3	0	3	16%	1974	18	15%	88%
1935	16	0	16	81%	1956	18	16%	88%
1936	11	0	11	53%	1980	18	17%	88%
1937	15	0	15	73%	1996	17	19%	86%
1938	20	0	20	100%	1978	16	20%	82%
1939	4	0	4	21%	1935	16	21%	81%
1940	11	0	11	57%	1942	15	22%	76%
1941	19	0	19	93%	1997	15	23%	75%
1942	15	0	15	76%	1986	15	25%	75%
1943	18	0	18	89%	1984	15	26%	74%
1944	7	0	7	37%	1951	15	27%	74%
1945	14	0	14	69%	2000	15	28%	74%
1946	12	0	12	60%	1970	15	30%	74%
1947	11	0	11	56%	1937	15	31%	73%
1948	10	0	10	48%	1985	14	32%	72%
1949	7	0	7	35%	1966	14	33%	71%
1950	10	0	10	50%	1927	14	35%	71%
1951	15	0	15	74%	1975	14	36%	71%
1952	19	0	19	93%	1973	14	37%	71%
1953	12	0	12	60%	1922	14	38%	70%
1954	13	0	13	65%	1999	14	40%	70%
1955	8	0	8	40%	1945	14	41%	69%
1956	18	0	18	88%	1928	14	42%	68%
1957	10	0	10	50%	1979	14	43%	68%
1958	20	0	20	100%	1923	13	44%	67%
1959	9	0	9	45%	1954	13	46%	65%
1960	10	0	10	50%	1993	13	47%	65%
1961	6	0	6	32%	1963	13	48%	64%
1962	10	0	10	51%	1972	13	49%	64%
1963	13	0	13	64%	1968	12	51%	62%
1964	12	0	12	59%	1976	12	52%	62%
1965	10	0	10	52%	1989	12	53%	60%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	14	0	14	71%	1946	12	54%	60%
1967	19	0	19	96%	1953	12	56%	60%
1968	12	0	12	62%	1964	12	57%	59%
1969	20	0	20	100%	1940	11	58%	57%
1970	15	0	15	74%	1981	11	59%	57%
1971	10	0	10	49%	1947	11	60%	56%
1972	13	0	13	64%	1936	11	62%	53%
1973	14	0	14	71%	1965	10	63%	52%
1974	18	0	18	88%	1962	10	64%	51%
1975	14	0	14	71%	1957	10	65%	50%
1976	12	0	12	62%	1960	10	67%	50%
1977	1	0	1	6%	1950	10	68%	50%
1978	16	0	16	82%	1971	10	69%	49%
1979	14	0	14	68%	1948	10	70%	48%
1980	18	0	18	88%	1959	9	72%	45%
1981	11	0	11	57%	2002	9	73%	43%
1982	20	0	20	100%	1926	8	74%	40%
1983	20	0	20	100%	1933	8	75%	40%
1984	15	0	15	74%	1955	8	77%	40%
1985	14	0	14	72%	1931	8	78%	39%
1986	15	0	15	75%	1944	7	79%	37%
1987	6	0	6	28%	1949	7	80%	35%
1988	2	0	2	11%	1961	6	81%	32%
1989	12	0	12	60%	1929	6	83%	31%
1990	3	0	3	13%	1994	6	84%	31%
1991	5	0	5	25%	1987	6	85%	28%
1992	3	0	3	17%	2001	5	86%	26%
1993	13	0	13	65%	1925	5	88%	26%
1994	6	0	6	31%	1932	5	89%	25%
1995	20	0	20	100%	1991	5	90%	25%
1996	17	0	17	86%	1939	4	91%	21%
1997	15	0	15	75%	1992	3	93%	17%
1998	20	0	20	100%	1934	3	94%	16%
1999	14	0	14	70%	1930	3	95%	14%
2000	15	0	15	74%	1924	3	96%	14%
2001	5	0	5	26%	1990	3	98%	13%
2002	9	0	9	43%	1988	2	99%	11%
2003	20	0	20	98%	1977	1	100%	6%
Average	12	0	12	60%		12		60%
Maximum	20	0	20	100%		20		100%
Minimum	1	0	1	6%		1		6%



Appendix B: Future Condition with Climate Change and 45 cm Sea Level Rise Scenario

Appendix B: Future Condition with Climate Change and 45 cm Sea Level Rise Scenario

Introduction – Future Conditions

This appendix provides background and results on the Future Conditions Scenario, an alternative of the DCR 2019 main model, Existing Conditions. This section provides information on the climate change hydrology and sea-level rise (SLR) projection selected and presents State Water Project (SWP) deliveries results. The following sections will be discussed:

- Climate Change Hydrology
- Sea-Level Rise
- Simulation results
 - Annual delivery for Table A, Article 56, and Article 21
 - SWP Exports from the Delta
 - SWP Contractor annual deliveries

Climate Change Hydrology

The DCR 2019 Future Conditions scenario uses the same climate change hydrology inputs of the Incidental Take Permit (ITP)¹ climate change studies. ITP climate change scenario was developed centered around 2035 (2020-2049). This is best available climate change input hydrology to be used for DCR planning horizon (year 2040). DWR (2020) explains how the climate change projections conditions were developed:

“The climate projections were derived from the ensemble of 20 Coupled Model Intercomparison Project 5 (CMIP5) global climate projections selected by the California Department of Water Resources (DWR) Climate Change Technical Advisory Group (CCTAG) as the most appropriate projections for California water resources evaluation and planning (DWR CCTAG, 2015). The 20 climate projections, selected by CCTAG, were generated from 10 global climate models run with two emission scenarios, one optimistic (Representative Concentration Pathway [RCP] 4.5) and one pessimistic (RCP 8.5), identified by the Intergovernmental Panel on Climate Change (IPCC) for the Fifth Assessment Report (AR5) (2014).”

¹ Incidental Take Permit (ITP) for Long-Term Operation of the State Water Project

<https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/State-Water-Project/Files/ITP-for-Long-Term-SWP-Operations.pdf>

Sea-Level Rise (SLR)

Two SLR projections were evaluated before establishing the final Future Conditions SLR. This section explains how the final Future Conditions SLR was selected between the 1 foot (ft) and 1.5 ft SLR projections.

The Ocean Protection Council released the latest Sea-Level Rise Guidance in 2018 (OPC 2018)¹. Table B-1 (OPC 2018) presents the three levels of risk aversion: low, medium-high, and extreme. The DCR 2019 scenarios included SLR projections in between: medium (1ft SLR) and near-high risk (45 centimeter or 1.5 ft SLR) which are summarized in Table B-2.

The high emissions, 2040 row (Table B-1) was selected because of the 20-year “project lifespan” of DCR Future Conditions scenarios and due to the Incidental Take Permit’s March 31, 2040 expiration date. The 1.0 ft SLR has a 1-in-20 chance or 5% exceedance probability while the 45 cm (1.476 ft) SLR has less than 0.5% exceedance probability (Table B-2).

Table B-1. Projected SLR (ft) for San Francisco (OPC 2018)

		<i>Probabilistic Projections (in feet) (based on Kopp et al. 2014)</i>			
		MEDIAN	LIKELY RANGE	1-IN-20 CHANCE	1-IN-200 CHANCE
		<i>50% probability sea-level rise meets or exceeds...</i>	<i>66% probability sea-level rise is between...</i>	<i>5% probability sea-level rise meets or exceeds...</i>	<i>0.5% probability sea-level rise meets or exceeds...</i>
				Low Risk Aversion	Medium - High Risk Aversion
High emissions	2030	0.4	0.3 - 0.5	0.6	0.8
	2040	0.6	0.5 - 0.8	1.0	1.3

Table B-2. DCR 2019 Preliminary Future Conditions (1 ft and 1.5 ft SLR projections for High Emissions, 2040)

Aversion projection (High emissions, 2040)	SLR (ft) projection
Low risk	0.8
Medium risk (DCR 19 1 ft SLR)	1.0
Medium-high risk	1.3
High risk (DCR 19 1.5 ft SLR)	1.476
Extreme risk	1.8

¹ State of California Sea-Level Rise Guidance (updated 2018): http://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A OPC SLR Guidance-rd3.pdf

Between the 1 ft and 1.5 ft SLR, the 1.5 ft SLR Future Conditions scenario was chosen after feedback from management and some State Water Project Contractors.

Simulation Results for Future Conditions

The deliveries shown in this report only include those State Water Project Contractors that rely on delivery of water from the Sacramento-San Joaquin Delta; therefore, State Water Project Contractors in the Feather River area and upstream (i.e., Butte County, Plumas County Flood Control and Water Conservation District, and Yuba City) are excluded from this analysis. This section of the appendix presents results for the Future Conditions scenario with 45 cm SLR.

SWP Table A Deliveries

Figure B-1 shows the comparison of SWP Table A delivery Exceedance curves between the 2019 DCR Existing Conditions and Future Conditions studies. The Table A deliveries for State Water Project Contractors for Future Conditions scenario are shown in Table B-3 on the following page. The results for individual Contractor Table A deliveries are included at the end of this appendix.

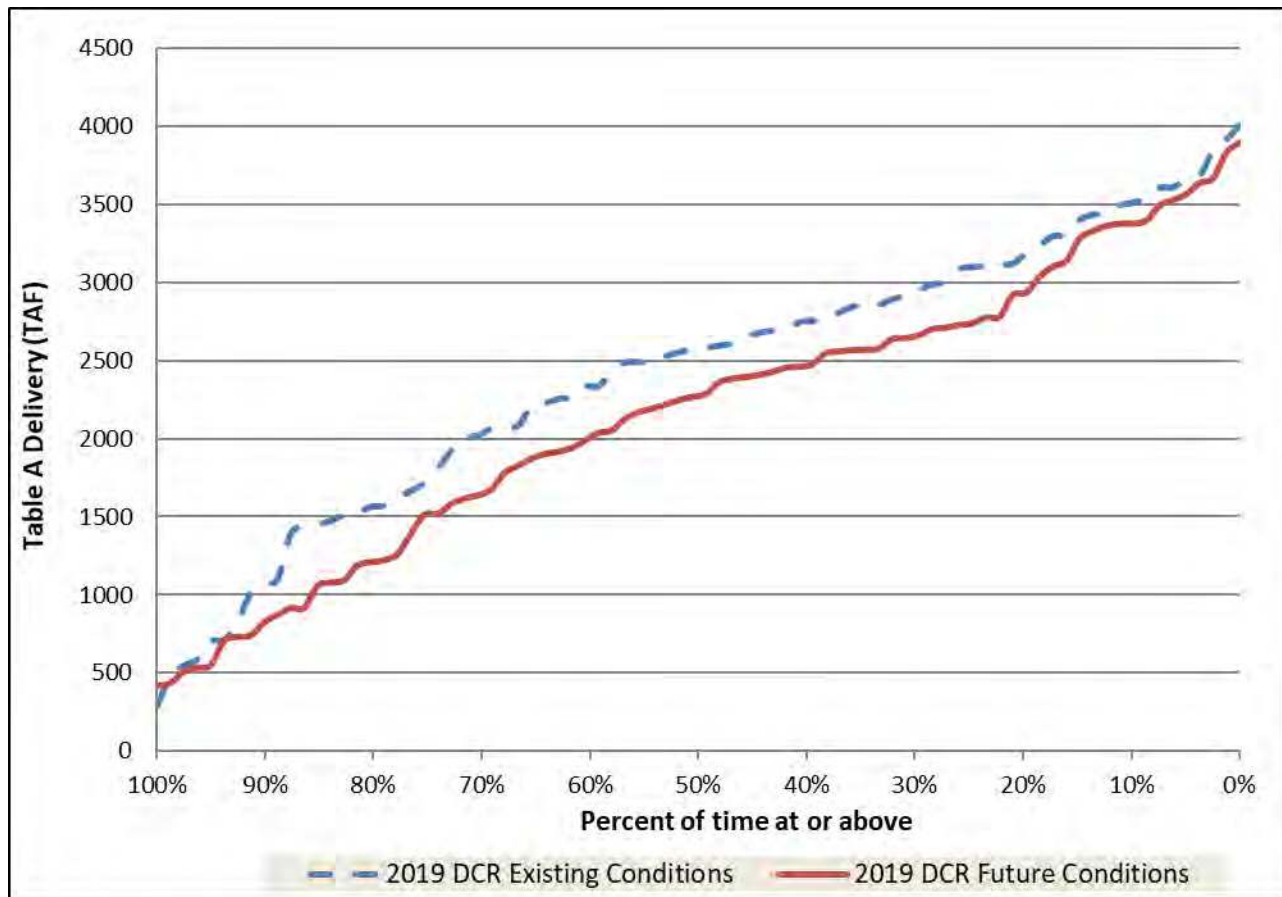


Figure B-1. Comparison of SWP Table A Delivery Probability for Future Conditions

How to interpret Table B-3 SWP Deliveries

Please refer to **How to interpret Table A-1 SWP Deliveries**.

Table B-3. SWP Table A Deliveries for Future Conditions

Year	SWP Table A Demands	SWP Table A Delivery		Probability Curve (percent of time at or above given value)			
		Annual Volume (TAF)	Percent of Maximum SWP Table A	Year	SWP Table A Delivery (TAF)	Exceedance Frequency	Percent of Maximum SWP Table A
1922	4,133	2,712	66%	1983	3,900	0%	94%
1923	4,133	2,665	64%	1952	3,839	1%	93%
1924	4,133	737	18%	1998	3,672	2%	89%
1925	4,133	1,222	30%	1938	3,642	4%	88%
1926	4,133	1,076	26%	1969	3,571	5%	86%
1927	4,133	2,427	59%	1982	3,532	6%	85%
1928	4,133	2,477	60%	1995	3,498	7%	85%
1929	4,133	1,094	26%	1978	3,400	9%	82%
1930	4,133	868	21%	1942	3,380	10%	82%
1931	4,133	1,262	31%	1958	3,378	11%	82%
1932	4,133	546	13%	1996	3,365	12%	81%
1933	4,133	1,512	37%	1967	3,332	14%	81%
1934	4,133	507	12%	1941	3,284	15%	79%
1935	4,133	2,571	62%	1999	3,140	16%	76%
1936	4,133	2,456	59%	1984	3,104	17%	75%
1937	4,133	2,408	58%	1970	3,039	19%	74%
1938	4,133	3,642	88%	1943	2,937	20%	71%
1939	4,133	1,618	39%	1974	2,923	21%	71%
1940	4,133	2,359	57%	1951	2,781	22%	67%
1941	4,133	3,284	79%	1980	2,780	23%	67%
1942	4,133	3,380	82%	1997	2,740	25%	66%
1943	4,133	2,937	71%	2000	2,730	26%	66%
1944	4,133	1,188	29%	1922	2,712	27%	66%
1945	4,133	2,643	64%	1966	2,704	28%	65%
1946	4,133	2,128	51%	1923	2,665	30%	64%
1947	4,133	1,940	47%	1973	2,645	31%	64%
1948	4,133	2,053	50%	1945	2,643	32%	64%
1949	4,133	915	22%	1963	2,578	33%	62%
1950	4,133	2,170	53%	1935	2,571	35%	62%
1951	4,133	2,781	67%	1956	2,569	36%	62%
1952	4,133	3,839	93%	1975	2,560	37%	62%
1953	4,133	2,268	55%	1985	2,548	38%	62%
1954	4,133	2,385	58%	1928	2,477	40%	60%
1955	4,133	1,395	34%	1957	2,461	41%	60%
1956	4,133	2,569	62%	1936	2,456	42%	59%
1957	4,133	2,461	60%	1927	2,427	43%	59%
1958	4,133	3,378	82%	1937	2,408	44%	58%
1959	4,133	2,193	53%	1993	2,396	46%	58%
1960	4,133	1,208	29%	1954	2,385	47%	58%
1961	4,133	1,636	40%	1940	2,359	48%	57%
1962	4,133	2,037	49%	1986	2,286	49%	55%
1963	4,133	2,578	62%	1953	2,268	51%	55%
1964	4,133	1,916	46%	1965	2,247	52%	54%

Year	SWP Table A Demands	SWP Table A Delivery		Probability Curve (percent of time at or above given value)			
		Annual Volume (TAF)	Percent of Maximum SWP Table A	Year	SWP Table A Delivery (TAF)	Exceedance Frequency	Percent of Maximum SWP Table A
1965	4,133	2,247	54%	1968	2,218	53%	54%
1966	4,133	2,704	65%	1959	2,193	54%	53%
1967	4,133	3,332	81%	1950	2,170	56%	53%
1968	4,133	2,218	54%	1946	2,128	57%	51%
1969	4,133	3,571	86%	1948	2,053	58%	50%
1970	4,133	3,039	74%	1962	2,037	59%	49%
1971	4,133	1,872	45%	1989	1,987	60%	48%
1972	4,133	1,580	38%	1947	1,940	62%	47%
1973	4,133	2,645	64%	1964	1,916	63%	46%
1974	4,133	2,923	71%	1979	1,902	64%	46%
1975	4,133	2,560	62%	1971	1,872	65%	45%
1976	4,133	1,517	37%	2003	1,825	67%	44%
1977	4,133	412	10%	1981	1,782	68%	43%
1978	4,133	3,400	82%	2002	1,676	69%	41%
1979	4,133	1,902	46%	1961	1,636	70%	40%
1980	4,133	2,780	67%	1939	1,618	72%	39%
1981	4,133	1,782	43%	1972	1,580	73%	38%
1982	4,133	3,532	85%	1976	1,517	74%	37%
1983	4,133	3,900	94%	1933	1,512	75%	37%
1984	4,133	3,104	75%	1955	1,395	77%	34%
1985	4,133	2,548	62%	1931	1,262	78%	31%
1986	4,133	2,286	55%	1925	1,222	79%	30%
1987	4,133	1,059	26%	1960	1,208	80%	29%
1988	4,133	434	10%	1944	1,188	81%	29%
1989	4,133	1,987	48%	1929	1,094	83%	26%
1990	4,133	531	13%	1926	1,076	84%	26%
1991	4,133	821	20%	1987	1,059	85%	26%
1992	4,133	729	18%	1949	915	86%	22%
1993	4,133	2,396	58%	1994	913	88%	22%
1994	4,133	913	22%	1930	868	89%	21%
1995	4,133	3,498	85%	1991	821	90%	20%
1996	4,133	3,365	81%	1924	737	91%	18%
1997	4,133	2,740	66%	1992	729	93%	18%
1998	4,133	3,672	89%	2001	703	94%	17%
1999	4,133	3,140	76%	1932	546	95%	13%
2000	4,133	2,730	66%	1990	531	96%	13%
2001	4,133	703	17%	1934	507	98%	12%
2002	4,133	1,676	41%	1988	434	99%	10%
2003	4,133	1,825	44%	1977	412	100%	10%
Average	4,133	2,165	52%	Average	2,165		52%
Minimum	4,133	412	10%	Minimum	412		10%
Maximum	4,133	3,900	94%	Maximum	3,900		94%

Article 21 Deliveries

Table B-4 below shows the State Water Project Contractors' Article 21 deliveries for the Future Conditions scenario.

Table B-4. Article 21 Deliveries for Future Conditions

SWP Table Article 21 Deliveries (TAF)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
1921										0	0	4	4
1922	6	6	6	5	2	0	0	0	0	0	2	1	28
1923	0	0	0	0	0	0	0	0	0	0	0	0	0
1924	0	2	0	0	0	0	0	0	0	4	0	6	12
1925	6	5	0	4	0	0	0	0	0	0	0	0	16
1926	6	5	0	4	0	0	0	0	0	0	4	0	18
1927	3	2	4	5	0	3	0	0	0	0	0	4	21
1928	0	0	0	0	0	0	0	0	0	0	0	4	4
1929	3	2	0	0	0	0	0	0	0	0	0	6	10
1930	6	5	5	0	0	0	0	0	0	0	0	0	17
1931	6	0	0	0	0	0	0	0	0	0	0	6	12
1932	6	6	0	0	3	0	0	0	0	0	0	5	20
1933	6	0	0	0	0	0	0	0	0	0	0	6	12
1934	6	5	0	0	0	0	0	0	0	0	4	6	21
1935	5	5	5	5	0	0	0	0	0	0	0	0	20
1936	0	0	0	0	0	0	0	0	0	0	0	0	0
1937	0	0	0	0	0	0	0	0	0	2	3	4	9
1938	0	40	289	216	157	0	0	0	0	0	0	4	706
1939	0	2	0	1	0	0	0	0	0	0	0	0	3
1940	3	2	4	5	0	0	0	0	0	0	0	4	18
1941	0	0	0	29	2	0	0	0	0	0	0	4	35
1942	0	0	0	0	0	0	0	0	0	0	0	4	4
1943	0	0	219	0	0	0	0	0	0	0	0	0	219
1944	0	2	2	0	0	0	0	0	0	0	4	5	13
1945	3	26	115	5	0	0	0	0	0	0	0	4	153
1946	0	0	0	0	0	0	0	0	0	0	0	4	4
1947	3	2	2	1	0	0	0	0	0	0	0	0	9
1948	3	0	4	5	2	0	0	0	2	0	0	4	20
1949	3	2	2	0	0	0	0	0	0	0	4	0	12
1950	3	2	4	5	0	0	0	0	0	0	3	4	22
1951	252	234	166	0	2	3	0	0	0	0	3	4	663
1952	0	0	0	0	86	0	0	0	0	0	0	4	90
1953	0	0	0	0	0	0	0	0	0	0	0	0	0
1954	0	0	0	0	0	3	4	0	0	0	3	4	14
1955	3	0	0	1	0	0	0	0	0	0	0	5	9
1956	296	315	207	0	2	0	0	0	0	0	0	0	820
1957	0	0	0	0	0	0	0	0	0	2	0	4	7
1958	0	0	0	0	2	0	0	0	0	0	0	0	2
1959	0	0	0	0	0	0	0	0	2	0	0	0	2
1960	0	3	2	0	0	0	0	0	0	0	0	5	10

SWP Table Article 21 Deliveries (TAF)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
1961	6	5	5	0	0	0	0	0	0	0	0	5	20
1962	0	2	4	0	0	0	0	0	0	2	0	4	13
1963	0	0	0	0	0	1	0	0	0	0	3	0	4
1964	3	2	0	1	0	0	0	0	0	0	4	5	14
1965	3	2	0	5	0	0	0	0	0	0	3	4	16
1966	1	103	28	0	0	4	0	0	0	0	0	4	140
1967	0	0	0	0	2	0	0	0	0	0	0	0	2
1968	0	0	0	0	0	0	0	0	0	0	0	4	4
1969	0	127	163	80	20	0	0	0	0	0	0	4	394
1970	0	0	0	0	0	0	0	0	0	0	3	4	7
1971	0	0	0	0	0	3	0	0	0	0	0	4	7
1972	0	0	0	0	0	0	0	0	0	2	3	4	9
1973	0	0	72	0	0	3	4	0	0	0	3	4	86
1974	0	0	0	0	0	3	0	0	0	0	0	4	7
1975	0	0	0	0	0	0	0	0	0	0	0	0	0
1976	3	2	0	0	0	0	0	0	0	0	0	0	4
1977	6	0	0	0	0	0	0	0	0	0	0	6	12
1978	5	5	5	94	2	0	0	0	0	0	0	0	112
1979	0	0	0	0	2	0	0	0	0	0	3	4	10
1980	0	113	163	0	2	0	0	0	0	0	0	4	283
1981	3	2	2	1	0	0	0	0	0	0	4	5	16
1982	3	2	264	193	2	0	0	0	0	0	3	4	470
1983	0	17	133	110	95	45	0	0	0	0	3	167	570
1984	179	195	210	0	0	0	0	0	0	0	3	4	591
1985	3	2	2	1	0	0	0	0	0	0	0	5	12
1986	3	2	4	5	2	0	0	0	0	0	0	0	16
1987	0	2	2	0	0	0	0	0	0	0	0	5	8
1988	6	0	0	4	0	0	0	0	0	0	0	6	16
1989	6	0	5	4	0	0	0	0	0	0	0	0	16
1990	6	4	0	0	0	0	0	0	0	0	0	1	11
1991	0	0	5	0	0	0	0	0	0	0	0	6	11
1992	6	5	5	5	0	0	0	0	0	0	0	5	26
1993	5	5	5	5	2	0	0	0	0	0	0	0	22
1994	0	2	0	0	1	0	0	0	0	0	0	6	8
1995	5	5	5	95	94	0	0	0	0	0	0	4	208
1996	0	0	0	0	0	0	0	0	0	0	0	4	4
1997	0	12	155	0	0	0	0	0	0	0	3	4	174
1998	0	0	111	110	93	0	0	0	0	0	3	4	321
1999	0	142	141	0	0	0	0	0	0	0	0	0	283
2000	0	0	0	0	0	3	0	0	0	0	0	0	3
2001	0	2	2	0	0	0	0	0	0	0	0	5	9
2002	6	0	5	4	0	0	0	0	0	0	0	5	19
2003	3	2	4	5	2	0	0	0	0				20
Average	11	17	31	12	7	1	0	0	0	0	1	5	86
Minimum	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum	296	315	289	216	157	45	4	0	2	4	4	167	820

SWP Exports from the Sacramento-San Joaquin Delta

Table B-5 below shows the SWP Exports from the Delta for the Future Conditions scenario.

Table B-5. SWP Exports for Future Conditions

SWP Exports from the Delta (TAF)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
1921										20	212	443	675
1922	182	328	306	59	60	257	411	311	397	197	383	268	3,158
1923	344	178	131	57	37	118	411	314	240	213	166	222	2,430
1924	86	149	18	18	18	18	18	18	34	112	150	253	894
1925	166	145	182	57	46	18	50	18	156	140	129	234	1,343
1926	144	136	18	100	18	141	18	18	140	131	85	168	1,120
1927	148	162	135	195	37	112	348	311	397	105	397	335	2,682
1928	177	143	180	77	37	111	43	311	395	111	297	331	2,213
1929	162	146	148	56	18	18	18	18	49	39	51	203	926
1930	150	135	118	43	46	205	354	18	141	100	138	120	1,567
1931	121	112	77	18	18	18	18	18	33	31	50	175	690
1932	155	238	18	41	37	263	18	18	114	95	132	147	1,278
1933	162	142	133	38	37	18	18	18	50	53	41	287	997
1934	123	138	99	18	18	18	18	18	41	22	211	178	903
1935	134	127	136	225	37	241	411	235	161	138	203	259	2,307
1936	131	532	177	72	37	218	410	266	226	169	172	188	2,597
1937	183	526	382	73	81	258	95	261	157	132	397	304	2,851
1938	311	526	427	397	411	397	411	311	397	211	344	314	4,458
1939	91	154	130	56	49	18	18	18	124	101	41	189	990
1940	150	202	343	298	37	109	41	311	397	51	245	205	2,390
1941	210	526	392	355	84	263	411	311	397	166	239	248	3,601
1942	442	357	213	315	57	147	411	311	397	209	374	217	3,450
1943	599	367	518	76	37	217	65	311	397	59	177	263	3,087
1944	18	155	137	48	37	189	54	18	143	126	397	196	1,520
1945	177	371	215	56	37	111	409	129	170	175	397	293	2,540
1946	229	150	159	65	42	113	383	359	250	146	261	188	2,345
1947	174	144	119	69	45	127	37	18	146	166	237	200	1,483
1948	193	73	118	49	37	137	411	316	288	148	211	313	2,292
1949	159	154	128	41	37	106	106	18	152	101	154	107	1,264
1950	130	138	122	43	37	176	379	242	184	269	397	533	2,649
1951	527	302	283	64	37	107	388	311	274	29	397	178	2,897
1952	298	291	396	397	382	378	411	311	397	195	341	174	3,973
1953	266	165	142	48	37	109	294	311	397	183	260	251	2,463
1954	125	133	123	55	37	109	278	311	312	61	397	433	2,372
1955	183	129	93	43	37	18	150	18	180	133	312	414	1,710
1956	599	390	340	54	53	147	360	182	397	201	241	274	3,238
1957	162	137	145	47	37	109	411	411	220	74	397	166	2,316
1958	157	170	387	397	110	265	324	311	397	214	298	313	3,345
1959	134	199	139	63	18	115	367	149	247	117	139	159	1,847
1960	114	146	113	18	45	98	331	123	154	107	305	224	1,777
1961	170	131	115	36	18	98	33	18	157	100	188	209	1,274
1962	148	213	141	58	37	115	354	300	165	411	329	159	2,431

SWP Exports from the Delta (TAF)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
1963	151	160	125	205	37	115	318	311	397	256	397	342	2,813
1964	134	140	105	45	18	105	204	18	132	95	228	182	1,406
1965	338	255	158	382	37	128	173	311	397	167	397	453	3,196
1966	162	159	147	52	37	152	325	110	155	155	350	178	1,983
1967	193	156	285	397	94	397	411	311	397	228	397	382	3,650
1968	135	175	155	72	51	115	375	411	186	101	279	157	2,213
1969	599	216	259	258	260	397	396	18	397	252	370	229	3,651
1970	599	310	273	50	37	177	266	311	178	66	397	180	2,845
1971	158	136	124	48	37	105	271	311	397	172	191	168	2,119
1972	145	138	108	66	49	58	411	325	180	189	119	171	1,957
1973	175	197	228	54	45	109	191	311	373	149	397	187	2,415
1974	330	192	254	261	37	116	22	311	397	218	255	440	2,833
1975	190	284	267	53	37	159	369	311	397	292	316	263	2,938
1976	80	154	132	44	18	18	126	36	83	128	71	145	1,034
1977	49	84	36	18	18	2	18	18	169	18	106	201	739
1978	178	313	283	345	92	249	404	311	385	37	233	191	3,021
1979	182	332	266	54	52	219	410	84	179	169	380	111	2,439
1980	546	306	274	52	47	169	317	174	397	167	167	314	2,930
1981	130	137	151	53	37	110	96	18	146	161	397	166	1,603
1982	317	526	518	397	122	238	23	311	397	411	397	533	4,191
1983	599	468	251	261	255	350	340	311	397	411	397	418	4,460
1984	465	418	327	51	37	113	411	311	184	153	397	433	3,301
1985	174	153	135	78	58	195	52	18	211	149	304	378	1,905
1986	128	526	518	81	67	283	75	292	174	258	176	248	2,827
1987	18	134	127	18	40	18	18	18	100	56	101	141	790
1988	148	17	18	44	37	18	18	18	75	18	285	195	893
1989	225	80	111	52	37	98	387	18	188	138	110	48	1,492
1990	159	139	121	20	39	172	18	18	100	18	103	114	1,022
1991	37	17	155	36	18	18	18	18	26	105	75	109	633
1992	143	152	145	36	18	18	18	18	59	18	18	151	795
1993	184	202	164	37	45	161	355	311	397	189	193	297	2,534
1994	18	146	120	36	45	151	18	18	188	87	114	147	1,090
1995	185	163	518	373	383	397	298	311	397	213	286	166	3,692
1996	201	544	518	63	49	117	268	311	397	156	397	533	3,555
1997	599	526	320	42	37	226	175	271	133	126	384	269	3,109
1998	161	526	319	326	378	397	411	311	397	411	397	207	4,242
1999	459	516	303	48	37	109	374	311	327	68	233	268	3,054
2000	133	497	310	53	37	187	152	311	237	69	178	230	2,394
2001	190	141	133	66	18	18	18	18	166	18	232	178	1,198
2002	163	173	121	36	23	108	108	23	141	66	100	174	1,237
2003	145	131	118	50	37	97	411	311	397				2,371
Average	215	233	204	110	64	149	226	189	243	143	252	244	2,271
Minimum	18	17	18	18	18	2	18	18	26	18	18	48	633
Maximum	599	544	518	397	411	397	411	411	397	411	397	533	4,460

This page intentionally left blank.

Individual Contractor Table A Deliveries - Future Conditions

The tables on the following pages show the Table A without Article 56 carryover and Total Table A deliveries for each State Water Contractor for the Future Conditions scenario.

Individual Contractor Tables SWP Table A Deliveries Description

Please refer to **Individual Contractor Tables SWP Table A Deliveries Description**.

Table B-6. Alameda County FC&WCD-Zone 7: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	51	0	51	67%	1983	76	0%	100%
1923	40	11	51	67%	1952	76	1%	100%
1924	10	6	16	21%	1998	72	2%	95%
1925	22	1	23	30%	1938	71	4%	93%
1926	18	2	21	27%	1969	69	5%	91%
1927	43	2	45	60%	1982	69	6%	90%
1928	41	7	48	63%	1995	67	7%	88%
1929	16	6	22	30%	1978	66	9%	87%
1930	15	2	17	22%	1958	66	10%	87%
1931	22	2	23	30%	1942	64	11%	84%
1932	9	0	10	13%	1996	64	12%	84%
1933	27	1	28	37%	1967	63	14%	83%
1934	8	1	9	12%	1941	62	15%	81%
1935	47	1	48	63%	1999	61	16%	81%
1936	44	0	44	58%	1970	59	17%	78%
1937	42	2	44	58%	1984	59	19%	78%
1938	66	5	71	93%	1974	57	20%	75%
1939	17	15	32	42%	1943	56	21%	73%
1940	45	1	46	60%	2000	54	22%	71%
1941	61	0	62	81%	1997	54	23%	71%
1942	57	7	64	84%	1980	54	25%	70%
1943	47	9	56	73%	1951	53	26%	69%
1944	16	8	24	31%	1985	52	27%	68%
1945	48	2	50	66%	1923	51	28%	67%
1946	33	9	42	55%	1922	51	30%	67%
1947	33	4	38	49%	1966	51	31%	67%
1948	37	0	37	49%	1973	50	32%	66%
1949	14	5	19	25%	1945	50	33%	66%
1950	39	2	40	53%	1963	49	35%	65%
1951	50	3	53	69%	1975	49	36%	65%
1952	66	10	76	100%	1935	48	37%	63%
1953	33	11	44	58%	1928	48	38%	63%
1954	41	4	45	60%	1956	48	40%	63%
1955	22	6	28	36%	1957	48	41%	62%
1956	47	1	48	63%	1989	47	42%	61%
1957	39	8	48	62%	1940	46	43%	60%
1958	60	6	66	87%	1927	45	44%	60%
1959	32	10	42	55%	1954	45	46%	60%
1960	21	0	21	28%	1993	45	47%	59%
1961	29	2	31	41%	1936	44	48%	58%
1962	35	4	39	51%	1953	44	49%	58%
1963	45	5	49	65%	1937	44	51%	58%
1964	31	7	38	49%	1965	43	52%	57%
1965	39	4	43	57%	1968	43	53%	56%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	48	3	51	67%	1959	42	54%	55%
1967	59	3	63	83%	1946	42	56%	55%
1968	29	14	43	56%	1986	42	57%	55%
1969	66	3	69	91%	1950	40	58%	53%
1970	48	12	59	78%	1962	39	59%	51%
1971	29	8	37	48%	1964	38	60%	49%
1972	26	4	30	40%	1947	38	62%	49%
1973	47	3	50	66%	1948	37	63%	49%
1974	49	8	57	75%	1971	37	64%	48%
1975	40	9	49	65%	1981	35	65%	46%
1976	24	6	30	40%	1979	34	67%	45%
1977	6	3	9	12%	2003	33	68%	43%
1978	66	1	66	87%	1939	32	69%	42%
1979	34	0	34	45%	2002	32	70%	42%
1980	50	4	54	70%	1961	31	72%	41%
1981	25	10	35	46%	1972	30	73%	40%
1982	66	3	69	90%	1976	30	74%	40%
1983	66	10	76	100%	1933	28	75%	37%
1984	50	10	59	78%	1955	28	77%	36%
1985	45	7	52	68%	1944	24	78%	31%
1986	41	0	42	55%	1931	23	79%	30%
1987	15	6	22	28%	1925	23	80%	30%
1988	7	2	9	11%	1929	22	81%	30%
1989	46	1	47	61%	1987	22	83%	28%
1990	9	0	9	12%	1960	21	84%	28%
1991	14	1	16	20%	1926	21	85%	27%
1992	13	2	14	19%	1994	19	86%	25%
1993	43	1	45	59%	1949	19	88%	25%
1994	13	7	19	25%	1930	17	89%	22%
1995	66	1	67	88%	1924	16	90%	21%
1996	58	6	64	84%	1991	16	91%	20%
1997	42	12	54	71%	1992	14	93%	19%
1998	66	6	72	95%	2001	12	94%	16%
1999	49	13	61	81%	1932	10	95%	13%
2000	45	9	54	71%	1934	9	96%	12%
2001	12	0	12	16%	1990	9	98%	12%
2002	31	1	32	42%	1977	9	99%	12%
2003	32	0	33	43%	1988	9	100%	11%
Average	37	5	42	55%		42		55%
Maximum	66	15	76	100%		76		100%
Minimum	6	0	9	11%		9		11%

Table B-7. Alameda County WD: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	23	0	23	62%	1952	37	0%	100%
1923	18	9	27	74%	1998	36	1%	96%
1924	5	6	11	29%	1983	35	2%	94%
1925	11	1	11	31%	1938	35	4%	94%
1926	9	2	11	29%	1958	33	5%	89%
1927	20	2	21	57%	1999	33	6%	88%
1928	19	7	25	68%	1969	32	7%	86%
1929	8	6	14	38%	1982	32	9%	86%
1930	7	1	9	23%	1995	31	10%	83%
1931	12	1	13	35%	1978	30	11%	81%
1932	5	0	5	13%	1984	30	12%	80%
1933	13	1	14	38%	1974	30	14%	79%
1934	4	1	5	13%	1942	29	15%	79%
1935	21	1	22	59%	1996	29	16%	78%
1936	20	0	20	54%	2000	29	17%	77%
1937	19	1	20	54%	1967	28	19%	77%
1938	30	5	35	94%	1941	28	20%	74%
1939	8	12	21	56%	1970	28	21%	74%
1940	20	0	21	55%	1923	27	22%	74%
1941	28	0	28	74%	1997	26	23%	71%
1942	26	4	29	79%	1975	26	25%	71%
1943	21	5	26	69%	1985	26	26%	70%
1944	8	8	15	41%	1943	26	27%	69%
1945	22	1	23	62%	1968	26	28%	69%
1946	16	8	24	65%	1980	25	30%	68%
1947	16	3	20	53%	1957	25	31%	68%
1948	18	0	18	49%	1951	25	32%	68%
1949	7	4	11	29%	1928	25	33%	68%
1950	17	1	19	50%	1966	24	35%	65%
1951	23	3	25	68%	1946	24	36%	65%
1952	30	8	37	100%	1963	24	37%	64%
1953	16	6	22	59%	1973	23	38%	63%
1954	18	3	22	59%	2003	23	40%	62%
1955	11	6	17	45%	1945	23	41%	62%
1956	21	1	22	59%	1922	23	42%	62%
1957	18	8	25	68%	1935	22	43%	59%
1958	27	6	33	89%	1954	22	44%	59%
1959	16	5	21	56%	1956	22	46%	59%
1960	10	0	10	28%	1953	22	47%	59%
1961	14	2	16	43%	1964	22	48%	58%
1962	17	3	20	54%	1989	21	49%	57%
1963	20	4	24	64%	1927	21	51%	57%
1964	15	7	22	58%	1981	21	52%	56%
1965	18	3	21	56%	1939	21	53%	56%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	22	3	24	65%	1965	21	54%	56%
1967	27	2	28	77%	1959	21	56%	56%
1968	14	11	26	69%	1993	21	57%	55%
1969	30	3	32	86%	1940	21	58%	55%
1970	22	6	28	74%	1962	20	59%	54%
1971	14	4	18	49%	1936	20	60%	54%
1972	13	3	16	43%	1937	20	62%	54%
1973	21	2	23	63%	1947	20	63%	53%
1974	22	8	30	79%	1950	19	64%	50%
1975	18	8	26	71%	1986	19	65%	50%
1976	12	6	18	48%	1948	18	67%	49%
1977	3	2	5	14%	1971	18	68%	49%
1978	30	1	30	81%	1976	18	69%	48%
1979	16	0	17	44%	1955	17	70%	45%
1980	22	3	25	68%	1979	17	72%	44%
1981	12	9	21	56%	2002	16	73%	43%
1982	30	2	32	86%	1972	16	74%	43%
1983	30	5	35	94%	1961	16	75%	43%
1984	22	7	30	80%	1944	15	77%	41%
1985	20	6	26	70%	1929	14	78%	38%
1986	19	0	19	50%	1933	14	79%	38%
1987	7	6	14	37%	1987	14	80%	37%
1988	3	1	5	13%	1931	13	81%	35%
1989	21	0	21	57%	1994	13	83%	34%
1990	4	0	5	12%	1925	11	84%	31%
1991	7	1	8	21%	1926	11	85%	29%
1992	6	1	7	20%	1924	11	86%	29%
1993	19	1	21	55%	1949	11	88%	29%
1994	6	6	13	34%	1960	10	89%	28%
1995	30	1	31	83%	1930	9	90%	23%
1996	26	3	29	78%	1991	8	91%	21%
1997	19	8	26	71%	1992	7	93%	20%
1998	30	6	36	96%	2001	6	94%	16%
1999	22	11	33	88%	1977	5	95%	14%
2000	20	8	29	77%	1988	5	96%	13%
2001	6	0	6	16%	1932	5	98%	13%
2002	15	1	16	43%	1934	5	99%	13%
2003	23	0	23	62%	1990	5	100%	12%
Average	17	4	21	56%		21		56%
Maximum	30	12	37	100%		37		100%
Minimum	3	0	5	12%		5		12%

Table B-8. Antelope Valley-East Kern WA: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	67	0	67	53%	1999	126	0%	100%
1923	70	44	114	90%	1923	114	1%	90%
1924	18	13	31	24%	1968	111	2%	88%
1925	41	1	42	33%	1952	108	4%	85%
1926	35	2	37	29%	1984	104	5%	82%
1927	76	2	78	62%	1975	102	6%	80%
1928	72	14	86	68%	1983	100	7%	79%
1929	31	13	44	34%	1997	99	9%	78%
1930	28	2	30	24%	2000	98	10%	77%
1931	32	1	33	26%	1974	97	11%	76%
1932	17	1	18	14%	1939	96	12%	76%
1933	50	1	51	40%	1970	95	14%	75%
1934	15	3	18	14%	1998	95	15%	75%
1935	75	1	76	60%	1938	93	16%	73%
1936	77	1	78	62%	1957	93	17%	73%
1937	73	4	77	61%	1943	90	19%	71%
1938	81	11	93	73%	1946	88	20%	70%
1939	32	63	96	76%	1958	87	21%	69%
1940	73	1	74	59%	1969	87	22%	68%
1941	76	1	76	60%	1928	86	23%	68%
1942	71	12	83	66%	1963	85	25%	67%
1943	75	16	90	71%	1982	85	26%	67%
1944	30	25	54	43%	1981	84	27%	66%
1945	73	2	75	59%	1942	83	28%	66%
1946	60	29	88	70%	1995	83	30%	65%
1947	61	7	67	53%	1978	82	31%	65%
1948	67	0	68	54%	1996	82	32%	65%
1949	26	8	34	27%	1953	80	33%	63%
1950	68	2	70	55%	1967	80	35%	63%
1951	69	6	75	59%	1973	79	36%	63%
1952	81	26	108	85%	1966	79	37%	63%
1953	60	20	80	63%	1954	79	38%	62%
1954	72	7	79	62%	1985	79	40%	62%
1955	41	13	54	42%	1927	78	41%	62%
1956	75	1	76	60%	1936	78	42%	62%
1957	69	23	93	73%	1937	77	43%	61%
1958	75	12	87	69%	1993	77	44%	61%
1959	59	17	76	60%	1959	76	46%	60%
1960	39	1	40	32%	1941	76	47%	60%
1961	52	2	55	43%	1956	76	48%	60%
1962	65	6	70	56%	1980	76	49%	60%
1963	78	7	85	67%	1935	76	51%	60%
1964	56	15	71	56%	1965	75	52%	59%
1965	69	6	75	59%	1951	75	53%	59%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	74	6	79	63%	1945	75	54%	59%
1967	74	6	80	63%	1940	74	56%	59%
1968	54	57	111	88%	1986	73	57%	58%
1969	81	5	87	68%	1964	71	58%	56%
1970	74	21	95	75%	1962	70	59%	56%
1971	53	14	67	53%	1950	70	60%	55%
1972	48	6	54	43%	1948	68	62%	54%
1973	75	4	79	63%	1922	67	63%	53%
1974	72	24	97	76%	1947	67	64%	53%
1975	70	32	102	80%	1971	67	65%	53%
1976	46	13	58	46%	1979	62	67%	49%
1977	12	3	15	12%	2003	58	68%	46%
1978	81	1	82	65%	1976	58	69%	46%
1979	62	1	62	49%	2002	57	70%	45%
1980	70	6	76	60%	1961	55	72%	43%
1981	46	37	84	66%	1972	54	73%	43%
1982	81	3	85	67%	1944	54	74%	43%
1983	81	19	100	79%	1955	54	75%	42%
1984	70	34	104	82%	1933	51	77%	40%
1985	53	25	79	62%	1989	47	78%	37%
1986	72	1	73	58%	1929	44	79%	34%
1987	29	13	42	33%	1925	42	80%	33%
1988	13	2	15	12%	1987	42	81%	33%
1989	46	1	47	37%	1960	40	83%	32%
1990	17	1	18	14%	1994	38	84%	30%
1991	27	1	28	22%	1926	37	85%	29%
1992	24	2	25	20%	1949	34	86%	27%
1993	76	1	77	61%	1931	33	88%	26%
1994	24	14	38	30%	1924	31	89%	24%
1995	81	1	83	65%	1930	30	90%	24%
1996	72	10	82	65%	1991	28	91%	22%
1997	73	26	99	78%	1992	25	93%	20%
1998	81	13	95	75%	2001	22	94%	18%
1999	72	54	126	100%	1932	18	95%	14%
2000	66	32	98	77%	1990	18	96%	14%
2001	22	1	22	18%	1934	18	98%	14%
2002	56	1	57	45%	1988	15	99%	12%
2003	58	0	58	46%	1977	15	100%	12%
Average	58	11	69	54%		69		54%
Maximum	81	63	126	100%		126		100%
Minimum	12	0	15	12%		15		12%

Table B-9. Santa Clarita Valley WA: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	40	0	40	47%	1999	85	0%	100%
1923	44	33	77	91%	1923	77	1%	91%
1924	12	11	23	27%	2000	73	2%	86%
1925	27	0	28	33%	1968	72	4%	85%
1926	23	1	24	29%	1939	70	5%	82%
1927	48	1	49	57%	1985	69	6%	81%
1928	45	11	57	67%	1975	68	7%	81%
1929	20	11	31	37%	1984	66	9%	78%
1930	19	1	20	23%	1974	63	10%	74%
1931	30	1	31	37%	1952	62	11%	73%
1932	12	0	12	14%	1957	62	12%	73%
1933	33	0	33	39%	1997	61	14%	72%
1934	10	2	12	14%	1981	60	15%	70%
1935	46	0	46	55%	1998	58	16%	68%
1936	48	0	49	57%	1983	58	17%	68%
1937	46	2	48	57%	1970	57	19%	67%
1938	47	9	56	66%	1928	57	20%	67%
1939	22	48	70	82%	1938	56	21%	66%
1940	48	0	48	56%	1946	56	22%	65%
1941	44	0	44	52%	1943	55	23%	65%
1942	41	7	48	57%	1958	54	25%	63%
1943	46	9	55	65%	1963	53	26%	63%
1944	20	19	39	46%	1953	51	27%	60%
1945	45	1	45	53%	1954	50	28%	58%
1946	39	16	56	65%	1966	49	30%	58%
1947	40	4	44	52%	1964	49	31%	58%
1948	44	0	45	53%	1973	49	32%	58%
1949	17	5	22	26%	1969	49	33%	58%
1950	43	1	43	51%	1959	49	35%	57%
1951	41	5	46	54%	1936	49	36%	57%
1952	47	15	62	73%	1927	49	37%	57%
1953	40	11	51	60%	1937	48	38%	57%
1954	45	4	50	58%	1993	48	40%	57%
1955	27	11	38	45%	1942	48	41%	57%
1956	46	0	47	55%	1940	48	42%	56%
1957	43	18	62	73%	1996	47	43%	56%
1958	43	10	54	63%	1982	47	44%	56%
1959	39	10	49	57%	1978	47	46%	56%
1960	26	0	27	32%	1995	47	47%	56%
1961	34	1	36	42%	1965	47	48%	56%
1962	42	4	46	55%	1956	47	49%	55%
1963	49	5	53	63%	1989	47	51%	55%
1964	37	12	49	58%	1935	46	52%	55%
1965	43	4	47	56%	1962	46	53%	55%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	45	5	49	58%	1967	46	54%	54%
1967	43	3	46	54%	1980	46	56%	54%
1968	35	37	72	85%	1951	46	57%	54%
1969	45	3	49	58%	1986	46	58%	54%
1970	45	12	57	67%	1945	45	59%	53%
1971	35	8	43	50%	1948	45	60%	53%
1972	32	4	36	42%	1947	44	62%	52%
1973	46	3	49	58%	2003	44	63%	52%
1974	44	19	63	74%	1941	44	64%	52%
1975	44	25	68	81%	1950	43	65%	51%
1976	30	10	41	48%	1971	43	67%	50%
1977	8	1	9	11%	1976	41	68%	48%
1978	47	0	47	56%	1979	41	69%	48%
1979	40	0	41	48%	1922	40	70%	47%
1980	42	4	46	54%	1944	39	72%	46%
1981	31	29	60	70%	1955	38	73%	45%
1982	46	2	47	56%	2002	36	74%	43%
1983	47	11	58	68%	1972	36	75%	42%
1984	42	25	66	78%	1961	36	77%	42%
1985	49	19	69	81%	1933	33	78%	39%
1986	45	0	46	54%	1929	31	79%	37%
1987	19	11	30	35%	1931	31	80%	37%
1988	9	1	10	11%	1987	30	81%	35%
1989	46	0	47	55%	1925	28	83%	33%
1990	11	0	12	14%	1994	27	84%	32%
1991	18	0	19	22%	1960	27	85%	32%
1992	16	1	17	20%	1926	24	86%	29%
1993	47	1	48	57%	1924	23	88%	27%
1994	16	11	27	32%	1949	22	89%	26%
1995	46	1	47	56%	1930	20	90%	23%
1996	42	6	47	56%	1991	19	91%	22%
1997	46	15	61	72%	1992	17	93%	20%
1998	47	11	58	68%	2001	15	94%	18%
1999	44	41	85	100%	1990	12	95%	14%
2000	48	25	73	86%	1934	12	96%	14%
2001	15	0	15	18%	1932	12	98%	14%
2002	36	1	36	43%	1988	10	99%	11%
2003	44	0	44	52%	1977	9	100%	11%
Average	37	8	44	52%		44		52%
Maximum	49	48	85	100%		85		100%
Minimum	8	0	9	11%		9		11%

Table B-10. Coachella Valley WD: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	60	0	60	47%	1999	126	0%	100%
1923	70	47	116	92%	1985	118	1%	93%
1924	19	9	28	22%	1923	116	2%	92%
1925	41	0	41	33%	1968	115	4%	91%
1926	35	0	35	28%	2000	109	5%	86%
1927	76	0	76	60%	1939	102	6%	81%
1928	72	10	82	65%	1975	101	7%	81%
1929	31	10	40	32%	1997	98	9%	78%
1930	28	0	28	22%	1952	94	10%	75%
1931	46	0	46	36%	1957	90	11%	72%
1932	18	0	18	14%	1974	90	12%	72%
1933	49	0	49	39%	1970	90	14%	71%
1934	15	2	18	14%	1984	88	15%	70%
1935	72	0	72	57%	1983	87	16%	69%
1936	77	0	77	61%	1943	87	17%	69%
1937	72	4	77	61%	1946	86	19%	68%
1938	69	8	77	61%	1981	85	20%	68%
1939	33	69	102	81%	1963	83	21%	66%
1940	77	0	77	61%	1928	82	22%	65%
1941	64	0	65	52%	1998	79	23%	63%
1942	60	12	72	57%	1953	78	25%	62%
1943	72	15	87	69%	1936	77	26%	61%
1944	30	23	53	42%	1938	77	27%	61%
1945	69	0	69	55%	1954	77	28%	61%
1946	58	28	86	68%	1937	77	30%	61%
1947	59	5	64	51%	1940	77	31%	61%
1948	66	0	66	53%	1927	76	32%	60%
1949	26	6	32	26%	1993	75	33%	60%
1950	68	0	68	54%	1973	75	35%	60%
1951	63	4	67	53%	1959	74	36%	59%
1952	69	25	94	75%	1966	74	37%	58%
1953	59	19	78	62%	2003	73	38%	58%
1954	72	5	77	61%	1965	73	40%	58%
1955	41	9	51	40%	1969	73	41%	58%
1956	73	0	73	58%	1958	73	42%	58%
1957	69	22	90	72%	1956	73	43%	58%
1958	63	9	73	58%	1986	72	44%	58%
1959	58	16	74	59%	1942	72	46%	57%
1960	40	1	41	32%	1935	72	47%	57%
1961	51	0	51	41%	1996	71	48%	56%
1962	63	5	68	54%	1982	70	49%	55%
1963	77	6	83	66%	1978	69	51%	55%
1964	55	11	66	52%	1995	69	52%	55%
1965	68	5	73	58%	1945	69	53%	55%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	69	4	74	58%	1980	69	54%	54%
1967	63	6	68	54%	1967	68	56%	54%
1968	52	62	115	91%	1950	68	57%	54%
1969	69	4	73	58%	1962	68	58%	54%
1970	70	20	90	71%	1951	67	59%	53%
1971	52	13	65	51%	1948	66	60%	53%
1972	48	5	52	41%	1964	66	62%	52%
1973	72	3	75	60%	1941	65	63%	52%
1974	67	23	90	72%	1971	65	64%	51%
1975	70	32	101	81%	1947	64	65%	51%
1976	46	9	55	44%	1989	61	67%	48%
1977	12	0	12	10%	1979	60	68%	48%
1978	69	0	69	55%	1922	60	69%	47%
1979	60	0	60	48%	1976	55	70%	44%
1980	64	5	69	54%	2002	54	72%	43%
1981	47	39	85	68%	1944	53	73%	42%
1982	69	1	70	55%	1972	52	74%	41%
1983	69	18	87	69%	1961	51	75%	41%
1984	63	25	88	70%	1955	51	77%	40%
1985	78	40	118	93%	1933	49	78%	39%
1986	72	0	72	58%	1931	46	79%	36%
1987	29	10	39	31%	1925	41	80%	33%
1988	13	0	13	11%	1960	41	81%	32%
1989	61	0	61	48%	1929	40	83%	32%
1990	17	0	18	14%	1987	39	84%	31%
1991	28	0	28	22%	1926	35	85%	28%
1992	24	0	24	19%	1994	34	86%	27%
1993	75	0	75	60%	1949	32	88%	26%
1994	24	10	34	27%	1930	28	89%	22%
1995	69	0	69	55%	1924	28	90%	22%
1996	61	10	71	56%	1991	28	91%	22%
1997	73	25	98	78%	1992	24	93%	19%
1998	69	10	79	63%	2001	23	94%	18%
1999	67	59	126	100%	1990	18	95%	14%
2000	77	32	109	86%	1934	18	96%	14%
2001	22	0	23	18%	1932	18	98%	14%
2002	54	0	54	43%	1988	13	99%	11%
2003	73	0	73	58%	1977	12	100%	10%
Average	56	10	66	52%		66		52%
Maximum	78	69	126	100%		126		100%
Minimum	12	0	12	10%		12		10%

Table B-11. County of Kings: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	7	0	7	77%	1938	9	0%	100%
1923	5	0	5	57%	1952	9	0%	100%
1924	1	0	1	13%	1969	9	0%	100%
1925	3	0	3	30%	1978	9	0%	100%
1926	2	0	2	25%	1982	9	0%	100%
1927	6	0	6	62%	1983	9	0%	100%
1928	5	0	5	59%	1995	9	0%	100%
1929	2	0	2	22%	1998	9	0%	100%
1930	2	0	2	20%	1941	9	10%	93%
1931	2	0	2	22%	1958	9	11%	92%
1932	1	0	1	13%	1967	8	12%	91%
1933	4	0	4	38%	1996	8	14%	88%
1934	1	0	1	11%	1942	8	15%	87%
1935	6	0	6	69%	1922	7	16%	77%
1936	6	0	6	63%	1951	7	17%	75%
1937	6	0	6	59%	1984	7	19%	74%
1938	9	0	9	100%	1980	7	20%	74%
1939	2	0	2	24%	1999	7	21%	72%
1940	5	0	5	58%	1974	7	22%	72%
1941	9	0	9	93%	1945	7	23%	71%
1942	8	0	8	87%	1966	7	25%	71%
1943	6	0	6	69%	1970	7	26%	70%
1944	2	0	2	22%	1935	6	27%	69%
1945	7	0	7	71%	1943	6	28%	69%
1946	4	0	4	46%	1973	6	30%	69%
1947	4	0	4	47%	1956	6	31%	68%
1948	5	0	5	52%	2000	6	32%	65%
1949	2	0	2	19%	1985	6	33%	64%
1950	5	0	5	56%	1963	6	35%	64%
1951	7	0	7	75%	1936	6	36%	63%
1952	9	0	9	100%	1927	6	37%	62%
1953	4	0	4	46%	1993	6	38%	62%
1954	5	0	5	59%	1997	6	40%	60%
1955	3	0	3	30%	1937	6	41%	59%
1956	6	0	6	68%	1928	5	42%	59%
1957	5	0	5	56%	1986	5	43%	59%
1958	9	0	9	92%	1954	5	44%	59%
1959	4	0	4	46%	1940	5	46%	58%
1960	3	0	3	29%	1923	5	47%	57%
1961	4	0	4	40%	1975	5	48%	57%
1962	5	0	5	50%	1957	5	49%	56%
1963	6	0	6	64%	1965	5	51%	56%
1964	4	0	4	43%	1950	5	52%	56%
1965	5	0	5	56%	1948	5	53%	52%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	7	0	7	71%	1989	5	54%	52%
1967	8	0	8	91%	1962	5	56%	50%
1968	4	0	4	41%	1979	4	57%	47%
1969	9	0	9	100%	1947	4	58%	47%
1970	7	0	7	70%	1953	4	59%	46%
1971	4	0	4	41%	1946	4	60%	46%
1972	3	0	3	37%	1959	4	62%	46%
1973	6	0	6	69%	1964	4	63%	43%
1974	7	0	7	72%	2003	4	64%	42%
1975	5	0	5	57%	1968	4	65%	41%
1976	3	0	3	33%	1971	4	67%	41%
1977	1	0	1	9%	1961	4	68%	40%
1978	9	0	9	100%	1933	4	69%	38%
1979	4	0	4	47%	1972	3	70%	37%
1980	7	0	7	74%	2002	3	72%	35%
1981	3	0	3	34%	1981	3	73%	34%
1982	9	0	9	100%	1976	3	74%	33%
1983	9	0	9	100%	1925	3	75%	30%
1984	7	0	7	74%	1955	3	77%	30%
1985	6	0	6	64%	1960	3	78%	29%
1986	5	0	5	59%	1926	2	79%	25%
1987	2	0	2	21%	1939	2	80%	24%
1988	1	0	1	10%	1931	2	81%	22%
1989	5	0	5	52%	1929	2	83%	22%
1990	1	0	1	13%	1944	2	84%	22%
1991	2	0	2	20%	1987	2	85%	21%
1992	2	0	2	17%	1930	2	86%	20%
1993	6	0	6	62%	1991	2	88%	20%
1994	2	0	2	18%	1949	2	89%	19%
1995	9	0	9	100%	1994	2	90%	18%
1996	8	0	8	88%	1992	2	91%	17%
1997	6	0	6	60%	2001	1	93%	16%
1998	9	0	9	100%	1924	1	94%	13%
1999	7	0	7	72%	1932	1	95%	13%
2000	6	0	6	65%	1990	1	96%	13%
2001	1	0	1	16%	1934	1	98%	11%
2002	3	0	3	35%	1988	1	99%	10%
2003	4	0	4	42%	1977	1	100%	9%
Average	5	0	5	53%		5		53%
Maximum	9	0	9	100%		9		100%
Minimum	1	0	1	9%		1		9%

Table B-12. Crestline-Lake Arrowhead WA: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	2	0	2	48%	1999	5	0%	100%
1923	2	2	5	90%	1968	5	1%	92%
1924	1	1	2	31%	1923	5	2%	90%
1925	2	0	2	32%	2000	4	4%	86%
1926	1	0	2	30%	1939	4	5%	81%
1927	3	0	3	57%	1975	4	6%	81%
1928	3	1	3	69%	1984	4	7%	79%
1929	1	1	2	40%	1985	4	9%	79%
1930	1	0	1	24%	1952	4	10%	79%
1931	2	0	2	36%	1974	4	11%	78%
1932	1	0	1	13%	1998	4	12%	76%
1933	2	0	2	39%	1957	4	14%	74%
1934	1	0	1	13%	1938	4	15%	73%
1935	3	0	3	54%	1983	4	16%	73%
1936	3	0	3	54%	1997	4	17%	72%
1937	3	0	3	54%	1981	4	19%	70%
1938	3	1	4	73%	1958	4	20%	70%
1939	1	3	4	81%	1928	3	21%	69%
1940	3	0	3	55%	1970	3	22%	68%
1941	3	0	3	54%	1946	3	23%	67%
1942	3	0	3	60%	1943	3	25%	65%
1943	3	1	3	65%	1969	3	26%	64%
1944	1	1	2	49%	1963	3	27%	64%
1945	3	0	3	54%	1982	3	28%	63%
1946	2	1	3	67%	1964	3	30%	61%
1947	2	0	3	54%	1953	3	31%	60%
1948	3	0	3	50%	1995	3	32%	60%
1949	1	1	1	29%	1942	3	33%	60%
1950	2	0	3	50%	1996	3	35%	59%
1951	2	0	3	56%	1966	3	36%	59%
1952	3	1	4	79%	1978	3	37%	59%
1953	2	1	3	60%	1954	3	38%	59%
1954	3	0	3	59%	1973	3	40%	58%
1955	1	1	2	47%	1959	3	41%	57%
1956	3	0	3	55%	1980	3	42%	57%
1957	2	1	4	74%	1967	3	43%	57%
1958	3	1	4	70%	1927	3	44%	57%
1959	2	1	3	57%	1951	3	46%	56%
1960	1	0	1	29%	1965	3	47%	56%
1961	2	0	2	43%	1962	3	48%	55%
1962	2	0	3	55%	1989	3	49%	55%
1963	3	0	3	64%	1993	3	51%	55%
1964	2	1	3	61%	1940	3	52%	55%
1965	2	0	3	56%	1956	3	53%	55%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	3	0	3	59%	1941	3	54%	54%
1967	3	0	3	57%	1936	3	56%	54%
1968	2	3	5	92%	1937	3	57%	54%
1969	3	0	3	64%	1945	3	58%	54%
1970	3	1	3	68%	1935	3	59%	54%
1971	2	1	3	50%	1947	3	60%	54%
1972	2	0	2	44%	1986	3	62%	51%
1973	3	0	3	58%	1976	3	63%	51%
1974	3	1	4	78%	1950	3	64%	50%
1975	2	2	4	81%	1948	3	65%	50%
1976	2	1	3	51%	1971	3	67%	50%
1977	0	0	1	14%	2003	3	68%	50%
1978	3	0	3	59%	1944	2	69%	49%
1979	2	0	2	46%	1922	2	70%	48%
1980	2	0	3	57%	1955	2	72%	47%
1981	2	2	4	70%	1979	2	73%	46%
1982	3	0	3	63%	2002	2	74%	44%
1983	3	1	4	73%	1972	2	75%	44%
1984	2	2	4	79%	1961	2	77%	43%
1985	3	1	4	79%	1929	2	78%	40%
1986	3	0	3	51%	1987	2	79%	39%
1987	1	1	2	39%	1933	2	80%	39%
1988	0	0	1	13%	1994	2	81%	36%
1989	3	0	3	55%	1931	2	83%	36%
1990	1	0	1	13%	1925	2	84%	32%
1991	1	0	1	22%	1924	2	85%	31%
1992	1	0	1	20%	1926	2	86%	30%
1993	3	0	3	55%	1960	1	88%	29%
1994	1	1	2	36%	1949	1	89%	29%
1995	3	0	3	60%	1930	1	90%	24%
1996	3	0	3	59%	1991	1	91%	22%
1997	3	1	4	72%	1992	1	93%	20%
1998	3	1	4	76%	2001	1	94%	16%
1999	3	2	5	100%	1977	1	95%	14%
2000	3	2	4	86%	1932	1	96%	13%
2001	1	0	1	16%	1934	1	98%	13%
2002	2	0	2	44%	1990	1	99%	13%
2003	2	0	3	50%	1988	1	100%	13%
Average	2	1	3	54%		3		54%
Maximum	3	3	5	100%		5		100%
Minimum	0	0	1	13%		1		13%

Table B-13. Desert WA: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	24	0	24	47%	1999	51	0%	100%
1923	28	19	47	92%	2003	50	1%	99%
1924	7	4	11	22%	1985	47	2%	93%
1925	17	0	17	33%	1923	47	4%	92%
1926	14	0	14	28%	1968	46	5%	90%
1927	31	0	31	60%	2000	44	6%	86%
1928	29	4	33	65%	1939	41	7%	80%
1929	12	4	16	32%	1975	41	9%	80%
1930	11	0	11	22%	1984	40	10%	79%
1931	18	0	18	36%	1997	39	11%	77%
1932	7	0	7	14%	1952	38	12%	75%
1933	20	0	20	38%	1957	36	14%	72%
1934	6	1	7	14%	1974	36	15%	71%
1935	29	0	29	57%	1970	36	16%	71%
1936	31	0	31	61%	1983	35	17%	69%
1937	29	2	31	61%	1943	35	19%	68%
1938	28	3	31	61%	1981	34	20%	67%
1939	13	28	41	80%	1946	34	21%	67%
1940	31	0	31	61%	1963	34	22%	66%
1941	26	0	26	51%	1928	33	23%	65%
1942	24	5	29	57%	1998	32	25%	62%
1943	29	6	35	68%	1954	31	26%	62%
1944	12	9	21	42%	1936	31	27%	61%
1945	28	0	28	54%	1938	31	28%	61%
1946	23	11	34	67%	1953	31	30%	61%
1947	23	3	26	51%	1937	31	31%	61%
1948	26	0	26	51%	1940	31	32%	61%
1949	11	3	13	26%	1927	31	33%	60%
1950	27	0	27	54%	1973	30	35%	60%
1951	25	2	27	53%	1993	30	36%	60%
1952	28	10	38	75%	1965	30	37%	59%
1953	23	8	31	61%	1969	30	38%	59%
1954	29	3	31	62%	1966	30	40%	58%
1955	17	4	20	40%	1959	29	41%	58%
1956	29	0	29	57%	1956	29	42%	57%
1957	28	9	36	72%	1958	29	43%	57%
1958	26	4	29	57%	1986	29	44%	57%
1959	23	7	29	58%	1942	29	46%	57%
1960	16	0	16	32%	1935	29	47%	57%
1961	20	0	20	40%	1996	29	48%	56%
1962	25	2	27	53%	1982	28	49%	55%
1963	31	3	34	66%	1980	28	51%	55%
1964	22	4	26	51%	1978	28	52%	55%
1965	28	2	30	59%	1995	28	53%	55%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	28	2	30	58%	1945	28	54%	54%
1967	25	2	28	54%	1967	28	56%	54%
1968	21	25	46	90%	1950	27	57%	54%
1969	28	2	30	59%	1962	27	58%	53%
1970	28	8	36	71%	1951	27	59%	53%
1971	20	5	26	50%	1948	26	60%	51%
1972	19	2	21	41%	1941	26	62%	51%
1973	29	1	30	60%	1964	26	63%	51%
1974	27	9	36	71%	1947	26	64%	51%
1975	28	13	41	80%	1971	26	65%	50%
1976	19	4	22	44%	1989	24	67%	47%
1977	5	0	5	10%	1922	24	68%	47%
1978	28	0	28	55%	1979	24	69%	47%
1979	24	0	24	47%	1976	22	70%	44%
1980	26	2	28	55%	2002	22	72%	42%
1981	19	16	34	67%	1944	21	73%	42%
1982	28	0	28	55%	1972	21	74%	41%
1983	28	7	35	69%	1955	20	75%	40%
1984	26	15	40	79%	1961	20	77%	40%
1985	31	16	47	93%	1933	20	78%	38%
1986	29	0	29	57%	1931	18	79%	36%
1987	12	4	16	31%	1925	17	80%	33%
1988	5	0	5	10%	1960	16	81%	32%
1989	24	0	24	47%	1929	16	83%	32%
1990	7	0	7	14%	1987	16	84%	31%
1991	11	0	11	22%	1926	14	85%	28%
1992	10	0	10	19%	1994	14	86%	27%
1993	30	0	30	60%	1949	13	88%	26%
1994	10	4	14	27%	1930	11	89%	22%
1995	28	0	28	55%	1924	11	90%	22%
1996	25	4	29	56%	1991	11	91%	22%
1997	29	10	39	77%	1992	10	93%	19%
1998	28	4	32	62%	2001	9	94%	18%
1999	27	24	51	100%	1990	7	95%	14%
2000	31	13	44	86%	1934	7	96%	14%
2001	9	0	9	18%	1932	7	98%	14%
2002	22	0	22	42%	1988	5	99%	10%
2003	50	0	50	99%	1977	5	100%	10%
Average	23	4	27	53%		27		53%
Maximum	50	28	51	100%		51		100%
Minimum	5	0	5	10%		5		10%

Table B-14. Dudley Ridge WD: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	26	0	26	64%	1952	42	0%	100%
1923	22	8	30	72%	1983	40	1%	95%
1924	6	4	10	24%	1998	38	2%	92%
1925	13	0	13	31%	1938	37	4%	90%
1926	11	1	12	28%	1969	36	5%	86%
1927	24	1	24	59%	1999	36	6%	86%
1928	22	5	27	65%	1958	35	7%	84%
1929	9	4	14	33%	1982	35	9%	84%
1930	9	1	9	22%	1995	34	10%	83%
1931	13	1	13	32%	1978	34	11%	82%
1932	5	0	6	13%	1942	33	12%	80%
1933	15	0	16	37%	1996	33	14%	79%
1934	5	1	5	13%	1984	33	15%	79%
1935	25	0	26	62%	1967	32	16%	78%
1936	24	0	24	58%	1970	32	17%	77%
1937	23	1	24	58%	1974	32	19%	76%
1938	34	4	37	90%	1941	32	20%	76%
1939	10	12	22	52%	2000	31	21%	75%
1940	23	0	24	57%	1997	31	22%	74%
1941	31	0	32	76%	1923	30	23%	72%
1942	29	4	33	80%	1943	30	25%	72%
1943	25	5	30	72%	1985	29	26%	71%
1944	9	6	15	36%	1980	29	27%	69%
1945	26	1	26	63%	1975	29	28%	69%
1946	18	7	25	59%	1951	28	30%	67%
1947	18	3	21	51%	1966	27	31%	66%
1948	20	0	20	49%	1963	27	32%	66%
1949	8	3	11	27%	1957	27	33%	66%
1950	21	1	22	52%	1928	27	35%	65%
1951	26	2	28	67%	1973	27	36%	65%
1952	34	8	42	100%	1968	27	37%	64%
1953	18	6	24	59%	1922	26	38%	64%
1954	22	3	25	61%	1945	26	40%	63%
1955	13	4	17	40%	1935	26	41%	62%
1956	25	0	25	61%	1956	25	42%	61%
1957	21	6	27	66%	1954	25	43%	61%
1958	31	4	35	84%	1946	25	44%	59%
1959	18	5	23	56%	1927	24	46%	59%
1960	12	0	12	30%	1953	24	47%	59%
1961	16	1	17	40%	1936	24	48%	58%
1962	19	2	22	53%	1993	24	49%	58%
1963	24	3	27	66%	1937	24	51%	58%
1964	17	5	22	52%	1965	24	52%	58%
1965	21	3	24	58%	1940	24	53%	57%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	26	2	27	66%	1959	23	54%	56%
1967	31	2	32	78%	1986	23	56%	54%
1968	16	10	27	64%	1962	22	57%	53%
1969	34	2	36	86%	1981	22	58%	52%
1970	25	7	32	77%	1950	22	59%	52%
1971	16	4	20	49%	1964	22	60%	52%
1972	15	3	17	41%	1939	22	62%	52%
1973	25	2	27	65%	1947	21	63%	51%
1974	26	6	32	76%	1948	20	64%	49%
1975	22	7	29	69%	1971	20	65%	49%
1976	14	4	18	44%	1989	20	67%	47%
1977	4	1	5	11%	1979	19	68%	45%
1978	34	0	34	82%	1976	18	69%	44%
1979	19	0	19	45%	2003	18	70%	44%
1980	26	2	29	69%	1972	17	72%	41%
1981	14	8	22	52%	1955	17	73%	40%
1982	34	1	35	84%	1961	17	74%	40%
1983	34	6	40	95%	1933	16	75%	37%
1984	26	7	33	79%	1944	15	77%	36%
1985	24	5	29	71%	1929	14	78%	33%
1986	22	0	23	54%	2002	14	79%	33%
1987	9	4	13	32%	1931	13	80%	32%
1988	4	1	5	11%	1987	13	81%	32%
1989	19	0	20	47%	1925	13	83%	31%
1990	5	0	5	13%	1960	12	84%	30%
1991	8	0	9	21%	1994	12	85%	29%
1992	7	1	8	19%	1926	12	86%	28%
1993	24	1	24	58%	1949	11	88%	27%
1994	7	4	12	29%	1924	10	89%	24%
1995	34	1	34	83%	1930	9	90%	22%
1996	30	3	33	79%	1991	9	91%	21%
1997	23	8	31	74%	1992	8	93%	19%
1998	34	4	38	92%	2001	7	94%	17%
1999	26	10	36	86%	1932	6	95%	13%
2000	24	7	31	75%	1990	5	96%	13%
2001	7	0	7	17%	1934	5	98%	13%
2002	13	1	14	33%	1977	5	99%	11%
2003	18	0	18	44%	1988	5	100%	11%
Average	20	3	23	55%		23		55%
Maximum	34	12	42	100%		42		100%
Minimum	4	0	5	11%		5		11%

Table B-15. Empire West Side ID: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	2	0	2	68%	1983	3	0%	100%
1923	2	0	2	63%	1952	3	1%	96%
1924	0	0	0	17%	1998	3	2%	91%
1925	1	0	1	30%	1938	3	4%	91%
1926	1	0	1	26%	1969	3	5%	89%
1927	2	0	2	59%	1982	3	6%	89%
1928	2	0	2	60%	1995	3	7%	88%
1929	1	0	1	26%	1978	3	9%	88%
1930	1	0	1	21%	1942	3	10%	85%
1931	1	0	1	33%	1996	3	11%	85%
1932	0	0	0	13%	1958	3	12%	84%
1933	1	0	1	37%	1967	2	14%	84%
1934	0	0	0	12%	1941	2	15%	82%
1935	2	0	2	64%	1970	2	16%	77%
1936	2	0	2	60%	1999	2	17%	76%
1937	2	0	2	59%	1984	2	19%	76%
1938	3	0	3	91%	1943	2	20%	74%
1939	1	0	1	36%	1974	2	21%	71%
1940	2	0	2	60%	1951	2	22%	69%
1941	2	0	2	82%	1985	2	23%	69%
1942	2	0	3	85%	1980	2	25%	69%
1943	2	0	2	74%	1922	2	26%	68%
1944	1	0	1	27%	2000	2	27%	68%
1945	2	0	2	66%	1997	2	28%	68%
1946	1	0	2	51%	1966	2	30%	66%
1947	1	0	1	47%	1945	2	31%	66%
1948	1	0	2	50%	1973	2	32%	65%
1949	1	0	1	21%	1935	2	33%	64%
1950	2	0	2	53%	1956	2	35%	63%
1951	2	0	2	69%	1923	2	36%	63%
1952	3	0	3	96%	1963	2	37%	63%
1953	1	0	2	57%	1975	2	38%	61%
1954	2	0	2	58%	1940	2	40%	60%
1955	1	0	1	33%	1936	2	41%	60%
1956	2	0	2	63%	1928	2	42%	60%
1957	2	0	2	59%	1937	2	43%	59%
1958	2	0	3	84%	1989	2	44%	59%
1959	1	0	2	56%	1927	2	46%	59%
1960	1	0	1	29%	1957	2	47%	59%
1961	1	0	1	39%	1993	2	48%	59%
1962	1	0	1	50%	1954	2	49%	58%
1963	2	0	2	63%	1953	2	51%	57%
1964	1	0	1	46%	1986	2	52%	56%
1965	2	0	2	55%	1959	2	53%	56%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	2	0	2	66%	1965	2	54%	55%
1967	2	0	2	84%	1950	2	56%	53%
1968	1	0	2	51%	1968	2	57%	51%
1969	3	0	3	89%	1946	2	58%	51%
1970	2	0	2	77%	1948	2	59%	50%
1971	1	0	1	46%	1962	1	60%	50%
1972	1	0	1	38%	1947	1	62%	47%
1973	2	0	2	65%	1979	1	63%	46%
1974	2	0	2	71%	1971	1	64%	46%
1975	2	0	2	61%	1964	1	65%	46%
1976	1	0	1	36%	1981	1	67%	42%
1977	0	0	0	9%	1961	1	68%	39%
1978	3	0	3	88%	2002	1	69%	39%
1979	1	0	1	46%	2003	1	70%	38%
1980	2	0	2	69%	1972	1	72%	38%
1981	1	0	1	42%	1933	1	73%	37%
1982	3	0	3	89%	1976	1	74%	36%
1983	3	0	3	100%	1939	1	75%	36%
1984	2	0	2	76%	1931	1	77%	33%
1985	2	0	2	69%	1955	1	78%	33%
1986	2	0	2	56%	1925	1	79%	30%
1987	1	0	1	24%	1960	1	80%	29%
1988	0	0	0	10%	1944	1	81%	27%
1989	2	0	2	59%	1929	1	83%	26%
1990	0	0	0	13%	1926	1	84%	26%
1991	1	0	1	20%	1987	1	85%	24%
1992	1	0	1	18%	1949	1	86%	21%
1993	2	0	2	59%	1994	1	88%	21%
1994	1	0	1	21%	1930	1	89%	21%
1995	3	0	3	88%	1991	1	90%	20%
1996	2	0	3	85%	1992	1	91%	18%
1997	2	0	2	68%	1924	0	93%	17%
1998	3	0	3	91%	2001	0	94%	16%
1999	2	0	2	76%	1932	0	95%	13%
2000	2	0	2	68%	1990	0	96%	13%
2001	0	0	0	16%	1934	0	98%	12%
2002	1	0	1	39%	1988	0	99%	10%
2003	1	0	1	38%	1977	0	100%	9%
Average	1	0	2	53%		2		53%
Maximum	3	0	3	100%		3		100%
Minimum	0	0	0	9%		0		9%

Table B-16. Kern County WA-AG: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	595	0	595	70%	1983	846	0%	100%
1923	470	56	526	62%	1952	816	1%	97%
1924	113	15	128	15%	1998	782	2%	92%
1925	252	1	252	30%	1938	780	4%	92%
1926	213	2	215	25%	1969	771	5%	91%
1927	510	1	511	60%	1982	769	6%	91%
1928	485	16	501	59%	1995	768	7%	91%
1929	189	15	204	24%	1978	742	9%	88%
1930	172	1	173	21%	1942	740	10%	87%
1931	233	1	234	28%	1996	736	11%	87%
1932	107	2	109	13%	1967	729	12%	86%
1933	318	1	319	38%	1958	718	14%	85%
1934	93	4	98	12%	1941	718	15%	85%
1935	555	1	555	66%	1984	650	16%	77%
1936	518	3	521	62%	1970	642	17%	76%
1937	488	16	504	60%	1999	640	19%	76%
1938	767	13	780	92%	1943	623	20%	74%
1939	199	81	280	33%	1974	599	21%	71%
1940	455	1	456	54%	1922	595	22%	70%
1941	715	3	718	85%	1951	592	23%	70%
1942	668	72	740	87%	1980	587	25%	69%
1943	552	71	623	74%	1966	571	26%	67%
1944	182	30	213	25%	1945	568	27%	67%
1945	567	1	568	67%	1997	563	28%	67%
1946	382	37	419	50%	1973	556	30%	66%
1947	385	6	391	46%	1935	555	31%	66%
1948	433	3	436	52%	1956	549	32%	65%
1949	160	7	167	20%	1963	531	33%	63%
1950	457	1	458	54%	1923	526	35%	62%
1951	586	6	592	70%	1936	521	36%	62%
1952	767	50	816	97%	2000	519	37%	61%
1953	386	81	467	55%	1927	511	38%	60%
1954	483	6	489	58%	1993	508	40%	60%
1955	251	15	266	31%	1975	508	41%	60%
1956	549	1	549	65%	1937	504	42%	60%
1957	464	29	492	58%	1928	501	43%	59%
1958	704	15	718	85%	1957	492	44%	58%
1959	379	75	453	54%	1954	489	46%	58%
1960	243	3	247	29%	1986	487	47%	58%
1961	336	1	337	40%	1953	467	48%	55%
1962	414	5	419	50%	1965	465	49%	55%
1963	524	7	531	63%	1950	458	51%	54%
1964	360	17	377	45%	1940	456	52%	54%
1965	459	6	465	55%	1959	453	53%	54%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	565	6	571	67%	1948	436	54%	52%
1967	694	35	729	86%	1962	419	56%	50%
1968	344	74	418	49%	1946	419	57%	50%
1969	767	5	771	91%	1968	418	58%	49%
1970	560	81	642	76%	1985	404	59%	48%
1971	340	35	375	44%	1979	398	60%	47%
1972	309	5	314	37%	1947	391	62%	46%
1973	552	4	556	66%	1964	377	63%	45%
1974	569	30	599	71%	1971	375	64%	44%
1975	468	40	508	60%	1989	348	65%	41%
1976	281	15	296	35%	2002	344	67%	41%
1977	73	2	75	9%	1961	337	68%	40%
1978	741	0	742	88%	1981	335	69%	40%
1979	395	3	398	47%	2003	322	70%	38%
1980	582	5	587	69%	1933	319	72%	38%
1981	287	47	335	40%	1972	314	73%	37%
1982	767	2	769	91%	1976	296	74%	35%
1983	767	79	846	100%	1939	280	75%	33%
1984	583	67	650	77%	1955	266	77%	31%
1985	356	48	404	48%	1925	252	78%	30%
1986	485	3	487	58%	1960	247	79%	29%
1987	178	15	193	23%	1931	234	80%	28%
1988	81	1	82	10%	1926	215	81%	25%
1989	348	0	348	41%	1944	213	83%	25%
1990	106	3	109	13%	1929	204	84%	24%
1991	169	1	169	20%	1987	193	85%	23%
1992	146	1	147	17%	1930	173	86%	21%
1993	507	1	508	60%	1991	169	88%	20%
1994	148	16	164	19%	1949	167	89%	20%
1995	767	1	768	91%	1994	164	90%	19%
1996	676	61	736	87%	1992	147	91%	17%
1997	492	72	563	67%	2001	137	93%	16%
1998	767	15	782	92%	1924	128	94%	15%
1999	569	70	640	76%	1932	109	95%	13%
2000	479	40	519	61%	1990	109	96%	13%
2001	134	3	137	16%	1934	98	98%	12%
2002	344	1	344	41%	1988	82	99%	10%
2003	319	3	322	38%	1977	75	100%	9%
Average	425	20	445	53%		445		53%
Maximum	767	81	846	100%		846		100%
Minimum	73	0	75	9%		75		9%

Table B-17. Kern County WA-MI: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	103	0	103	77%	1938	135	0%	100%
1923	77	0	77	57%	1969	135	0%	100%
1924	18	0	18	13%	1983	135	0%	100%
1925	40	0	40	30%	1995	135	0%	100%
1926	34	0	34	25%	1952	135	0%	100%
1927	83	0	83	62%	1978	135	0%	100%
1928	79	0	79	59%	1982	135	0%	100%
1929	30	0	30	22%	1998	135	0%	100%
1930	28	0	28	20%	1941	125	10%	93%
1931	37	0	37	27%	1958	124	11%	92%
1932	17	0	17	13%	1967	122	12%	91%
1933	51	0	51	38%	1996	119	14%	88%
1934	15	0	15	11%	1942	117	15%	87%
1935	93	0	93	69%	1922	103	16%	77%
1936	85	0	85	63%	1951	101	17%	75%
1937	80	0	80	59%	1984	100	19%	74%
1938	135	0	135	100%	1980	100	20%	74%
1939	32	0	32	24%	1999	97	21%	72%
1940	83	0	83	62%	1974	97	22%	72%
1941	125	0	125	93%	1945	96	23%	71%
1942	117	0	117	87%	1966	95	25%	71%
1943	92	0	92	69%	1970	94	26%	70%
1944	29	0	29	22%	1935	93	27%	69%
1945	96	0	96	71%	1943	92	28%	69%
1946	62	0	62	46%	1973	92	30%	69%
1947	63	0	63	47%	1956	92	31%	68%
1948	70	0	70	52%	1985	86	32%	64%
1949	26	0	26	19%	1963	86	33%	64%
1950	75	0	75	56%	1936	85	35%	63%
1951	101	0	101	75%	1927	83	36%	62%
1952	135	0	135	100%	1940	83	37%	62%
1953	62	0	62	46%	1993	83	38%	62%
1954	79	0	79	59%	1997	80	40%	60%
1955	40	0	40	30%	1937	80	41%	59%
1956	92	0	92	68%	1928	79	42%	59%
1957	76	0	76	56%	1986	79	43%	59%
1958	124	0	124	92%	1954	79	44%	59%
1959	61	0	61	46%	2000	78	46%	58%
1960	39	0	39	29%	1923	77	47%	57%
1961	54	0	54	40%	1975	77	48%	57%
1962	67	0	67	50%	1957	76	49%	56%
1963	86	0	86	64%	1965	75	51%	56%
1964	58	0	58	43%	1950	75	52%	56%
1965	75	0	75	56%	1948	70	53%	52%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	95	0	95	71%	1962	67	54%	50%
1967	122	0	122	91%	1979	64	56%	47%
1968	55	0	55	41%	1947	63	57%	47%
1969	135	0	135	100%	1953	62	58%	46%
1970	94	0	94	70%	1946	62	59%	46%
1971	55	0	55	41%	1959	61	60%	46%
1972	50	0	50	37%	1989	60	62%	45%
1973	92	0	92	69%	2003	60	63%	45%
1974	97	0	97	72%	1964	58	64%	43%
1975	77	0	77	57%	1968	55	65%	41%
1976	45	0	45	33%	1971	55	67%	41%
1977	12	0	12	9%	1961	54	68%	40%
1978	135	0	135	100%	1933	51	69%	38%
1979	64	0	64	47%	1972	50	70%	37%
1980	100	0	100	74%	1981	46	72%	34%
1981	46	0	46	34%	2002	45	73%	34%
1982	135	0	135	100%	1976	45	74%	33%
1983	135	0	135	100%	1925	40	75%	30%
1984	100	0	100	74%	1955	40	77%	30%
1985	86	0	86	64%	1960	39	78%	29%
1986	79	0	79	59%	1931	37	79%	27%
1987	28	0	28	21%	1926	34	80%	25%
1988	13	0	13	10%	1939	32	81%	24%
1989	60	0	60	45%	1929	30	83%	22%
1990	17	0	17	13%	1944	29	84%	22%
1991	27	0	27	20%	1987	28	85%	21%
1992	23	0	23	17%	1930	28	86%	20%
1993	83	0	83	62%	1991	27	88%	20%
1994	24	0	24	18%	1949	26	89%	19%
1995	135	0	135	100%	1994	24	90%	18%
1996	119	0	119	88%	1992	23	91%	17%
1997	80	0	80	60%	2001	21	93%	16%
1998	135	0	135	100%	1924	18	94%	13%
1999	97	0	97	72%	1932	17	95%	13%
2000	78	0	78	58%	1990	17	96%	13%
2001	21	0	21	16%	1934	15	98%	11%
2002	45	0	45	34%	1988	13	99%	10%
2003	60	0	60	45%	1977	12	100%	9%
Average	72	0	72	53%		72		53%
Maximum	135	0	135	100%		135		100%
Minimum	12	0	12	9%		12		9%

Table B-18. Littlerock Creek ID: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	2	0	2	77%	1978	2	0%	100%
1923	1	0	1	57%	1998	2	0%	100%
1924	0	0	0	13%	1938	2	0%	100%
1925	1	0	1	30%	1969	2	0%	100%
1926	1	0	1	25%	1982	2	0%	100%
1927	1	0	1	62%	1995	2	0%	100%
1928	1	0	1	59%	1952	2	0%	100%
1929	1	0	1	22%	1983	2	0%	100%
1930	0	0	0	20%	1941	2	10%	93%
1931	1	0	1	28%	1958	2	11%	92%
1932	0	0	0	13%	1967	2	12%	91%
1933	1	0	1	38%	1996	2	14%	88%
1934	0	0	0	11%	1942	2	15%	87%
1935	2	0	2	69%	1922	2	16%	77%
1936	1	0	1	63%	1951	2	17%	75%
1937	1	0	1	59%	1984	2	19%	74%
1938	2	0	2	100%	1980	2	20%	74%
1939	1	0	1	24%	1999	2	21%	72%
1940	1	0	1	62%	1974	2	22%	72%
1941	2	0	2	93%	1945	2	23%	71%
1942	2	0	2	87%	1966	2	25%	71%
1943	2	0	2	69%	1970	2	26%	70%
1944	0	0	0	22%	1935	2	27%	69%
1945	2	0	2	71%	1943	2	28%	69%
1946	1	0	1	46%	1973	2	30%	69%
1947	1	0	1	47%	1956	2	31%	68%
1948	1	0	1	52%	2000	1	32%	65%
1949	0	0	0	19%	1985	1	33%	64%
1950	1	0	1	56%	1963	1	35%	64%
1951	2	0	2	75%	1936	1	36%	63%
1952	2	0	2	100%	1927	1	37%	62%
1953	1	0	1	46%	1940	1	38%	62%
1954	1	0	1	59%	1993	1	40%	62%
1955	1	0	1	30%	1997	1	41%	60%
1956	2	0	2	68%	1937	1	42%	59%
1957	1	0	1	56%	1928	1	43%	59%
1958	2	0	2	92%	1986	1	44%	59%
1959	1	0	1	46%	1954	1	46%	59%
1960	1	0	1	29%	1923	1	47%	57%
1961	1	0	1	40%	1975	1	48%	57%
1962	1	0	1	50%	1957	1	49%	56%
1963	1	0	1	64%	1965	1	51%	56%
1964	1	0	1	43%	1989	1	52%	56%
1965	1	0	1	56%	1950	1	53%	56%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	2	0	2	71%	1948	1	54%	52%
1967	2	0	2	91%	1962	1	56%	50%
1968	1	0	1	41%	1979	1	57%	47%
1969	2	0	2	100%	1947	1	58%	47%
1970	2	0	2	70%	1953	1	59%	46%
1971	1	0	1	41%	1946	1	60%	46%
1972	1	0	1	37%	1959	1	62%	46%
1973	2	0	2	69%	1964	1	63%	43%
1974	2	0	2	72%	2002	1	64%	43%
1975	1	0	1	57%	2003	1	65%	42%
1976	1	0	1	33%	1968	1	67%	41%
1977	0	0	0	9%	1971	1	68%	41%
1978	2	0	2	100%	1961	1	69%	40%
1979	1	0	1	47%	1933	1	70%	38%
1980	2	0	2	74%	1972	1	72%	37%
1981	1	0	1	34%	1981	1	73%	34%
1982	2	0	2	100%	1976	1	74%	33%
1983	2	0	2	100%	1925	1	75%	30%
1984	2	0	2	74%	1955	1	77%	30%
1985	1	0	1	64%	1960	1	78%	29%
1986	1	0	1	59%	1931	1	79%	28%
1987	0	0	0	21%	1926	1	80%	25%
1988	0	0	0	10%	1939	1	81%	24%
1989	1	0	1	56%	1929	1	83%	22%
1990	0	0	0	13%	1944	0	84%	22%
1991	0	0	0	20%	1987	0	85%	21%
1992	0	0	0	17%	1930	0	86%	20%
1993	1	0	1	62%	1991	0	88%	20%
1994	0	0	0	18%	1949	0	89%	19%
1995	2	0	2	100%	1994	0	90%	18%
1996	2	0	2	88%	1992	0	91%	17%
1997	1	0	1	60%	2001	0	93%	16%
1998	2	0	2	100%	1924	0	94%	13%
1999	2	0	2	72%	1932	0	95%	13%
2000	1	0	1	65%	1990	0	96%	13%
2001	0	0	0	16%	1934	0	98%	11%
2002	1	0	1	43%	1988	0	99%	10%
2003	1	0	1	42%	1977	0	100%	9%
Average	1	0	1	54%		1		54%
Maximum	2	0	2	100%		2		100%
Minimum	0	0	0	9%		0		9%

Table B-19. Metropolitan WDSC: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	1,324	0	1,324	70%	1983	1,904	0%	100%
1923	1,026	143	1,170	61%	1952	1,844	1%	97%
1924	243	66	309	16%	1998	1,780	2%	93%
1925	541	13	554	29%	1938	1,769	4%	93%
1926	458	30	488	26%	1969	1,747	5%	92%
1927	1,114	25	1,139	60%	1982	1,746	6%	92%
1928	1,060	71	1,132	59%	1995	1,729	7%	91%
1929	406	68	473	25%	1978	1,663	9%	87%
1930	370	22	393	21%	1942	1,653	10%	87%
1931	595	18	613	32%	1996	1,645	11%	86%
1932	230	8	239	13%	1958	1,636	12%	86%
1933	688	13	700	37%	1967	1,629	14%	86%
1934	200	33	233	12%	1941	1,602	15%	84%
1935	1,212	11	1,223	64%	1984	1,445	16%	76%
1936	1,131	7	1,138	60%	1970	1,435	17%	75%
1937	1,066	58	1,123	59%	1943	1,389	19%	73%
1938	1,712	58	1,769	93%	1999	1,378	20%	72%
1939	427	200	627	33%	1974	1,355	21%	71%
1940	1,123	12	1,136	60%	1980	1,330	22%	70%
1941	1,596	7	1,602	84%	1951	1,328	23%	70%
1942	1,490	162	1,653	87%	1922	1,324	25%	70%
1943	1,215	174	1,389	73%	1966	1,274	26%	67%
1944	392	98	491	26%	1945	1,269	27%	67%
1945	1,251	18	1,269	67%	1997	1,250	28%	66%
1946	828	111	939	49%	1973	1,246	30%	65%
1947	845	36	881	46%	2000	1,239	31%	65%
1948	938	7	945	50%	1935	1,223	32%	64%
1949	344	52	396	21%	1956	1,219	33%	64%
1950	998	19	1,017	53%	1985	1,202	35%	63%
1951	1,299	29	1,328	70%	1963	1,195	36%	63%
1952	1,712	133	1,844	97%	1923	1,170	37%	61%
1953	837	200	1,037	54%	1927	1,139	38%	60%
1954	1,055	46	1,101	58%	1975	1,138	40%	60%
1955	539	67	606	32%	1936	1,138	41%	60%
1956	1,206	13	1,219	64%	1940	1,136	42%	60%
1957	1,013	95	1,108	58%	1928	1,132	43%	59%
1958	1,571	65	1,636	86%	1993	1,126	44%	59%
1959	824	184	1,008	53%	1937	1,123	46%	59%
1960	523	8	531	28%	1957	1,108	47%	58%
1961	730	29	759	40%	1954	1,101	48%	58%
1962	898	40	938	49%	1986	1,065	49%	56%
1963	1,146	50	1,195	63%	1965	1,047	51%	55%
1964	782	75	856	45%	1953	1,037	52%	54%
1965	1,004	43	1,047	55%	1950	1,017	53%	53%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	1,245	29	1,274	67%	1959	1,008	54%	53%
1967	1,549	80	1,629	86%	1989	970	56%	51%
1968	746	181	927	49%	1948	945	57%	50%
1969	1,712	35	1,747	92%	1946	939	58%	49%
1970	1,235	200	1,435	75%	1962	938	59%	49%
1971	737	106	844	44%	1968	927	60%	49%
1972	668	41	709	37%	1947	881	62%	46%
1973	1,214	31	1,246	65%	1979	863	63%	45%
1974	1,257	98	1,355	71%	1964	856	64%	45%
1975	1,023	115	1,138	60%	1971	844	65%	44%
1976	604	65	669	35%	2003	811	67%	43%
1977	158	33	191	10%	2002	792	68%	42%
1978	1,654	9	1,663	87%	1961	759	69%	40%
1979	856	7	863	45%	1981	747	70%	39%
1980	1,290	40	1,330	70%	1972	709	72%	37%
1981	619	128	747	39%	1933	700	73%	37%
1982	1,712	34	1,746	92%	1976	669	74%	35%
1983	1,712	193	1,904	100%	1939	627	75%	33%
1984	1,293	152	1,445	76%	1931	613	77%	32%
1985	1,116	87	1,202	63%	1955	606	78%	32%
1986	1,059	7	1,065	56%	1925	554	79%	29%
1987	382	68	449	24%	1960	531	80%	28%
1988	173	21	194	10%	1944	491	81%	26%
1989	963	7	970	51%	1926	488	83%	26%
1990	227	7	234	12%	1929	473	84%	25%
1991	362	13	375	20%	1987	449	85%	24%
1992	314	20	334	18%	1949	396	86%	21%
1993	1,109	17	1,126	59%	1930	393	88%	21%
1994	318	71	389	20%	1994	389	89%	20%
1995	1,712	18	1,729	91%	1991	375	90%	20%
1996	1,508	137	1,645	86%	1992	334	91%	18%
1997	1,074	176	1,250	66%	1924	309	93%	16%
1998	1,712	69	1,780	93%	2001	295	94%	16%
1999	1,258	120	1,378	72%	1932	239	95%	13%
2000	1,124	115	1,239	65%	1990	234	96%	12%
2001	289	7	295	16%	1934	233	98%	12%
2002	776	16	792	42%	1988	194	99%	10%
2003	804	7	811	43%	1977	191	100%	10%
Average	945	63	1,008	53%		1,008		53%
Maximum	1,712	200	1,904	100%		1,904		100%
Minimum	158	0	191	10%		191		10%

Table B-20. Mojave WA: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	39	0	39	54%	1999	71	0%	100%
1923	35	27	62	88%	1968	65	1%	91%
1924	11	14	25	35%	1952	64	2%	90%
1925	24	1	25	35%	1998	63	4%	88%
1926	20	2	22	31%	1923	62	5%	88%
1927	38	2	40	56%	2000	62	6%	87%
1928	36	15	51	72%	1938	61	7%	85%
1929	18	15	32	45%	1983	59	9%	83%
1930	16	1	18	25%	1984	59	10%	83%
1931	26	1	28	39%	1974	59	11%	83%
1932	10	0	11	15%	1958	58	12%	82%
1933	29	1	30	42%	1975	58	14%	81%
1934	9	1	10	14%	1939	56	15%	79%
1935	39	1	40	56%	1985	56	16%	79%
1936	39	0	39	55%	1957	54	17%	76%
1937	36	3	39	55%	1969	52	19%	73%
1938	48	12	61	85%	1997	52	20%	73%
1939	19	38	56	79%	1981	52	21%	73%
1940	39	1	40	56%	1970	51	22%	72%
1941	45	0	45	63%	1928	51	23%	72%
1942	42	7	49	69%	1946	51	25%	72%
1943	39	9	48	68%	1982	50	26%	71%
1944	17	20	37	52%	1995	49	27%	69%
1945	39	1	40	57%	1942	49	28%	69%
1946	34	17	51	72%	1978	49	30%	68%
1947	35	4	39	55%	1996	49	31%	68%
1948	39	0	39	55%	1943	48	32%	68%
1949	15	6	21	29%	1964	48	33%	68%
1950	34	1	35	49%	1967	47	35%	66%
1951	39	6	45	63%	1953	46	36%	65%
1952	48	16	64	90%	1966	45	37%	64%
1953	35	12	46	65%	1941	45	38%	63%
1954	36	5	41	58%	1951	45	40%	63%
1955	24	14	38	54%	1963	44	41%	62%
1956	39	1	40	56%	1959	44	42%	62%
1957	35	19	54	76%	2003	44	43%	62%
1958	44	14	58	82%	1980	43	44%	61%
1959	34	10	44	62%	1973	42	46%	59%
1960	23	0	23	33%	1962	42	47%	58%
1961	30	2	32	45%	1954	41	48%	58%
1962	37	4	42	58%	1976	41	49%	57%
1963	39	5	44	62%	1945	40	51%	57%
1964	32	16	48	68%	1989	40	52%	56%
1965	34	5	39	55%	1956	40	53%	56%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	39	6	45	64%	1935	40	54%	56%
1967	44	4	47	66%	1940	40	56%	56%
1968	31	34	65	91%	1927	40	57%	56%
1969	48	4	52	73%	1948	39	58%	55%
1970	39	12	51	72%	1965	39	59%	55%
1971	30	8	39	54%	1937	39	60%	55%
1972	28	4	32	46%	1947	39	62%	55%
1973	39	3	42	59%	1936	39	63%	55%
1974	39	20	59	83%	1993	39	64%	55%
1975	35	23	58	81%	1971	39	65%	54%
1976	27	14	41	57%	1922	39	67%	54%
1977	7	2	9	13%	1955	38	68%	54%
1978	48	1	49	68%	1944	37	69%	52%
1979	35	0	36	50%	1986	36	70%	51%
1980	39	4	43	61%	1979	36	72%	50%
1981	27	25	52	73%	1950	35	73%	49%
1982	48	2	50	71%	2002	33	74%	46%
1983	48	11	59	83%	1972	32	75%	46%
1984	39	20	59	83%	1929	32	77%	45%
1985	39	17	56	79%	1961	32	78%	45%
1986	36	0	36	51%	1987	31	79%	44%
1987	17	14	31	44%	1933	30	80%	42%
1988	8	1	9	13%	1994	29	81%	41%
1989	40	0	40	56%	1931	28	83%	39%
1990	10	0	10	14%	1924	25	84%	35%
1991	16	1	17	23%	1925	25	85%	35%
1992	14	1	15	21%	1960	23	86%	33%
1993	38	1	39	55%	1926	22	88%	31%
1994	14	15	29	41%	1949	21	89%	29%
1995	48	1	49	69%	1930	18	90%	25%
1996	42	6	49	68%	1991	17	91%	23%
1997	37	15	52	73%	1992	15	93%	21%
1998	48	15	63	88%	2001	13	94%	18%
1999	39	32	71	100%	1932	11	95%	15%
2000	39	23	62	87%	1990	10	96%	14%
2001	13	0	13	18%	1934	10	98%	14%
2002	32	1	33	46%	1977	9	99%	13%
2003	43	0	44	62%	1988	9	100%	13%
Average	32	8	41	57%		41		57%
Maximum	48	38	71	100%		71		100%
Minimum	7	0	9	13%		9		13%

Table B-21. Napa County FC&WCD: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	18	0	18	60%	1942	29	0%	100%
1923	17	11	28	96%	1943	29	0%	100%
1924	8	11	19	64%	1952	29	0%	100%
1925	14	2	15	53%	1953	29	0%	100%
1926	14	6	20	68%	1970	29	0%	100%
1927	18	6	24	81%	1971	29	0%	100%
1928	18	11	29	99%	1975	29	0%	100%
1929	8	11	19	66%	1983	29	0%	100%
1930	14	2	15	53%	1984	29	0%	100%
1931	8	6	14	48%	1996	29	0%	100%
1932	14	2	15	53%	1997	29	0%	100%
1933	8	6	14	48%	1998	29	0%	100%
1934	8	2	10	33%	1999	29	0%	100%
1935	17	2	18	63%	1941	29	16%	100%
1936	17	11	27	94%	1974	29	16%	100%
1937	17	11	27	94%	1928	29	19%	99%
1938	18	11	28	98%	1954	29	19%	99%
1939	14	11	25	87%	2000	29	19%	99%
1940	18	6	23	81%	1938	28	22%	98%
1941	18	11	29	100%	1951	28	22%	98%
1942	18	11	29	100%	1958	28	22%	98%
1943	18	11	29	100%	1963	28	22%	98%
1944	14	11	25	87%	1967	28	22%	98%
1945	17	6	23	78%	1969	28	22%	98%
1946	17	11	27	94%	1973	28	30%	97%
1947	14	11	25	84%	1980	28	30%	97%
1948	17	6	23	78%	1957	28	32%	96%
1949	14	11	25	84%	1959	28	32%	96%
1950	17	6	23	78%	1966	28	32%	96%
1951	18	11	28	98%	1968	28	32%	96%
1952	18	11	29	100%	1972	28	32%	96%
1953	18	11	29	100%	1923	28	38%	96%
1954	18	11	29	99%	1979	28	38%	96%
1955	14	11	25	86%	1936	27	41%	94%
1956	18	6	24	81%	1937	27	41%	94%
1957	17	11	28	96%	1946	27	41%	94%
1958	18	11	28	98%	1939	25	44%	87%
1959	17	11	28	96%	1944	25	44%	87%
1960	14	11	25	84%	1964	25	44%	87%
1961	14	6	20	68%	1985	25	44%	87%
1962	17	6	23	78%	1987	25	44%	87%
1963	18	11	28	98%	1955	25	51%	86%
1964	14	11	25	87%	1981	25	51%	86%
1965	18	6	24	81%	2001	25	51%	86%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	17	11	28	96%	1947	25	54%	84%
1967	18	11	28	98%	1949	25	54%	84%
1968	17	11	28	96%	1960	25	54%	84%
1969	18	11	28	98%	1927	24	58%	81%
1970	18	11	29	100%	1956	24	58%	81%
1971	18	11	29	100%	1965	24	58%	81%
1972	17	11	28	96%	1982	24	58%	81%
1973	18	11	28	97%	1986	24	58%	81%
1974	18	11	29	100%	1940	23	64%	81%
1975	18	11	29	100%	2003	23	65%	80%
1976	8	11	19	67%	1945	23	67%	78%
1977	8	2	10	33%	1948	23	67%	78%
1978	18	2	19	66%	1950	23	67%	78%
1979	17	11	28	96%	1962	23	67%	78%
1980	18	11	28	97%	1926	20	72%	68%
1981	14	11	25	86%	1961	20	72%	68%
1982	18	6	24	81%	2002	20	72%	68%
1983	18	11	29	100%	1976	19	75%	67%
1984	18	11	29	100%	1929	19	77%	66%
1985	14	11	25	87%	1994	19	77%	66%
1986	18	6	24	81%	1995	19	79%	66%
1987	14	11	25	87%	1978	19	80%	66%
1988	8	6	14	48%	1993	19	80%	66%
1989	14	2	15	53%	1924	19	83%	64%
1990	8	6	14	48%	1935	18	84%	63%
1991	8	2	10	33%	1922	18	85%	60%
1992	8	2	10	33%	1925	15	86%	53%
1993	18	2	19	66%	1930	15	86%	53%
1994	8	11	19	66%	1932	15	86%	53%
1995	18	2	19	66%	1989	15	86%	53%
1996	18	11	29	100%	1931	14	91%	48%
1997	18	11	29	100%	1933	14	91%	48%
1998	18	11	29	100%	1988	14	91%	48%
1999	18	11	29	100%	1990	14	91%	48%
2000	18	11	29	99%	1934	10	96%	33%
2001	14	11	25	86%	1977	10	96%	33%
2002	14	6	20	68%	1991	10	96%	33%
2003	17	6	23	80%	1992	10	96%	33%
Average	15	8	24	81%		24		81%
Maximum	18	11	29	100%		29		100%
Minimum	8	0	10	33%		10		33%

Table B-22. Oak Flat WD: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	2	0	2	50%	1999	5	0%	100%
1923	2	2	4	89%	1968	4	1%	90%
1924	1	1	2	32%	1923	4	2%	89%
1925	2	0	2	33%	2000	4	4%	86%
1926	1	0	1	30%	1952	4	5%	82%
1927	3	0	3	56%	1939	4	6%	81%
1928	2	1	3	70%	1975	4	7%	81%
1929	1	1	2	41%	1984	4	9%	80%
1930	1	0	1	24%	1998	4	10%	80%
1931	2	0	2	35%	1974	4	11%	79%
1932	1	0	1	14%	1938	4	12%	77%
1933	2	0	2	39%	1983	4	14%	76%
1934	1	0	1	13%	1957	4	15%	75%
1935	3	0	3	55%	1958	4	16%	74%
1936	3	0	3	55%	1997	4	17%	72%
1937	2	0	3	55%	1981	3	19%	72%
1938	3	1	4	77%	1928	3	20%	70%
1939	1	3	4	81%	1970	3	21%	70%
1940	3	0	3	55%	1969	3	22%	69%
1941	3	0	3	57%	1985	3	23%	68%
1942	3	0	3	63%	1946	3	25%	67%
1943	3	1	3	66%	1943	3	26%	66%
1944	1	1	2	50%	1982	3	27%	65%
1945	3	0	3	55%	1963	3	28%	65%
1946	2	1	3	67%	1942	3	30%	63%
1947	2	0	3	54%	1995	3	31%	63%
1948	2	0	2	50%	1996	3	32%	62%
1949	1	1	2	31%	1978	3	33%	62%
1950	2	0	2	50%	1964	3	35%	62%
1951	2	0	3	59%	1966	3	36%	61%
1952	3	1	4	82%	1953	3	37%	61%
1953	2	1	3	61%	1954	3	38%	60%
1954	2	0	3	60%	1967	3	40%	60%
1955	2	1	2	50%	1980	3	41%	60%
1956	3	0	3	55%	1973	3	42%	60%
1957	2	1	4	75%	1951	3	43%	59%
1958	3	1	4	74%	1959	3	44%	58%
1959	2	1	3	58%	1941	3	46%	57%
1960	2	0	2	32%	1965	3	47%	57%
1961	2	0	2	41%	1962	3	48%	56%
1962	2	0	3	56%	1927	3	49%	56%
1963	3	1	3	65%	1940	3	51%	55%
1964	2	1	3	62%	1956	3	52%	55%
1965	2	0	3	57%	1993	3	53%	55%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	3	0	3	61%	1936	3	54%	55%
1967	3	0	3	60%	1935	3	56%	55%
1968	2	2	4	90%	1937	3	57%	55%
1969	3	0	3	69%	1945	3	58%	55%
1970	3	1	3	70%	1947	3	59%	54%
1971	2	1	2	50%	1976	3	60%	54%
1972	2	0	2	45%	1986	2	62%	51%
1973	3	0	3	60%	1989	2	63%	51%
1974	3	1	4	79%	1944	2	64%	50%
1975	2	2	4	81%	1955	2	65%	50%
1976	2	1	3	54%	1971	2	67%	50%
1977	0	0	1	13%	1948	2	68%	50%
1978	3	0	3	62%	1922	2	69%	50%
1979	2	0	2	46%	1950	2	70%	50%
1980	2	0	3	60%	1979	2	72%	46%
1981	2	2	3	72%	1972	2	73%	45%
1982	3	0	3	65%	1961	2	74%	41%
1983	3	1	4	76%	1987	2	75%	41%
1984	2	1	4	80%	1929	2	77%	41%
1985	2	1	3	68%	2002	2	78%	39%
1986	2	0	2	51%	1933	2	79%	39%
1987	1	1	2	41%	1994	2	80%	38%
1988	1	0	1	12%	1931	2	81%	35%
1989	2	0	2	51%	2003	2	83%	35%
1990	1	0	1	14%	1925	2	84%	33%
1991	1	0	1	23%	1924	2	85%	32%
1992	1	0	1	21%	1960	2	86%	32%
1993	3	0	3	55%	1949	2	88%	31%
1994	1	1	2	38%	1926	1	89%	30%
1995	3	0	3	63%	1930	1	90%	24%
1996	3	0	3	62%	1991	1	91%	23%
1997	3	1	4	72%	1992	1	93%	21%
1998	3	1	4	80%	2001	1	94%	18%
1999	3	2	5	100%	1932	1	95%	14%
2000	3	2	4	86%	1990	1	96%	14%
2001	1	0	1	18%	1934	1	98%	13%
2002	2	0	2	39%	1977	1	99%	13%
2003	2	0	2	35%	1988	1	100%	12%
Average	2	1	3	54%		3		54%
Maximum	3	3	5	100%		5		100%
Minimum	0	0	1	12%		1		12%

Table B-23. Palmdale WD: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	16	0	16	74%	1938	21	0%	100%
1923	10	1	10	48%	1969	21	0%	100%
1924	3	2	5	24%	1978	21	0%	100%
1925	6	0	6	29%	1958	21	0%	100%
1926	5	0	5	26%	1982	21	0%	100%
1927	11	0	11	51%	1983	21	0%	100%
1928	10	3	13	60%	1995	21	0%	100%
1929	4	3	7	33%	1998	21	0%	100%
1930	4	0	4	21%	1952	21	0%	100%
1931	5	0	5	24%	1967	20	11%	95%
1932	3	0	3	12%	1941	20	12%	94%
1933	7	0	8	36%	1996	19	14%	88%
1934	2	0	3	12%	1942	19	15%	87%
1935	13	0	13	61%	1951	16	16%	76%
1936	11	0	11	51%	1974	16	17%	74%
1937	10	1	11	51%	1922	16	19%	74%
1938	19	2	21	100%	1980	16	20%	73%
1939	5	0	5	22%	1984	15	21%	70%
1940	10	0	11	50%	1966	15	22%	68%
1941	20	0	20	94%	1999	14	23%	65%
1942	19	0	19	87%	1945	14	25%	65%
1943	13	0	13	60%	1970	13	26%	62%
1944	4	2	6	29%	1973	13	27%	62%
1945	14	0	14	65%	1935	13	28%	61%
1946	9	2	10	49%	1928	13	30%	60%
1947	9	1	10	47%	1943	13	31%	60%
1948	10	0	10	48%	1956	13	32%	59%
1949	4	1	5	22%	2000	13	33%	59%
1950	9	0	10	46%	1963	12	35%	56%
1951	15	1	16	76%	1957	12	36%	55%
1952	20	1	21	100%	1985	12	37%	54%
1953	9	0	9	42%	1975	11	38%	52%
1954	10	1	11	51%	1964	11	40%	52%
1955	6	2	8	40%	1927	11	41%	51%
1956	12	0	13	59%	1954	11	42%	51%
1957	10	2	12	55%	1936	11	43%	51%
1958	19	2	21	100%	1937	11	44%	51%
1959	9	0	9	41%	1993	11	46%	50%
1960	6	0	6	28%	1940	11	47%	50%
1961	8	0	8	38%	1946	10	48%	49%
1962	10	1	10	49%	1962	10	49%	49%
1963	11	1	12	56%	1965	10	51%	49%
1964	8	3	11	52%	1923	10	52%	48%
1965	10	1	10	49%	1997	10	53%	48%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	13	1	15	68%	1948	10	54%	48%
1967	19	1	20	95%	1986	10	56%	48%
1968	8	0	8	38%	1947	10	57%	47%
1969	21	1	21	100%	1950	10	58%	46%
1970	13	0	13	62%	1971	10	59%	45%
1971	8	2	10	45%	1979	9	60%	43%
1972	7	1	8	37%	1976	9	62%	43%
1973	13	1	13	62%	1953	9	63%	42%
1974	14	2	16	74%	1959	9	64%	41%
1975	10	1	11	52%	1989	9	65%	41%
1976	7	2	9	43%	2002	9	67%	40%
1977	2	0	2	10%	1955	8	68%	40%
1978	21	0	21	100%	2003	8	69%	39%
1979	9	0	9	43%	1961	8	70%	38%
1980	15	1	16	73%	1968	8	72%	38%
1981	7	1	8	37%	1972	8	73%	37%
1982	21	0	21	100%	1981	8	74%	37%
1983	21	0	21	100%	1933	8	75%	36%
1984	15	0	15	70%	1929	7	77%	33%
1985	11	1	12	54%	1987	7	78%	31%
1986	10	0	10	48%	1944	6	79%	29%
1987	4	2	7	31%	1925	6	80%	29%
1988	2	0	2	10%	1994	6	81%	29%
1989	9	0	9	41%	1960	6	83%	28%
1990	3	0	3	12%	1926	5	84%	26%
1991	4	0	4	20%	1931	5	85%	24%
1992	3	0	4	18%	1924	5	86%	24%
1993	11	0	11	50%	1949	5	88%	22%
1994	4	3	6	29%	1939	5	89%	22%
1995	21	0	21	100%	1930	4	90%	21%
1996	19	0	19	88%	1991	4	91%	20%
1997	10	0	10	48%	1992	4	93%	18%
1998	19	3	21	100%	2001	3	94%	15%
1999	14	0	14	65%	1932	3	95%	12%
2000	11	1	13	59%	1990	3	96%	12%
2001	3	0	3	15%	1934	3	98%	12%
2002	8	0	9	40%	1988	2	99%	10%
2003	8	0	8	39%	1977	2	100%	10%
Average	10	1	11	52%		11		52%
Maximum	21	3	21	100%		21		100%
Minimum	2	0	2	10%		2		10%

Table B-24. San Bernardino Valley MWD: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	72	0	72	70%	1983	102	0%	100%
1923	55	7	62	61%	1952	99	1%	97%
1924	13	3	17	16%	1998	96	2%	94%
1925	30	0	30	29%	1938	96	4%	93%
1926	25	1	26	25%	1969	94	5%	92%
1927	60	1	61	59%	1982	94	6%	92%
1928	57	4	61	59%	1995	93	7%	91%
1929	22	4	26	25%	1978	93	9%	91%
1930	20	1	21	21%	1942	89	10%	87%
1931	33	1	34	33%	1996	89	11%	87%
1932	13	0	13	13%	1958	88	12%	86%
1933	37	0	38	37%	1967	88	14%	86%
1934	11	2	13	12%	1941	87	15%	85%
1935	66	0	66	65%	1984	78	16%	76%
1936	61	0	61	60%	1970	77	17%	75%
1937	57	3	60	59%	1999	76	19%	75%
1938	93	3	96	93%	1943	74	20%	72%
1939	24	10	34	33%	1974	73	21%	71%
1940	62	1	63	62%	1951	72	22%	70%
1941	86	0	87	85%	1980	72	23%	70%
1942	81	9	89	87%	1922	72	25%	70%
1943	65	9	74	72%	1966	69	26%	67%
1944	22	5	27	26%	2000	68	27%	67%
1945	67	1	68	66%	1945	68	28%	66%
1946	45	6	50	49%	1973	67	30%	65%
1947	46	2	48	47%	1997	67	31%	65%
1948	51	0	51	50%	1985	66	32%	65%
1949	19	3	22	21%	1935	66	33%	65%
1950	54	1	54	53%	1956	65	35%	64%
1951	70	1	72	70%	1963	64	36%	63%
1952	93	7	99	97%	1940	63	37%	62%
1953	45	10	55	54%	1923	62	38%	61%
1954	57	2	59	58%	1936	61	40%	60%
1955	30	3	33	32%	1975	61	41%	59%
1956	65	0	65	64%	1928	61	42%	59%
1957	55	5	59	58%	1927	61	43%	59%
1958	85	3	88	86%	1937	60	44%	59%
1959	44	9	54	52%	1993	60	46%	59%
1960	29	0	29	29%	1957	59	47%	58%
1961	39	1	40	39%	1989	59	48%	58%
1962	48	2	50	49%	1954	59	49%	58%
1963	62	2	64	63%	2003	58	51%	56%
1964	42	4	46	45%	1986	57	52%	56%
1965	54	2	56	55%	1965	56	53%	55%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	67	1	69	67%	1953	55	54%	54%
1967	84	4	88	86%	1950	54	56%	53%
1968	40	9	49	48%	1959	54	57%	52%
1969	93	2	94	92%	1948	51	58%	50%
1970	67	10	77	75%	1962	50	59%	49%
1971	40	5	45	44%	1946	50	60%	49%
1972	36	2	38	37%	1968	49	62%	48%
1973	65	1	67	65%	1947	48	63%	47%
1974	68	5	73	71%	1979	47	64%	45%
1975	55	6	61	59%	1964	46	65%	45%
1976	33	3	37	36%	1971	45	67%	44%
1977	9	1	10	9%	2002	42	68%	41%
1978	93	0	93	91%	1981	40	69%	39%
1979	46	0	47	45%	1961	40	70%	39%
1980	70	2	72	70%	1972	38	72%	37%
1981	34	6	40	39%	1933	38	73%	37%
1982	93	1	94	92%	1976	37	74%	36%
1983	93	10	102	100%	1931	34	75%	33%
1984	70	8	78	76%	1939	34	77%	33%
1985	62	4	66	65%	1955	33	78%	32%
1986	57	0	57	56%	1925	30	79%	29%
1987	21	3	25	24%	1960	29	80%	29%
1988	10	1	10	10%	1944	27	81%	26%
1989	59	0	59	58%	1926	26	83%	25%
1990	13	0	13	13%	1929	26	84%	25%
1991	20	0	20	20%	1987	25	85%	24%
1992	17	1	18	17%	1949	22	86%	21%
1993	60	1	60	59%	1994	21	88%	21%
1994	18	4	21	21%	1930	21	89%	21%
1995	93	1	93	91%	1991	20	90%	20%
1996	82	7	89	87%	1992	18	91%	17%
1997	58	9	67	65%	1924	17	93%	16%
1998	93	4	96	94%	2001	16	94%	16%
1999	68	9	76	75%	1932	13	95%	13%
2000	62	6	68	67%	1990	13	96%	13%
2001	16	0	16	16%	1934	13	98%	12%
2002	42	0	42	41%	1988	10	99%	10%
2003	57	0	58	56%	1977	10	100%	9%
Average	52	3	55	53%		55		53%
Maximum	93	10	102	100%		102		100%
Minimum	9	0	10	9%		10		9%

Table B-25. San Gabriel Valley MWD: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	22	0	22	77%	1969	29	0%	100%
1923	16	0	16	57%	1998	29	0%	100%
1924	4	0	4	13%	1982	29	0%	100%
1925	9	0	9	30%	1983	29	0%	100%
1926	7	0	7	25%	1995	29	0%	100%
1927	18	0	18	62%	1938	29	0%	100%
1928	17	0	17	59%	1952	29	0%	100%
1929	6	0	6	22%	1978	29	0%	100%
1930	6	0	6	20%	1941	27	10%	93%
1931	10	0	10	33%	1958	26	11%	92%
1932	4	0	4	13%	1967	26	12%	91%
1933	10	0	10	34%	1996	25	14%	88%
1934	3	0	3	11%	1942	25	15%	87%
1935	20	0	20	69%	1922	22	16%	77%
1936	18	0	18	63%	1951	22	17%	75%
1937	17	0	17	59%	1984	21	19%	74%
1938	29	0	29	100%	1980	21	20%	74%
1939	7	0	7	24%	1999	21	21%	72%
1940	19	0	19	65%	1974	21	22%	72%
1941	27	0	27	93%	1945	21	23%	71%
1942	25	0	25	87%	1966	20	25%	71%
1943	20	0	20	69%	1970	20	26%	70%
1944	6	0	6	22%	1935	20	27%	69%
1945	21	0	21	71%	1943	20	28%	69%
1946	13	0	13	46%	1973	20	30%	69%
1947	13	0	13	47%	1956	20	31%	68%
1948	15	0	15	52%	1989	19	32%	67%
1949	5	0	5	19%	1940	19	33%	65%
1950	16	0	16	56%	2000	19	35%	65%
1951	22	0	22	75%	1985	18	36%	64%
1952	29	0	29	100%	1963	18	37%	64%
1953	13	0	13	46%	1936	18	38%	63%
1954	17	0	17	59%	1927	18	40%	62%
1955	9	0	9	30%	1993	18	41%	62%
1956	20	0	20	68%	1997	17	42%	60%
1957	16	0	16	56%	1937	17	43%	59%
1958	26	0	26	92%	1928	17	44%	59%
1959	13	0	13	46%	1986	17	46%	59%
1960	8	0	8	29%	1954	17	47%	59%
1961	12	0	12	40%	1923	16	48%	57%
1962	14	0	14	50%	1975	16	49%	57%
1963	18	0	18	64%	1957	16	51%	56%
1964	12	0	12	43%	1965	16	52%	56%
1965	16	0	16	56%	1950	16	53%	56%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	20	0	20	71%	1948	15	54%	52%
1967	26	0	26	91%	1962	14	56%	50%
1968	12	0	12	41%	1979	14	57%	47%
1969	29	0	29	100%	1947	13	58%	47%
1970	20	0	20	70%	2003	13	59%	46%
1971	12	0	12	41%	1953	13	60%	46%
1972	11	0	11	37%	1946	13	62%	46%
1973	20	0	20	69%	1959	13	63%	46%
1974	21	0	21	72%	1964	12	64%	43%
1975	16	0	16	57%	2002	12	65%	43%
1976	10	0	10	33%	1968	12	67%	41%
1977	3	0	3	9%	1971	12	68%	41%
1978	29	0	29	100%	1961	12	69%	40%
1979	14	0	14	47%	1972	11	70%	37%
1980	21	0	21	74%	1933	10	72%	34%
1981	10	0	10	34%	1981	10	73%	34%
1982	29	0	29	100%	1976	10	74%	33%
1983	29	0	29	100%	1931	10	75%	33%
1984	21	0	21	74%	1925	9	77%	30%
1985	18	0	18	64%	1955	9	78%	30%
1986	17	0	17	59%	1960	8	79%	29%
1987	6	0	6	21%	1926	7	80%	25%
1988	3	0	3	10%	1939	7	81%	24%
1989	19	0	19	67%	1929	6	83%	22%
1990	4	0	4	13%	1944	6	84%	22%
1991	6	0	6	20%	1987	6	85%	21%
1992	5	0	5	17%	1930	6	86%	20%
1993	18	0	18	62%	1991	6	88%	20%
1994	5	0	5	18%	1949	5	89%	19%
1995	29	0	29	100%	1994	5	90%	18%
1996	25	0	25	88%	1992	5	91%	17%
1997	17	0	17	60%	2001	5	93%	16%
1998	29	0	29	100%	1924	4	94%	13%
1999	21	0	21	72%	1932	4	95%	13%
2000	19	0	19	65%	1990	4	96%	13%
2001	5	0	5	16%	1934	3	98%	11%
2002	12	0	12	43%	1988	3	99%	10%
2003	13	0	13	46%	1977	3	100%	9%
Average	15	0	15	54%		15		54%
Maximum	29	0	29	100%		29		100%
Minimum	3	0	3	9%		3		9%

Table B-26. San Geronio Pass WA: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	10	0	10	66%	1952	16	0%	100%
1923	9	3	12	76%	1983	15	1%	98%
1924	2	1	3	19%	1998	14	2%	89%
1925	5	0	5	32%	1999	14	4%	89%
1926	4	0	4	28%	1938	14	5%	88%
1927	10	0	10	64%	1969	14	6%	86%
1928	9	1	10	65%	1982	13	7%	85%
1929	4	1	5	29%	1995	13	9%	84%
1930	3	0	4	23%	1978	13	10%	84%
1931	6	0	6	36%	1942	13	11%	82%
1932	2	0	2	14%	1984	13	12%	82%
1933	6	0	6	40%	1958	13	14%	82%
1934	2	0	2	14%	1996	13	15%	82%
1935	10	0	10	66%	1970	13	16%	82%
1936	10	0	10	64%	1967	13	17%	80%
1937	9	1	10	63%	1997	13	19%	80%
1938	13	1	14	88%	1941	12	20%	78%
1939	4	4	8	51%	2000	12	21%	78%
1940	10	0	10	65%	1943	12	22%	77%
1941	12	0	12	78%	1974	12	23%	76%
1942	11	1	13	82%	1923	12	25%	76%
1943	10	2	12	77%	1985	12	26%	75%
1944	4	2	5	33%	1975	11	27%	71%
1945	10	0	10	67%	1980	11	28%	69%
1946	7	2	9	60%	1951	11	30%	68%
1947	8	0	8	51%	1966	11	31%	68%
1948	8	0	8	54%	1963	11	32%	68%
1949	3	1	4	24%	1973	11	33%	67%
1950	9	0	9	57%	1945	10	35%	67%
1951	10	0	11	68%	1957	10	36%	67%
1952	13	3	16	100%	1968	10	37%	66%
1953	7	2	10	63%	1922	10	38%	66%
1954	9	1	10	62%	1935	10	40%	66%
1955	5	1	6	37%	1989	10	41%	66%
1956	10	0	10	66%	1956	10	42%	66%
1957	9	2	10	67%	1928	10	43%	65%
1958	12	1	13	82%	1940	10	44%	65%
1959	7	2	9	60%	1936	10	46%	64%
1960	5	0	5	31%	1927	10	47%	64%
1961	7	0	7	43%	1937	10	48%	63%
1962	8	0	8	54%	1993	10	49%	63%
1963	10	1	11	68%	1953	10	51%	63%
1964	7	1	8	51%	1954	10	52%	62%
1965	9	0	9	59%	1959	9	53%	60%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	10	0	11	68%	1986	9	54%	60%
1967	12	1	13	80%	1946	9	56%	60%
1968	7	4	10	66%	1965	9	57%	59%
1969	13	0	14	86%	1950	9	58%	57%
1970	10	3	13	82%	1962	8	59%	54%
1971	7	2	8	52%	1948	8	60%	54%
1972	6	0	6	41%	2003	8	62%	53%
1973	10	0	11	67%	1971	8	63%	52%
1974	10	2	12	76%	1981	8	64%	52%
1975	9	2	11	71%	1939	8	65%	51%
1976	6	1	6	41%	1947	8	67%	51%
1977	1	0	2	11%	1964	8	68%	51%
1978	13	0	13	84%	1979	8	69%	49%
1979	8	0	8	49%	2002	7	70%	45%
1980	10	0	11	69%	1961	7	72%	43%
1981	6	2	8	52%	1972	6	73%	41%
1982	13	0	13	85%	1976	6	74%	41%
1983	13	2	15	98%	1933	6	75%	40%
1984	10	2	13	82%	1955	6	77%	37%
1985	10	2	12	75%	1931	6	78%	36%
1986	9	0	9	60%	1944	5	79%	33%
1987	4	1	4	28%	1925	5	80%	32%
1988	2	0	2	11%	1960	5	81%	31%
1989	10	0	10	66%	1929	5	83%	29%
1990	2	0	2	14%	1926	4	84%	28%
1991	3	0	3	22%	1987	4	85%	28%
1992	3	0	3	19%	1994	4	86%	24%
1993	10	0	10	63%	1949	4	88%	24%
1994	3	1	4	24%	1930	4	89%	23%
1995	13	0	13	84%	1991	3	90%	22%
1996	12	1	13	82%	1924	3	91%	19%
1997	9	3	13	80%	1992	3	93%	19%
1998	13	1	14	89%	2001	3	94%	17%
1999	10	4	14	89%	1932	2	95%	14%
2000	10	2	12	78%	1990	2	96%	14%
2001	3	0	3	17%	1934	2	98%	14%
2002	7	0	7	45%	1988	2	99%	11%
2003	8	0	8	53%	1977	2	100%	11%
Average	8	1	9	57%		9		57%
Maximum	13	4	16	100%		16		100%
Minimum	1	0	2	11%		2		11%

Table B-27. San Luis Obispo County FC&WCD: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	11	0	11	52%	1999	21	0%	100%
1923	10	8	18	88%	1968	18	1%	89%
1924	3	4	7	35%	1923	18	2%	88%
1925	6	1	7	33%	1998	18	4%	88%
1926	5	1	7	31%	1952	18	5%	87%
1927	11	1	12	56%	2000	18	6%	87%
1928	10	5	15	72%	1938	17	7%	84%
1929	5	5	9	45%	1974	17	9%	82%
1930	4	1	5	25%	1984	17	10%	82%
1931	6	1	7	33%	1983	17	11%	81%
1932	3	0	3	13%	1975	17	12%	81%
1933	8	0	8	39%	1958	17	14%	81%
1934	2	0	3	13%	1939	16	15%	79%
1935	11	0	12	55%	1985	16	16%	78%
1936	11	0	11	53%	1957	16	17%	76%
1937	10	1	11	53%	1969	15	19%	75%
1938	14	4	17	84%	1982	15	20%	72%
1939	5	11	16	79%	1928	15	21%	72%
1940	11	0	11	54%	1997	15	22%	71%
1941	13	0	13	61%	1981	15	23%	71%
1942	12	2	14	67%	1970	15	25%	71%
1943	11	3	14	66%	1995	14	26%	69%
1944	5	6	11	52%	1942	14	27%	67%
1945	11	1	12	57%	1978	14	28%	67%
1946	9	5	14	67%	1946	14	30%	67%
1947	9	2	12	56%	1996	14	31%	66%
1948	10	0	10	49%	1943	14	32%	66%
1949	4	3	7	33%	1963	14	33%	66%
1950	10	1	10	50%	1964	13	35%	65%
1951	11	2	13	62%	1967	13	36%	64%
1952	14	5	18	87%	1980	13	37%	63%
1953	9	3	13	60%	1966	13	38%	63%
1954	10	3	13	61%	1951	13	40%	62%
1955	6	4	11	52%	1941	13	41%	61%
1956	11	1	12	56%	1973	13	42%	61%
1957	10	6	16	76%	1954	13	43%	61%
1958	12	4	17	81%	1953	13	44%	60%
1959	9	3	12	57%	1965	12	46%	58%
1960	6	0	6	30%	1962	12	47%	57%
1961	8	1	9	43%	1959	12	48%	57%
1962	10	2	12	57%	1945	12	49%	57%
1963	11	3	14	66%	1927	12	51%	56%
1964	8	5	13	65%	1947	12	52%	56%
1965	10	2	12	58%	1956	12	53%	56%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	11	2	13	63%	1935	12	54%	55%
1967	12	1	13	64%	1989	11	56%	55%
1968	8	10	18	89%	1976	11	57%	55%
1969	14	2	15	75%	1993	11	58%	55%
1970	11	4	15	71%	1940	11	59%	54%
1971	8	2	10	50%	1937	11	60%	53%
1972	7	2	10	46%	1936	11	62%	53%
1973	11	2	13	61%	1922	11	63%	52%
1974	11	6	17	82%	1955	11	64%	52%
1975	10	7	17	81%	1944	11	65%	52%
1976	7	4	11	55%	2003	10	67%	50%
1977	2	1	3	15%	1950	10	68%	50%
1978	14	0	14	67%	1971	10	69%	50%
1979	9	0	9	45%	1986	10	70%	50%
1980	11	2	13	63%	1948	10	72%	49%
1981	7	8	15	71%	1972	10	73%	46%
1982	14	1	15	72%	1979	9	74%	45%
1983	14	3	17	81%	1929	9	75%	45%
1984	11	6	17	82%	2002	9	77%	43%
1985	11	5	16	78%	1961	9	78%	43%
1986	10	0	10	50%	1987	9	79%	43%
1987	4	5	9	43%	1994	8	80%	41%
1988	2	1	3	14%	1933	8	81%	39%
1989	11	0	11	55%	1924	7	83%	35%
1990	3	0	3	13%	1949	7	84%	33%
1991	4	0	5	23%	1925	7	85%	33%
1992	4	1	4	21%	1931	7	86%	33%
1993	11	1	11	55%	1926	7	88%	31%
1994	4	5	8	41%	1960	6	89%	30%
1995	14	1	14	69%	1930	5	90%	25%
1996	12	2	14	66%	1991	5	91%	23%
1997	10	4	15	71%	1992	4	93%	21%
1998	14	5	18	88%	2001	3	94%	17%
1999	11	10	21	100%	1977	3	95%	15%
2000	11	7	18	87%	1988	3	96%	14%
2001	3	0	3	17%	1932	3	98%	13%
2002	8	1	9	43%	1934	3	99%	13%
2003	10	0	10	50%	1990	3	100%	13%
Average	9	3	12	56%		12		56%
Maximum	14	11	21	100%		21		100%
Minimum	2	0	3	13%		3		13%

Table B-28. Santa Barbara County FC&WCD: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	28	0	28	68%	1952	41	0%	100%
1923	25	7	32	79%	1983	41	1%	100%
1924	6	1	7	17%	1999	37	2%	91%
1925	14	0	14	33%	1998	36	4%	87%
1926	12	0	12	28%	1938	36	5%	87%
1927	27	0	27	67%	1969	35	6%	86%
1928	26	1	27	66%	1982	35	7%	85%
1929	10	1	11	27%	1978	35	9%	85%
1930	9	0	9	23%	1995	35	10%	85%
1931	11	0	11	28%	1970	35	11%	85%
1932	6	0	6	14%	1997	35	12%	84%
1933	17	0	17	42%	1984	34	14%	84%
1934	5	0	5	13%	1942	34	15%	84%
1935	28	0	28	69%	1996	34	16%	83%
1936	28	0	28	68%	1967	34	17%	82%
1937	26	1	27	66%	1943	33	19%	81%
1938	35	1	36	87%	1958	33	20%	80%
1939	11	11	21	52%	1941	33	21%	80%
1940	26	0	26	64%	2000	33	22%	80%
1941	33	0	33	80%	1923	32	23%	79%
1942	30	4	34	84%	1985	32	25%	78%
1943	28	5	33	81%	1974	31	26%	76%
1944	10	3	13	31%	1975	30	27%	72%
1945	28	0	28	69%	1966	29	28%	70%
1946	20	4	25	60%	1973	28	30%	69%
1947	21	0	21	52%	1963	28	31%	69%
1948	23	0	23	57%	1980	28	32%	69%
1949	9	0	9	22%	1951	28	33%	69%
1950	25	0	25	60%	1935	28	35%	69%
1951	28	0	28	69%	1945	28	36%	69%
1952	35	6	41	100%	1956	28	37%	69%
1953	21	6	27	66%	1936	28	38%	68%
1954	26	0	26	64%	1968	28	40%	68%
1955	14	1	14	35%	1922	28	41%	68%
1956	28	0	28	69%	1957	28	42%	67%
1957	25	3	28	67%	1927	27	43%	67%
1958	32	1	33	80%	1993	27	44%	67%
1959	20	5	26	63%	1937	27	46%	66%
1960	13	0	13	33%	1953	27	47%	66%
1961	18	0	18	44%	1928	27	48%	66%
1962	22	0	22	55%	1954	26	49%	64%
1963	28	0	28	69%	1940	26	51%	64%
1964	19	1	20	49%	1986	26	52%	64%
1965	25	0	25	61%	1959	26	53%	63%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	28	0	29	70%	1965	25	54%	61%
1967	32	2	34	82%	1950	25	56%	60%
1968	18	10	28	68%	1946	25	57%	60%
1969	35	0	35	86%	1948	23	58%	57%
1970	28	7	35	85%	1962	22	59%	55%
1971	18	4	22	53%	1989	22	60%	54%
1972	17	0	17	41%	1971	22	62%	53%
1973	28	0	28	69%	1979	21	63%	52%
1974	28	3	31	76%	1939	21	64%	52%
1975	25	4	30	72%	1947	21	65%	52%
1976	15	1	16	39%	1981	21	67%	52%
1977	4	0	4	10%	2003	20	68%	50%
1978	35	0	35	85%	1964	20	69%	49%
1979	21	0	21	52%	1961	18	70%	44%
1980	28	0	28	69%	1933	17	72%	42%
1981	15	6	21	52%	1972	17	73%	41%
1982	35	0	35	85%	1976	16	74%	39%
1983	35	6	41	100%	2002	15	75%	37%
1984	28	6	34	84%	1955	14	77%	35%
1985	28	4	32	78%	1925	14	78%	33%
1986	26	0	26	64%	1960	13	79%	33%
1987	10	1	10	25%	1944	13	80%	31%
1988	4	0	4	11%	1926	12	81%	28%
1989	22	0	22	54%	1931	11	83%	28%
1990	6	0	6	14%	1929	11	84%	27%
1991	9	0	9	22%	1987	10	85%	25%
1992	8	0	8	19%	1930	9	86%	23%
1993	27	0	27	67%	1991	9	88%	22%
1994	8	1	9	21%	1949	9	89%	22%
1995	35	0	35	85%	1994	9	90%	21%
1996	31	3	34	83%	1992	8	91%	19%
1997	26	8	35	84%	2001	7	93%	18%
1998	35	1	36	87%	1924	7	94%	17%
1999	28	9	37	91%	1990	6	95%	14%
2000	28	4	33	80%	1932	6	96%	14%
2001	7	0	7	18%	1934	5	98%	13%
2002	15	0	15	37%	1988	4	99%	11%
2003	20	0	20	50%	1977	4	100%	10%
Average	22	2	23	57%		23		57%
Maximum	35	11	41	100%		41		100%
Minimum	4	0	4	10%		4		10%

Table B-29. Santa Clara Valley WD: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	64	0	64	68%	1983	94	0%	100%
1923	55	13	68	72%	1952	92	1%	98%
1924	13	2	15	16%	1998	83	2%	89%
1925	29	0	30	32%	1938	83	4%	88%
1926	25	0	25	27%	1969	82	5%	87%
1927	60	0	60	64%	1982	81	6%	87%
1928	57	2	59	63%	1995	81	7%	86%
1929	22	2	24	26%	1978	81	9%	86%
1930	20	0	20	22%	1999	80	10%	85%
1931	33	0	33	35%	1942	79	11%	84%
1932	13	0	13	14%	1996	78	12%	84%
1933	37	0	37	40%	1970	77	14%	82%
1934	11	1	12	13%	1967	77	15%	82%
1935	63	0	63	67%	1958	76	16%	81%
1936	61	0	61	65%	1984	76	17%	81%
1937	57	2	59	63%	1941	76	19%	81%
1938	81	2	83	88%	1997	73	20%	78%
1939	23	19	43	45%	1943	73	21%	78%
1940	61	0	62	66%	2000	70	22%	75%
1941	75	0	76	81%	1974	69	23%	74%
1942	70	8	79	84%	1985	69	25%	73%
1943	63	11	73	78%	1923	68	26%	72%
1944	21	6	28	29%	1980	65	27%	69%
1945	63	0	63	68%	1951	65	28%	69%
1946	44	8	52	56%	1966	64	30%	68%
1947	45	1	47	50%	1922	64	31%	68%
1948	50	0	51	54%	1945	63	32%	68%
1949	19	2	20	22%	1973	63	33%	68%
1950	53	0	54	57%	1975	63	35%	68%
1951	64	1	65	69%	1935	63	36%	67%
1952	81	11	92	98%	1989	63	37%	67%
1953	45	14	59	63%	1963	63	38%	67%
1954	56	1	58	62%	1956	63	40%	67%
1955	29	2	32	34%	1940	62	41%	66%
1956	62	0	63	67%	1936	61	42%	65%
1957	54	6	60	64%	1927	60	43%	64%
1958	74	2	76	81%	1957	60	44%	64%
1959	44	12	56	60%	1993	60	46%	64%
1960	29	0	29	31%	1937	59	47%	63%
1961	39	0	39	42%	1928	59	48%	63%
1962	48	1	49	53%	1953	59	49%	63%
1963	61	1	63	67%	1954	58	51%	62%
1964	42	3	45	48%	1968	57	52%	61%
1965	54	1	55	59%	1986	57	53%	61%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	63	1	64	68%	1959	56	54%	60%
1967	73	4	77	82%	1965	55	56%	59%
1968	40	17	57	61%	2003	55	57%	58%
1969	81	1	82	87%	1950	54	58%	57%
1970	63	14	77	82%	1946	52	59%	56%
1971	40	7	47	50%	1948	51	60%	54%
1972	36	1	37	40%	1962	49	62%	53%
1973	63	1	63	68%	1971	47	63%	50%
1974	63	6	69	74%	1947	47	64%	50%
1975	55	9	63	68%	1979	46	65%	49%
1976	33	2	35	37%	1964	45	67%	48%
1977	9	0	9	10%	1981	44	68%	47%
1978	81	0	81	86%	1939	43	69%	45%
1979	46	0	46	49%	2002	42	70%	45%
1980	64	1	65	69%	1961	39	72%	42%
1981	34	11	44	47%	1933	37	73%	40%
1982	81	1	81	87%	1972	37	74%	40%
1983	81	13	94	100%	1976	35	75%	37%
1984	64	12	76	81%	1931	33	77%	35%
1985	61	7	69	73%	1955	32	78%	34%
1986	57	0	57	61%	1925	30	79%	32%
1987	21	2	23	25%	1960	29	80%	31%
1988	9	0	10	10%	1944	28	81%	29%
1989	63	0	63	67%	1926	25	83%	27%
1990	12	0	13	14%	1929	24	84%	26%
1991	20	0	20	21%	1987	23	85%	25%
1992	17	0	17	19%	1930	20	86%	22%
1993	59	0	60	64%	1949	20	88%	22%
1994	17	2	20	21%	1991	20	89%	21%
1995	81	0	81	86%	1994	20	90%	21%
1996	71	7	78	84%	1992	17	91%	19%
1997	57	16	73	78%	2001	16	93%	17%
1998	81	2	83	89%	1924	15	94%	16%
1999	63	17	80	85%	1932	13	95%	14%
2000	61	9	70	75%	1990	13	96%	14%
2001	16	0	16	17%	1934	12	98%	13%
2002	42	0	42	45%	1988	10	99%	10%
2003	54	0	55	58%	1977	9	100%	10%
Average	49	4	53	56%		53		56%
Maximum	81	19	94	100%		94		100%
Minimum	9	0	9	10%		9		10%

Table B-30. Solano County WA: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	22	0	22	47%	1942	48	0%	100%
1923	20	22	42	88%	1943	48	0%	100%
1924	11	20	31	66%	1952	48	0%	100%
1925	20	1	21	43%	1953	48	0%	100%
1926	20	3	23	48%	1970	48	0%	100%
1927	24	3	27	56%	1971	48	0%	100%
1928	22	24	46	96%	1975	48	0%	100%
1929	11	22	34	70%	1983	48	0%	100%
1930	20	1	21	43%	1984	48	0%	100%
1931	11	3	14	30%	1996	48	0%	100%
1932	20	1	21	43%	1997	48	0%	100%
1933	11	3	14	30%	1998	48	0%	100%
1934	11	1	12	25%	1999	48	0%	100%
1935	20	1	21	43%	1941	46	16%	97%
1936	20	20	40	84%	1974	46	16%	97%
1937	20	20	40	84%	1928	46	19%	96%
1938	24	20	44	92%	1954	46	19%	96%
1939	20	24	44	92%	2000	46	19%	96%
1940	22	3	25	53%	1938	44	22%	92%
1941	24	22	46	97%	1951	44	22%	92%
1942	24	24	48	100%	1958	44	22%	92%
1943	24	24	48	100%	1963	44	22%	92%
1944	20	24	44	92%	1967	44	22%	92%
1945	20	3	23	48%	1969	44	22%	92%
1946	20	20	40	84%	1957	44	30%	92%
1947	20	20	40	84%	1959	44	30%	92%
1948	20	3	23	48%	1966	44	30%	92%
1949	20	20	40	84%	1968	44	30%	92%
1950	20	3	23	48%	1972	44	30%	92%
1951	24	20	44	92%	1939	44	36%	92%
1952	24	24	48	100%	1944	44	36%	92%
1953	24	24	48	100%	1964	44	36%	92%
1954	22	24	46	96%	1985	44	36%	92%
1955	20	22	42	88%	1987	44	36%	92%
1956	24	3	27	56%	1973	42	42%	89%
1957	20	24	44	92%	1980	42	42%	89%
1958	24	20	44	92%	1923	42	44%	88%
1959	20	24	44	92%	1979	42	44%	88%
1960	20	20	40	84%	1955	42	47%	88%
1961	20	3	23	48%	1981	42	47%	88%
1962	20	3	23	48%	2001	42	47%	88%
1963	24	20	44	92%	1936	40	51%	84%
1964	20	24	44	92%	1937	40	51%	84%
1965	24	3	27	56%	1946	40	51%	84%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	20	24	44	92%	1947	40	54%	84%
1967	24	20	44	92%	1949	40	54%	84%
1968	20	24	44	92%	1960	40	54%	84%
1969	24	20	44	92%	1976	35	58%	74%
1970	24	24	48	100%	1929	34	59%	70%
1971	24	24	48	100%	1994	34	59%	70%
1972	20	24	44	92%	1924	31	62%	66%
1973	22	20	42	89%	1927	27	63%	56%
1974	24	22	46	97%	1956	27	63%	56%
1975	24	24	48	100%	1965	27	63%	56%
1976	11	24	35	74%	1982	27	63%	56%
1977	11	1	12	25%	1986	27	63%	56%
1978	22	1	23	48%	2003	26	69%	54%
1979	20	22	42	88%	1940	25	70%	53%
1980	22	20	42	89%	1995	24	72%	51%
1981	20	22	42	88%	1945	23	73%	48%
1982	24	3	27	56%	1948	23	73%	48%
1983	24	24	48	100%	1950	23	73%	48%
1984	24	24	48	100%	1962	23	73%	48%
1985	20	24	44	92%	1926	23	78%	48%
1986	24	3	27	56%	1961	23	78%	48%
1987	20	24	44	92%	2002	23	78%	48%
1988	11	3	14	30%	1978	23	81%	48%
1989	20	1	21	43%	1993	23	81%	48%
1990	11	3	14	30%	1922	22	84%	47%
1991	11	1	12	25%	1935	21	85%	43%
1992	11	1	12	25%	1925	21	86%	43%
1993	22	1	23	48%	1930	21	86%	43%
1994	11	22	34	70%	1932	21	86%	43%
1995	24	1	24	51%	1989	21	86%	43%
1996	24	24	48	100%	1931	14	91%	30%
1997	24	24	48	100%	1933	14	91%	30%
1998	24	24	48	100%	1988	14	91%	30%
1999	24	24	48	100%	1990	14	91%	30%
2000	22	24	46	96%	1992	12	96%	25%
2001	20	22	42	88%	1934	12	96%	25%
2002	20	3	23	48%	1977	12	96%	25%
2003	23	3	26	54%	1991	12	96%	25%
Average	20	15	35	73%		35		73%
Maximum	24	24	48	100%		48		100%
Minimum	11	0	12	25%		12		25%

Table B-31. Tulare Lake Basin WSD: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	67	0	67	77%	1938	87	0%	100%
1923	50	0	50	57%	1952	87	0%	100%
1924	12	0	12	13%	1969	87	0%	100%
1925	26	0	26	30%	1978	87	0%	100%
1926	22	0	22	25%	1982	87	0%	100%
1927	54	0	54	62%	1983	87	0%	100%
1928	52	0	52	59%	1995	87	0%	100%
1929	20	0	20	22%	1998	87	0%	100%
1930	18	0	18	20%	1941	82	10%	93%
1931	25	0	25	29%	1958	80	11%	92%
1932	11	0	11	13%	1967	79	12%	91%
1933	33	0	33	38%	1996	77	14%	88%
1934	10	0	10	11%	1942	76	15%	87%
1935	60	0	60	69%	1922	67	16%	77%
1936	55	0	55	63%	1951	66	17%	75%
1937	52	0	52	59%	1984	65	19%	74%
1938	87	0	87	100%	1980	65	20%	74%
1939	21	0	21	24%	1999	63	21%	72%
1940	49	0	49	56%	1974	63	22%	72%
1941	82	0	82	93%	1945	62	23%	71%
1942	76	0	76	87%	1966	62	25%	71%
1943	60	0	60	69%	1970	61	26%	70%
1944	19	0	19	22%	1935	60	27%	69%
1945	62	0	62	71%	1943	60	28%	69%
1946	40	0	40	46%	1973	60	30%	69%
1947	41	0	41	47%	1956	60	31%	68%
1948	45	0	45	52%	2000	57	32%	65%
1949	17	0	17	19%	1985	56	33%	64%
1950	49	0	49	56%	1963	56	35%	64%
1951	66	0	66	75%	1936	55	36%	63%
1952	87	0	87	100%	1927	54	37%	62%
1953	40	0	40	46%	1993	54	38%	62%
1954	51	0	51	59%	1997	52	40%	60%
1955	26	0	26	30%	1937	52	41%	59%
1956	60	0	60	68%	1928	52	42%	59%
1957	49	0	49	56%	1986	52	43%	59%
1958	80	0	80	92%	1954	51	44%	59%
1959	40	0	40	46%	1923	50	46%	57%
1960	25	0	25	29%	1975	50	47%	57%
1961	35	0	35	40%	1957	49	48%	56%
1962	43	0	43	50%	1940	49	49%	56%
1963	56	0	56	64%	1965	49	51%	56%
1964	38	0	38	43%	1950	49	52%	56%
1965	49	0	49	56%	1989	46	53%	53%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	62	0	62	71%	1948	45	54%	52%
1967	79	0	79	91%	1962	43	56%	50%
1968	36	0	36	41%	1979	41	57%	47%
1969	87	0	87	100%	1947	41	58%	47%
1970	61	0	61	70%	1953	40	59%	46%
1971	36	0	36	41%	1946	40	60%	46%
1972	32	0	32	37%	1959	40	62%	46%
1973	60	0	60	69%	1964	38	63%	43%
1974	63	0	63	72%	2003	36	64%	41%
1975	50	0	50	57%	1968	36	65%	41%
1976	29	0	29	33%	1971	36	67%	41%
1977	8	0	8	9%	1961	35	68%	40%
1978	87	0	87	100%	2002	34	69%	38%
1979	41	0	41	47%	1933	33	70%	38%
1980	65	0	65	74%	1972	32	72%	37%
1981	30	0	30	34%	1981	30	73%	34%
1982	87	0	87	100%	1976	29	74%	33%
1983	87	0	87	100%	1925	26	75%	30%
1984	65	0	65	74%	1955	26	77%	30%
1985	56	0	56	64%	1931	25	78%	29%
1986	52	0	52	59%	1960	25	79%	29%
1987	18	0	18	21%	1926	22	80%	25%
1988	8	0	8	10%	1939	21	81%	24%
1989	46	0	46	53%	1929	20	83%	22%
1990	11	0	11	13%	1944	19	84%	22%
1991	17	0	17	20%	1987	18	85%	21%
1992	15	0	15	17%	1930	18	86%	20%
1993	54	0	54	62%	1991	17	88%	20%
1994	15	0	15	18%	1949	17	89%	19%
1995	87	0	87	100%	1994	15	90%	18%
1996	77	0	77	88%	1992	15	91%	17%
1997	52	0	52	60%	2001	14	93%	16%
1998	87	0	87	100%	1924	12	94%	13%
1999	63	0	63	72%	1932	11	95%	13%
2000	57	0	57	65%	1990	11	96%	13%
2001	14	0	14	16%	1934	10	98%	11%
2002	34	0	34	38%	1988	8	99%	10%
2003	36	0	36	41%	1977	8	100%	9%
Average	47	0	47	53%		47		53%
Maximum	87	0	87	100%		87		100%
Minimum	8	0	8	9%		8		9%

Table B-32. Ventura County WPD: Future Conditions

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1922	15	0	15	77%	1978	20	0%	100%
1923	11	0	11	57%	1998	20	0%	100%
1924	3	0	3	13%	1952	20	0%	100%
1925	6	0	6	30%	1969	20	0%	100%
1926	5	0	5	25%	1982	20	0%	100%
1927	12	0	12	62%	1995	20	0%	100%
1928	12	0	12	59%	1938	20	0%	100%
1929	4	0	4	22%	1983	20	0%	100%
1930	4	0	4	20%	2003	20	10%	98%
1931	7	0	7	33%	1941	19	11%	93%
1932	3	0	3	13%	1958	18	12%	92%
1933	8	0	8	38%	1967	18	14%	91%
1934	2	0	2	11%	1996	18	15%	88%
1935	14	0	14	69%	1942	17	16%	87%
1936	13	0	13	63%	1922	15	17%	77%
1937	12	0	12	59%	1951	15	19%	75%
1938	20	0	20	100%	1984	15	20%	74%
1939	5	0	5	24%	1980	15	21%	74%
1940	13	0	13	65%	1999	14	22%	72%
1941	19	0	19	93%	1974	14	23%	72%
1942	17	0	17	87%	1945	14	25%	71%
1943	14	0	14	69%	1966	14	26%	71%
1944	4	0	4	22%	1970	14	27%	70%
1945	14	0	14	71%	1935	14	28%	69%
1946	9	0	9	46%	1943	14	30%	69%
1947	9	0	9	47%	1973	14	31%	69%
1948	10	0	10	52%	1956	14	32%	68%
1949	4	0	4	19%	1989	13	33%	67%
1950	11	0	11	56%	1940	13	35%	65%
1951	15	0	15	75%	2000	13	36%	65%
1952	20	0	20	100%	1985	13	37%	64%
1953	9	0	9	46%	1963	13	38%	64%
1954	12	0	12	59%	1936	13	40%	63%
1955	6	0	6	30%	1927	12	41%	62%
1956	14	0	14	68%	1993	12	42%	62%
1957	11	0	11	56%	1997	12	43%	60%
1958	18	0	18	92%	1937	12	44%	59%
1959	9	0	9	46%	1928	12	46%	59%
1960	6	0	6	29%	1986	12	47%	59%
1961	8	0	8	40%	1954	12	48%	59%
1962	10	0	10	50%	1923	11	49%	57%
1963	13	0	13	64%	1975	11	51%	57%
1964	9	0	9	43%	1957	11	52%	56%
1965	11	0	11	56%	1965	11	53%	56%

SWP Table A Deliveries for 2019 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (TAF)	Article 56 Carryover (TAF)	Total Table A Delivery (TAF)	Percent of Maximum Table A	Year	Total Table A Delivery (TAF)	Exceedance Frequency (%)	Percent of Maximum Table A
1966	14	0	14	71%	1950	11	54%	56%
1967	18	0	18	91%	1948	10	56%	52%
1968	8	0	8	41%	1962	10	57%	50%
1969	20	0	20	100%	1979	9	58%	47%
1970	14	0	14	70%	1947	9	59%	47%
1971	8	0	8	41%	1953	9	60%	46%
1972	7	0	7	37%	1946	9	62%	46%
1973	14	0	14	69%	1959	9	63%	46%
1974	14	0	14	72%	1964	9	64%	43%
1975	11	0	11	57%	2002	9	65%	43%
1976	7	0	7	33%	1968	8	67%	41%
1977	2	0	2	9%	1971	8	68%	41%
1978	20	0	20	100%	1961	8	69%	40%
1979	9	0	9	47%	1933	8	70%	38%
1980	15	0	15	74%	1972	7	72%	37%
1981	7	0	7	34%	1981	7	73%	34%
1982	20	0	20	100%	1976	7	74%	33%
1983	20	0	20	100%	1931	7	75%	33%
1984	15	0	15	74%	1925	6	77%	30%
1985	13	0	13	64%	1955	6	78%	30%
1986	12	0	12	59%	1960	6	79%	29%
1987	4	0	4	21%	1926	5	80%	25%
1988	2	0	2	10%	1939	5	81%	24%
1989	13	0	13	67%	1929	4	83%	22%
1990	3	0	3	13%	1944	4	84%	22%
1991	4	0	4	20%	1987	4	85%	21%
1992	3	0	3	17%	1930	4	86%	20%
1993	12	0	12	62%	1991	4	88%	20%
1994	4	0	4	18%	1949	4	89%	19%
1995	20	0	20	100%	1994	4	90%	18%
1996	18	0	18	88%	1992	3	91%	17%
1997	12	0	12	60%	2001	3	93%	16%
1998	20	0	20	100%	1924	3	94%	13%
1999	14	0	14	72%	1932	3	95%	13%
2000	13	0	13	65%	1990	3	96%	13%
2001	3	0	3	16%	1934	2	98%	11%
2002	9	0	9	43%	1988	2	99%	10%
2003	20	0	20	98%	1977	2	100%	9%
Average	11	0	11	54%		11		54%
Maximum	20	0	20	100%		20		100%
Minimum	2	0	2	9%		2		9%