

**Draft Preliminary Assessment of
CDFW's Proposed Bypass Flow Criteria for the Sites Reservoir Project**

June 11, 2017

This preliminary assessment provides average annual Sites diversion results for a range of CDFW proposed bypass flow criteria. These criteria specify the amount of storm event flow that must be present at a given location in the system before Sites diversions can occur upstream. These criteria are **not** minimum flow criteria that must be met or supplemented by the Sites Project.

The analysis included evaluation of eight sensitivity runs under current conditions using the DWR Delivery Capability Report (DCR 2015) CalSim II model with the WSIP implementation of the Sites Project (Alternative D) as the base case. The sensitivity runs include interpretations of three flow criteria proposed by CDFW:

- Diversion restrictions to maintain Tisdale Weir spills up to 5,000 cfs
- Increasing Wilkins Slough bypass flows requirements from 8,000 cfs to 14,000 cfs in November through May
- Delta Outflow criteria of 44,500 cfs in March, April, and May.

In addition, a sensitivity run with no monthly pulse bypass flow requirement was conducted to assess the impact the current monthly pulse bypass flow criteria has on average annual diversions to Sites Reservoir.

Results of the analyses are summarized and presented in the table and figures below.

Summary

The base case DCR2015 current conditions model run with Alternative D shows an average annual diversion to sites Reservoir of 514 TAF/year, as show in the table below. **Alternative D** includes a bypass flow criteria of 5,000 cfs at Wilkens Slough consistent with the project description in the EIS/R. There is no Tisdale Weir or Delta Outflow criteria above D-1641 specified in Alternative D.

Adding the Tisdale Weir spill criteria reduces the annual average diversion to Sites Reservoir by about 12 TAF/year, the smallest impact on Sites fills of all of the sensitivity runs.

Increasing the Wilkins Slough bypass flow criteria from 5,000 cfs to 8,000 cfs reduces average annual diversions by 45.7 TAF/year, a reduction of about 9%. **Increasing the Wilkins Slough bypass flow criteria in 2,000 cfs increments from 8,000 cfs to 14,000 cfs reduces average annual Sites fills by additional increments of approximately 9%.**

The addition of the Delta Outflow criteria of 44,500 cfs in March through May reduces average annual diversions by 72.6 TAF/year.

The combination of the Tisdale, Wilkins Slough (8,000 cfs), and Delta Outflow criteria reduce annual average Sites diversions by 24% or 124 TAF/year.

The elimination of the monthly pulse bypass flow requirement included in Alternative D resulted in an increase in average annual diversions to Sites Reservoir of about 10 TAF/Year.

Sensitivity Analysis

The runs are defined as follows:

1. **DCR2015** = Base Case (DCR2015 With Alternative D Project)
2. **No Pulse Bypass Flow** = "DCR2015" + No Monthly Pulse Bypass Flow Criteria

3. **Tisdale** = “DCR2015” + Tisdale Weir Spill Criteria
4. **Wilkins8k** = “DCR2015” + Wilkins Slough winter Bypass Flow of 8,000 cfs
5. **Wilkins10k** = “DCR2015” + Wilkins Slough winter Bypass Flow of 10,000 cfs
6. **Wilkins12k** = “DCR2015” + Wilkins Slough winter Bypass Flow of 12,000 cfs
7. **Wilkins14k** = “DCR2015” + Wilkins Slough winter Bypass Flow of 14,000 cfs
8. **DO Criteria** = “DCR2015” + Delta Outflow flow of 44,500 cfs in March, April, and May
9. **DO+T+W8k** = Combination of Delta Outflow 44,500 cfs + Tisdale + “Wilkins Slough 8,000 cfs

The summary table, bar chart, and exceedance figures below present the preliminary results of the analysis.

October-September			
Total Average Annual Diversion to Sites Reservoir			
Volume (TAF)		Difference from Previous	Difference from DCR2015 with Alternative D
DCR2015 with Alternative D	514.0		
Eliminate Monthly Bypass Pulse Flow	523.4	9.5	9.5
Tisdale Weir	502.0	-21.4	-11.9
Wilkins8k	468.3	-33.7	-45.7
Wilkins10k	426.4	-41.9	-87.5
Wilkins12k	388.5	-37.9	-125.5
Wilkins14k	355.3	-33.2	-158.7
Delta Outflow Criteria 44,500 cfs March – May	441.3	86.1	-72.6
Delta Outflow +Tisdale +Wilkins Slough 8,000 cfs	390.0	-51.3	-123.9

Total Average Annual Diversion to Sites Reservoir (Wilkins Slough Bypass Requirements)

