



Water Resources ♦ Flood Control ♦ Water Rights

M E M O R A N D U M

DATE: November 16, 2022
TO: Melinda Terry, Manager – North Delta Water Agency
FROM: Anne Williams & Yuen Lenh
SUBJECT: 2022 Water Quality Contract Criteria – Drought Emergency

During June 2022, there were two incidents when the salinity levels at the Three Mile Slough (TMS) monitoring location exceeded the salinity criteria established in the Attachment A graphs of North Delta Water Agency's (NDWA) 1981 Contract (Contract) with the Department of Water Resources (DWR).

These incidents occurred during a period of "drought emergency" as defined in the Contract and therefore, as identified in Article 4. (b)(iii) of the Contract, the Contract criteria is superseded by criteria established in the State Water Resources Control Board (SWRCB)'s Temporary Urgency Change Order (TUCO). Although the salinity levels exceeded the Contract criteria for the Sacramento River at Three Mile Slough (TMS) station from June 4th through June 9th and June 17th through June 22nd, DWR remained in compliance with the Contract since salinity levels did not exceed the criteria established in the SWRCB's TUCO. This memorandum provides details on the triggering of the "drought emergency" and associated change in Contract criteria, as well as water quality conditions experienced during this time.

Contract Water Quality Compliance Criteria

There are seven stations with salinity criteria under the Contract, and the criteria is determined from Attachment A and is based on the exceedance forecast for the Four River Index as published in DWR's Bulletin 120. Compliance is based on the 14-day running average of the mean daily EC¹. MBK monitors the water quality at each of the stations and notifies DWR when water quality is trending towards the Contract criteria. As established by the graphs in Attachment A of the Contract, the applicable criteria values during the incidents described in this memorandum are summarized in the following table. These criteria are based on the May 1, 2022 Bulletin 120 50% exceedance forecast for the Four River Basin Index of 10.57 MAF.

¹ Daily EC levels may exceed the established criteria without being considered an exceedance of the Contract criteria in the event of a drought emergency.

Station	Date Range	Contract Criteria
TMS	5/1 – 6/22	1.42 mS/cm
TMS	6/23 – 8/22	2.08 mS/cm
TMS	8/23 – 12/31	2.55 mS/cm

Criteria Changes During Drought Emergency Periods

Article 4(b)(i) of the Contract states a “drought emergency” exists when all of the following occur: 1) The Four-River Basin Index is less than an average of 9 MAF in two consecutive years; 2) A SWRCB emergency regulation is in effect and maintains water quality different from the Contract criteria; 3) The SWP allocation to State Water Project (SWP) agricultural contractors in the San Joaquin Valley are reduced by at least 50% or the annual entitlements of all SWP contractors are reduced by at least 15%. The following summarizes the occurrence of each of these conditions in 2022.

- 1) The May 1, 2022 Bulletin 120, which forecasted the Four-River Basin Index to be 10.6 MAF for 2022. Since the Four-River Basin Index was 6.4 MAF for 2021, the two-year consecutive average of the Four-River Basin Index was 8.5 MAF.
- 2) On April 4, 2022 the SWRCB adopted a TUCO allowing temporary changes to water quality requirements under D-1641 requested by the Central Valley Project and State Water Project (Projects) through June 30, 2022. The changes included a term which allowed the D-1641 Western Delta agricultural salinity compliance point on the Sacramento River at Emmaton (2.78 mS/cm) to be moved upstream to TMS during certain conditions. This change permits the maintenance of water quality different than that of the Contract, and supersedes the Contract criteria from Attachment A beginning on June 3, 2022 and continuing through June 30, 2022.
- 3) On March 18, 2022, the SWP announced allocations to SWP agricultural contractors to be 5% of their annual contractual supplies.

With the occurrence of all three conditions as summarized above, a “drought emergency”, as defined under the Contract, existed during the period from June 3, 2022 through June 30, 2022. According to the Contract, “when a drought emergency exists, the emergency water quality criteria of the SWRCB shall supersede the water quality requirements of this contract”. Therefore, during the period from June 3, 2022 through June 30, 2022 when the TUCO was in effect, DWR was allowed to operate the SWP to maintain the modified D-1641 water quality criteria of 2.78 mS/cm instead of the Attachment A Contract criteria. The following table summarizes the Contract criteria and the criteria authorized under the SWRCB’s TUCO for May through December 2022.

Station	Date Range	Contract Criteria	TUCO Criteria
TMS	5/1 – 6/2	1.42 mS/cm	-
TMS	6/3 – 6/22	1.42 mS/cm	2.78 mS/cm
TMS	6/23 – 6/30	2.08 mS/cm	2.78 mS/cm
TMS	7/1 – 8/22	2.08 mS/cm	-
TMS	8/23 – 12/31	2.55 mS/cm	-

*Dictating compliance criteria shown in **bold***

June 2022 Water Quality Conditions

The Contract criteria at TMS was 1.42 mS/cm for the period May 1, 2022 through June 22, 2022. There were two incidents of water quality surpassing the Contract criteria in during this period. In the first incident, the 14-day mean EC exceeded the Contract criteria on June 4th and remained above the standard for 6 days. The peak mean daily EC during this period was 1.48 mS/cm. In the second incident, the 14-day mean EC exceeded the Contract criteria on June 17th and remained above the standard for 6 days². The peak mean daily EC during this period was 1.49 mS/cm.

As of June 3, 2022, the Projects were no longer storing or directly diverting water and were supplementing flows to meet Delta requirements; therefore, in accordance with the TUCO, the D-1641 compliance point was temporarily moved from Emmaton to TMS. Beginning on June 3rd and extending through June 30th, the water quality requirements approved under the TUCO, 2.78 mS/cm at TMS, superseded those under the Contract, 1.42 mS/cm at TMS. Therefore, per the Article 4(b)(iii) drought emergency provision, although the Contract criteria was exceeded during these incidents, DWR was not out of compliance with the Contract since salinity levels did not exceed the criteria set by the TUCO. The following table summarizes the Contract criteria, criteria authorized under the SWRCB’s TUCO, and the peak mean daily EC level.

WQ Criteria Date Range	Contract Criteria	TUCO Criteria	Period of Exceedance	Peak Mean Daily EC Level
6/3 – 6/22	1.42 mS/cm	2.78 mS/cm	6/4 – 6/9	1.48 mS/cm
			6/17 – 6/22	1.49 mS/cm

*Dictating WQ Criteria shown in **bold***

² Article 2(a)(iii) of the Contract states that the water quality criteria shall be met at all times except for a “transition period beginning one week before and extending one week after the date of change in periods” during which period operations will “provide as uniform a transition as possible ... to arrive at the new criteria one week after the date of change in period”. The TMS criteria changed on June 23, 2022, and therefore the exceedances of 1.42 mS/cm beginning on June 17th were within one week of the criteria change and occurred during the “transition period”.

DWR Communications and Compliance Actions

During drought conditions, MBK has regularly scheduled coordination calls with DWR staff. These calls occur at least monthly and more frequently when needed. DWR staff typically provides an update on current SWP operations and near-term changes in operations. MBK typically describes current water quality conditions within NDWA at the seven monitoring stations specified in the Contract and any observations from landowners on current irrigation/farming practices. DWR staff have been very responsive to questions that arise during the meetings and provide necessary follow-up as applicable after the meetings.

As conditions change or questions come up between the regular coordination calls, MBK typically calls or emails Ian Uecker, the Manager of DWR's Near-Term Modeling Unit. Specific communication with DWR during June 2022 is summarized below.

TMS (6/4 – 6/9)

On June 1, 2022 MBK contacted DWR staff via email, identifying increasing EC levels at TMS likely due to a combination of high spring tides followed by open Delta Cross Channel Gates over the Memorial Day weekend. DWR staff (Mr. Uecker) responded via email later that day. DWR identified that a few days prior, releases from Oroville had been increased by 500 cfs and export pumping at Clifton Court had been reduced by 300 cfs. Staff anticipated that these changes, along with descending tidal conditionals and U.S. Bureau of Reclamation (Reclamation) actions to increase releases from Folsom and close the Delta Cross Channel Gates, should improve salinity at TMS although may take several days. Despite these changes, the 14-day running average of the mean daily EC exceeded the Contract criteria on June 4, 2022 and remained above the criteria for a period of 6 days³.


On June 6, 2022 DWR emailed NDWA identifying that as of June 3, 2022 the Contract's "drought emergency" conditions existed. In accordance with Article 4(b)(iii) of the Contract, when a drought emergency exists, DWR is allowed to operate to the water quality criteria established by the SWRCB, in this case the TUCO. Although the Contract criteria was exceeded during the period of June 4th through 9th, the observed water quality conditions at TMS did not exceed the SWRCB's modified requirement; therefore, DWR was not out of compliance with the Contract.

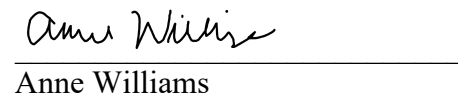
TMS (6/17 – 6/22)

On June 17, 2022, MBK contacted DWR staff again regarding rising salinity levels at TMS,. Mr. Uecker responded the same day identifying that Folsom releases had recently been increased by Reclamation, and that DWR would consider additional upstream releases the

³ Although the Contract criteria was exceeded, DWR remained in compliance as the TUCO, which resulted in the D-1641 criteria of 2.78 mS/cm being moved to TMS and overriding the existing Contract criteria, was in effect.

following week depending on how water quality reacted to the additional Folsom water and the coming neap tidal cycle. The 14-day running average of mean daily EC exceeded the Contract criteria on June 17, 2022 for a period of six days. However, as previously identified the TUCO was still in effect allowing for the D-1641 Emmaton standard of 2.78 mS/cm to be met at TMS. Additionally, the “drought emergency” continued to exist during this period; therefore, although since water quality conditions at TMS did not exceed the SWRCB’s modified requirement DWR was not out of compliance with the Contract during this period.


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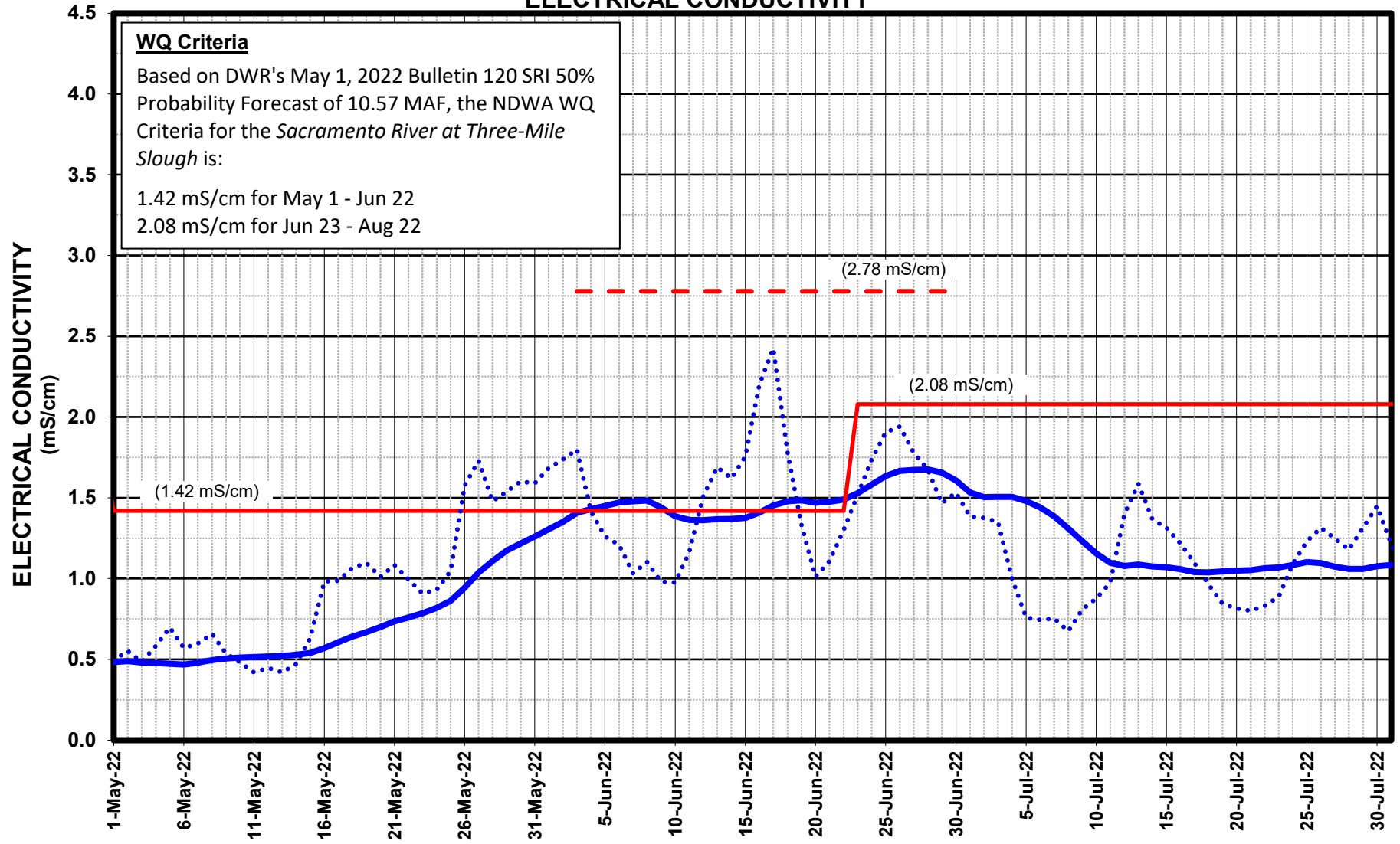
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Attachments:

TMS Water Quality Plot

NORTH DELTA WATER AGENCY SACRAMENTO RIVER AT THREE-MILE SLOUGH ELECTRICAL CONDUCTIVITY



— THREE-MILE SLOUGH AT SACRAMENTO RIVER

..... Mean Daily EC at Three-Mile Slough

— NDWA CONTRACT CRITERIA

- - - TUCO D-1641 Criteria (@TMS)