



— BUREAU OF —
RECLAMATION

2022 Temporary Change in Nitrate Water Quality Requirements for Groundwater Introduced into the Delta-Mendota Canal

CGB-EA-2022-030

Final Environmental Assessment

Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated Island Communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Contents

	Page
1 Introduction	1
1.1 Background.....	1
1.2 Purpose and Need for the Proposed Action.....	1
2 Alternatives Including Proposed Action	2
2.1 No Action Alternative.....	2
2.2 Proposed Action.....	2
3 Affected Environment and Environmental Consequences	3
3.1 Air Quality.....	3
3.2 Biological Resources	4
3.3 Climate Change.....	4
3.4 Cultural Resources	5
3.5 Environmental Justice	5
3.6 Indian Sacred Sites	5
3.7 Indian Trust Assets	5
3.8 Land Use.....	5
3.9 Water Resources.....	6
3.10 Agencies and Persons Consulted	7
3.11 Public Review Period.....	7
4 References	7
Table 1. List of Wells in DMC Pump-in Program that May be Able to Participate*.....	6

1 Introduction

The Bureau of Reclamation (Reclamation) provided the public with an opportunity to comment on the Draft Environmental Assessment (EA) between July 15, 2022 and July 25, 2022. No comments were received. Changes between this Final EA and the Draft EA, which are not minor editorial changes, are indicated by vertical lines in the left margin of this document.

1.1 Background

Since 1995, eight San Luis & Delta-Mendota Water Authority (Authority) member agencies¹ located along the Delta-Mendota Canal (DMC) have implemented a project referred to as the DMC Groundwater Pump-in Program. The DMC Pump-in Program involves the annual cumulative introduction of up to 50,000 acre-feet (AF) of groundwater into the DMC as long as specific criteria are met (e.g., water quality requirements and monitoring). The DMC Pump-in Program has been analyzed in various EAs the most recent of which was in 2018 (Reclamation 2018). In 2018, due to drought and increased trends in subsidence near the DMC (Farr et al. 2017, Sneed et al. 2013), Reclamation revised the DMC Pump-in Program to include additional design constraints to address groundwater level impacts and subsidence. All wells that participate in the DMC Pump-in Program are required to meet Reclamation's then-current water quality requirements (Reclamation 2018).

Due to current drought conditions, three of the member agencies (Del Puerto Water District, Panoche Water District, and San Luis Water District) have requested a temporary change in certain water quality requirements for the DMC Pump-in Program that would allow additional wells to be used to provide supplemental water supplies to meet existing agricultural demands.

1.2 Purpose and Need for the Proposed Action

On February 23, 2022², due to a third year of drought, Reclamation declared a 0 percent allocation for south of Delta Central Valley Project (CVP) agricultural contractors. As a result, Del Puerto Water District, Panoche Water District, and San Luis Water District (the Districts) have a need to find alternative sources of water to fulfill demands. The purpose of the Proposed Action is to temporarily allow wells that are not meeting Reclamation's current water quality criteria for nitrates to participate in the Program to provide supplemental water supplies during this contract year (through February 28, 2023).

¹ The member agencies that participate in the DMC Groundwater Pump-in Program include the following: Banta Carbona Irrigation District, Byron-Bethany Irrigation District, Del Puerto Water District, Mercy Springs Water District, Panoche Water District, Pacheco Water District, San Luis Water District, and West Stanislaus Irrigation District.

² [Reclamation outlines initial 2022 water allocations for Central Valley Project contractors \(usbr.gov\)](https://www.usbr.gov/central-valley-project/contractors/initial-2022-water-allocations)

2 Alternatives Including Proposed Action

2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not temporarily change water quality requirements for nitrates through February 28, 2023. Only wells that meet the water quality requirements specifically described in Reclamation’s water quality monitoring plan (Reclamation 2018) would be allowed to pump groundwater into the DMC as previously approved under the existing DMC Groundwater Pump-in Program.

2.2 Proposed Action

Reclamation proposes to temporarily change water quality requirements for nitrates through February 28, 2023. The Proposed Action is subject to the following conditions:

- Nitrates (as NO₃) at the well head cannot exceed 75 mg/L. Nitrates (as NO₃) in the DMC measured downstream of Check 13 and Mile Post 100.70 (downstream of Panoche Water District’s last introduction point) may not exceed 20 mg/L.
- Only wells that have current (2021 or more recent) water quality data can participate.

Weekly sampling for nitrates will be performed by the Districts. Each weekly collection will consist of one sample from each location (Check 13 and Mile Post 100.70), plus one duplicate sample (total of four samples per week). All samples would be collected in bottles and delivered to the South-Central California Area Office by 5pm on Thursday. The Districts will pay for all water sampling conducted for this variance. Each sample will be tested for nitrates (as NO₃) with a minimum detection level of 1 microgram per liter (µg/L). If the concentration of nitrates exceeds the parameters listed above, Reclamation will direct the Authority to notify the applicable Districts to incrementally direct the well operators with the highest levels to stop pumping into the DMC until thresholds are met.

In addition to the conditions described above and the criteria included in Reclamation’s then-current water quality requirements for the DMC Pump-in Program (Reclamation 2018), the Authority and participating member agencies shall continue to implement the following environmental commitments as required for the DMC Groundwater Pump-in Program:

- Each district would be required to confirm that the proposed pumping of groundwater would be compatible with local ordinances. Each district would be limited to pumping a quantity below the “safe yield” as established in applicable ordinances or their groundwater management plan, in order to prevent groundwater overdraft and avoid adverse impacts.
- No groundwater pumping would occur in Management Areas 2 and 3 since these areas are subject to inelastic subsidence.
- All districts participating in the DMC Groundwater Pump-in Program must annually provide the depth to groundwater in every well prior to start of pumping.

- Though most of the wells are privately owned, the Districts must provide access to each well for Reclamation and Authority staff, as and when required for verification of sampling and data collection.
- All compliance monitoring data collected by the Districts would be entered into worksheets and presented each week to Reclamation and the Authority via e-mail. Reclamation would review the data to identify potential changes in the local aquifer that could lead to overdraft or subsidence.
- Groundwater measurements have been collected by the Authority since May 1995. Annually, the current depth to groundwater in each well would be compared to the measured depths. If the current depth exceeds the maximum measured depth, Reclamation would recommend that the District stop pumping from that well until the depth of water recovers to an agreed depth, such as the median observed depth.
- The water shall be used for beneficial purposes and in accordance with Federal Reclamation law and guidelines, as applicable.
- Use of the water shall comply with all federal, state, local, and tribal law, and requirements imposed for protection of the environment and Indian Trust Assets.
- The water shall be used within the permitted place of use.
- No land conversions may occur and no construction or other ground disturbing activity may occur as part of the Proposed Action.
- No native or untilled land (fallow for three years or more) may be cultivated with the water involved with these actions. Most of the water would be used to sustain existing permanent crops (orchards, vineyards).

3 Affected Environment and Environmental Consequences

The Affected environment is the same as described in the 2018 EA (Reclamation 2018) which is hereby incorporated by reference and not repeated here.

3.1 Air Quality

The pumping of wells for the Program was previously analyzed in the 2018 EA which found emissions of all of the proposed pumps, including those under the Proposed Action considered here, to be well below the de minimis thresholds for the San Joaquin Valley Air Pollution Control District. As such, there would be no additional direct, indirect, or cumulative impacts beyond those previously covered and a conformity analysis pursuant to the Clean Air Act is not required.

3.2 Biological Resources

Nitrate is an important useable source of nitrogen for living organisms, but may be toxic in certain concentrations. Nitrate is the least toxic of the three major nitrogenous compounds (ammonia, nitrate, and nitrite) that are commonly found in water supplies, so its effects on wildlife have not been as extensively studied. The United States Environmental Protection Agency only has nitrate criteria for drinking water and has not yet established criteria for maximum nitrate concentrations necessary to protect aquatic life. Studies that have been conducted on the effects of nitrate to freshwater aquatic life have recommended maximum nitrate levels ranging from 21.7 mg NO₃⁻/L to 40 mg NO₃⁻/L (Monson & Preimesberger 2010; Nordin & Pommen 2001). The maximum recommended nitrate concentration for terrestrial organisms is 100 mg NO₃⁻/L (Nordin & Pommen 2001). However, as described in Section 2.2, the total concentration of nitrates in the DMC would not be allowed to exceed 20 mg/L, and would therefore remain within the suggested concentrations necessary to protect aquatic and terrestrial wildlife.

Although the DMC may be occasionally occupied by non-native fish like bass, blue-gill and minnows, the canal's fast flows do not provide much suitable habitat for aquatic wildlife. No federally listed or proposed aquatic species occur within the DMC, so none would be affected by increased nitrate concentrations. The water associated with the Proposed Action would only be used to irrigate agricultural lands which would maintain the baseline conditions for listed species. No native or fallowed lands, untilled for three or more years, would be converted as a result of the Proposed Action. Land use patterns of cultivated and fallowed fields that could provide suitable habitat for listed species or birds protected under the Migratory Bird Treaty Act (MBTA) would also not be changed as a result of the Proposed Action. No ground disturbance, construction, or alteration of natural stream courses would be required to complete the Proposed Action. There is no designated critical habitat within the Action area, so none would be affected. With the implementation of the environmental commitments listed in Section 2.2, Reclamation has determined that the Proposed Action would result in *No Effect* to listed species or designated critical habitat under the Endangered Species Act (16 U.S.C. §1531 et seq.) and *No Take* of birds protected under the MBTA (16 U.S.C. 703 et seq.).

As the Proposed Action is not expected to result in any direct or indirect impacts to biological resources, there would be no cumulative impacts.

3.3 Climate Change

The pumping of wells for the DMC Groundwater Pump-in Program was previously analyzed in the 2018 EA which found emissions of all of the proposed pumps, including those under the Proposed Action considered here, were well below the de minimis thresholds for the Environmental Protection Agency. As such, there would be no additional direct, indirect, or cumulative impacts beyond those previously covered.

3.4 Cultural Resources

There would be no impacts to cultural resources as a result of implementing the Proposed Action as the Proposed Action would facilitate the flow of water through existing facilities to existing users. No new construction or ground disturbing activities would occur as part of the Proposed Action. Reclamation has determined that these activities have no potential to cause effects to historic properties pursuant to 36 CFR Part 800.3(a)(1).

3.5 Environmental Justice

Executive Order 12898 requires each federal agency to identify and address disproportionately high and adverse human health or environmental effects, including social and economic effects of its program, policies, and activities on minority populations and low-income populations. The Proposed Action would facilitate the flow of water through existing facilities to existing users and would, therefore, not cause dislocation, changes in employment, or increase flood, drought, or disease nor would it disproportionately impact economically disadvantaged or minority populations. As the Proposed Action would not result in any direct or indirect impacts to environmental justice, it would not contribute cumulatively to any impacts to these resources.

3.6 Indian Sacred Sites

Executive Order 13007 (May 24, 1996) requires that federal agencies accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and avoids adversely affecting the physical integrity of such sacred sites. The Proposed Action would not limit access to and ceremonial use of Indian sacred sites on Federal lands by Indian religious practitioners or affect the physical integrity of such sacred sites. There would be no direct, indirect, or cumulative impacts to Indian sacred sites as a result of the Proposed Action.

3.7 Indian Trust Assets

Indian Trust Assets are legal interests in assets that are held in trust by the United States for federally recognized Indian tribes or individuals. There are no Indian reservations, rancherias or allotments in the Proposed Action area. The nearest Indian Trust Asset is a public domain allotment about 35 miles to the southwest of the Proposed Action area. Based on the nature of the Proposed Action it does not appear to be in an area that will impact Indian hunting or fishing resources or water rights nor is the proposed activity on actual Indian lands. It is reasonable to assume that the Proposed Action will not have any direct, indirect, or cumulative impacts on Indian Trust Assets.

3.8 Land Use

The additional groundwater allowed to be pumped and introduced under the Proposed Action would be used to meet existing agricultural demands. There would be no land use change. As the

Proposed Action would not result in any direct or indirect impacts to land use, it would not contribute cumulatively to any impacts to these resources.

3.9 Water Resources

Current 2022 baseline nitrate concentrations (as NO₃) in the DMC average 5.98 mg/L. The Proposed Action would temporarily allow certain wells that currently do not meet Reclamation's water quality criteria for nitrates (45 mg/L) to be used to provide a much-needed supplemental water supply during this critical drought period. Well head thresholds can only be exceeded up to 75 mg/L and blending in the canal cannot exceed half the MCL.

As shown in Table 1, currently seven wells meet Reclamation's current water quality standards for conveyance in the canal while one exceeds the well head MCL for nitrates. The eight wells could provide an additional supply of 17.4 cubic feet per second (cfs) of supplemental water assuming all other water quality criteria are met. Additional wells may be added if they meet current and proposed water quality criteria.

Table 1. List of Wells in DMC Pump-in Program that May be Able to Participate*

Mile Post	District	Well Discharge (cfs)	Nitrate as NO ₃ (mg/L)
29.95R	Del Puerto Water District	0.5	15.05
31.60L	Del Puerto Water District	1.5	70.83
32.36L	Del Puerto Water District	1.5	31.87
36.45R	Del Puerto Water District	2.5	23.02
50.46R	Del Puerto Water District	2.4	13.28
51.66L	Del Puerto Water District	1.0	27.89
98.60R	Panoche Water District	6.0	0.97
79.13L	San Luis Water District	2.0	41.58

*Full Title 22 water quality data is needed prior to approval for participation.

The Proposed Action would allow blending in the canal up to 20 mg/L over a short-term period (through February 2023) and would then return to current water quality requirements. All other water quality requirements would be unchanged.

Introduced groundwater would be within the 50,000 AF per year limit placed on the entire pump-in program. In order to prevent potential impacts to municipal and industrial (M&I) users downstream of pump-in locations, Reclamation is requiring weekly monitoring to ensure that nitrates in the DMC do not exceed 20 mg/L, less than half the MCL for nitrates established by the State of California for drinking water standards. If the concentration of nitrates in the DMC exceeds the thresholds, following notification from Reclamation, the Authority would notify the applicable District to incrementally direct the well operators with the highest levels of nitrates to stop pumping into the FKC until thresholds are met.

The temporary relaxation would not directly, indirectly, or cumulatively adversely impact water resources as criteria would remain below established thresholds known to protect water quality.

3.10 Agencies and Persons Consulted

Reclamation has consulted and coordinated with the following regarding the Proposed Action:

- Banta Carbona Irrigation District
- Byron-Bethany Irrigation District
- Del Puerto Water District
- Mercy Springs Water District
- Pacheco Water District
- Panoche Water District
- San Luis Water District
- San Luis & Delta-Mendota Water Authority
- West Stanislaus Irrigation District

3.11 Public Review Period

Reclamation provided the public with an opportunity to comment on the Draft EA between July 15, 2022 and July 25, 2022. No comments were received.

4 References

- Monson, Phil, M.S., and Angela Preimesberger, M.S. Aquatic Life Water Quality Standards Technical Support Document for Nitrate. Tech. Saint Paul, Minnesota: Minnesota Pollution Control Agency, 2010. Print.
- Nordin, R. N., Ph.d., and L. W. Pommen, M.Sc. "Water Quality Criteria for Nitrogen." Water Quality Criteria for Nitrogen. Ministry of Water, Land, and Air Protection, 7 Aug. 2001. Web. 20 Oct. 2014.
- Reclamation (Bureau of Reclamation). 2018. Delta-Mendota Canal Groundwater Pump-in Program Revised Design Constraints (FONSI/EA-18-007). South-Central California Area Office. Fresno, CA. Website:
https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=32781.
- State Water Resources Control Board. 2019. California Code of Regulations, Title 22. The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 4010 4037), and Administrative Code (Sections 64401 et seq.), as amended
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dw_regulations_2019_03_28.pdf