



DEPARTMENT OF PUBLIC WORKS

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Subject: City of Patterson Salinity Reduction and Prevention Ordinance/Policy Statement

The City of Patterson recognizes the importance of reducing salinity in the local groundwater. The City has taken numerous steps to minimize salinity and keep it from getting into the effluent at the Water Quality Control Facility. These efforts are summarized below in this Salinity Reduction and Prevention Ordinance/Policy Statement.

The City submitted a Salinity Minimization Plan to the Central Valley Regional Water Quality Control Board in May 2021. The Salinity Minimization Plan for compliance with the WDR Order R5-2018-007 requirement was conducted with the approach of identifying the salinity sources and evaluating plans for salinity reduction steps.

Key findings of the Salinity Minimization Plan:

- With the existing water and wastewater system, it is possible to continue to meet the RWQCB limitation of 1250 mg/L TDS in the WQCF effluent. Since the order came out in 2018, the WQCF has continued to demonstrate compliance with the effluent TDS limits.
- The TDS increased from 858 mg/L in the source water to 1183 mg/L in the WQCF effluent, showing a net increase of 325 mg/L. This level of increase is within the ranges seen at other similar locations. The treatment provided by WQCF reduced the TDS from 1352 mg/L in the influent to 1183 mg/L in the effluent. It is important to note that the WQCF does not add to salinity; it removes salinity.
- The City's industrial/commercial dischargers have potential to reduce TDS loading to the WQCF by 15 - 20% if they bring their TDS levels to what the rest of the dischargers are contributing at. However, this is not warranted at this time as the WQCF continues to meet its TDS discharge limitations. The City is in the process of conducting an industrial local limits study which may establish more stringent discharge limits for the commercial/industrial dischargers.
- The City plans on carefully monitoring the TDS levels in the source water as well as the WQCF effluent as the water usage continues to rise with the population growth. By establishing newer Industrial Discharger limits and requiring dischargers to minimize their salt contribution, the WQCF will continue to discharge the effluent

below 1250 mg/L. The City will investigate utilizing low TDS wells if the safe well yields allow.

- The City plans on working towards understanding possible negative Infiltration and Inflow as well identifying areas where high salinity waters may be entering the collection system infrastructure.

Monitoring of Water Supply Wells and chemical profile of water sources:

The City is mindful of salinity that is present in its water sources. The TDS in the source water is the biggest contributor of the TDS in the WQCF effluent. The City carefully monitors TDS levels as well as other constituents of concern including nitrates for all the potable water wells and utilizes the wells with best water quality and lower TDS levels. The City will continue close monitoring of the potable water supply wells.

In 2018, the City performed a comprehensive analyses of water supply options including potable and non-potable water supply options. Tertiary level treatment and ground water recharge, chemical treatment of water sources, developing alternate water sources etc. were considered. Alternate water supply sources are limited and will likely face financial, environmental, and regulatory constraints. The City will continue to use the current ground water wells for the water supply, maximizing those wells which have the highest water quality (lowest in nitrates and TDS).

Survey of residents:

According to a survey conducted by the City, 60% of the residents do not use water softeners. Amongst the residents who use water softeners, many use salts-based softeners because of its effectiveness. The City will continue its work in understanding the water softener use and its associated salinity impacts prior to initiating any additional action with regards to residential water softeners. The contribution to salinity from water softeners is speculative at best at this point. Salinity contributions from water softener usage will be further explored by the City as funding allows. The first step that the City is planning on implementing is to publish a guidance advisory on the softener use to help citizens replace/pick softeners with less impacts to the salinity. Ironhouse Sanitary District conducted a study in 2014 which indicated that Self Regenerating Water Softeners contribute 14% of the TDS load at WQCF. Preliminary analyses of Patterson indicate roughly 14% of the TDS load from Water Softeners, like Ironhouse. Further in-depth analyses of water softeners usage at Patterson and gathering of chemical data would be required to fully understand the impacts of water softeners in Patterson.

Participation in the Prioritization and Optimization (P&O) Study for Salt Compliance:

The City has signed up for participation in the P&O Study under Option 2 - Alternative Approach for the CV-SALTS initiative and paid associated fees. The City will continue to

participate in the CV-SALTS initiative. In general, P&O study participants must maintain current permit performance levels but will be allowed to defer more stringent and costly permitting requirements until such requirements are reevaluated after completion of the Phase 1 P&O Study, and Phase 2 of the Salt Control Program is implemented. By being part of the Coalition and funding the Coalition efforts, the City is looking forward to this comprehensive study and valley-wide solution to address the salinity issues.

City's Public Outreach events:

The City conducts up to five public outreach events per year. Guidance and education for issues such as water supply, water conservation, salinity and FOG reduction is provided during the outreach events.

Overall, the City continues to meet the discharge requirements of the WDR. The TDS rise through various residential and commercial water usage is about 325 mg/L. The WQCF effluent TDS of 1183 mg/L is below WDR limit of 1250 mg/L. Participation in P&O Study should provide directive to valley-wide solution to the Salinity issues and if any site-specific TDS reduction steps makes sense for Patterson. The City will continue to guide its Citizens to implement measures that will reduce the TDS contribution. The City will continue to work with Industrial discharges to reduce their TDS contributions.