



**SOLANO COUNTY
CIVIL GRAND JURY**

2022-2023

**SOLANO COUNTY
WASTEWATER TREATMENT PLANTS**

June 23,2023

Solano County

Wastewater Treatment Plants

Solano County Civil Grand Jury 2022-2023

I. SUMMARY

The Solano County Civil Grand Jury (Grand Jury) previously issued a report on the state of wastewater treatment plants within the County. The current Grand Jury chose to revisit the four plants to determine operational status and whether the plants instituted any of the previous recommendations. Investigation revealed that none of the plants adopted any of the recommendations presented.

II. INTRODUCTION

The 2018-2019 Solano County Civil Grand Jury issued a report entitled, “Wastewater Treatment Plants.” The Grand Jury reported three findings and three recommendations based on their investigation.

“**FINDING 1** – In many cases, wastewater effluent is not used to supply industrial needs or to irrigate crops and public lands.

“**RECOMMENDATION 1** – Wastewater treatment facility decision-makers consider, on an ongoing basis, if additional treated water can be used to replace current water supplies.

“**FINDING 2** – The Benicia and Dixon wastewater treatment plants release methane directly to the atmosphere, which could be used as fuel for co-generation.

“**RECOMMENDATION 2** – Explore options to capture methane released by wastewater treatment, such as generating electrical power.

“**FINDING 3** – Not all wastewater treatment plants utilize renewable sources of electrical power.

“**RECOMMENDATION 3** – Consider solar and wind power as alternative energy sources.”

The city managers of Benicia and Dixon were required to respond to all Findings. The general manager of the Fairfield-Suisun Sewage District was required to respond to Finding 1. The city manager of Vacaville was required to respond to Findings 1 and 3.

The individual plants responded to the findings as follows:

Respondent	Finding 1	Finding 2	Finding 3
City Manager of Benicia	Partially Disagree	Disagree	Agree
City Manager of Dixon	No Response	No Response	No Response
General Manager of Fairfield-Suisun Sewage District	Partially Disagree		
City Manager of Vacaville	Partially Disagree		Agree

While the plants may have considered the previous report’s recommendations, none of them adopted any of the solutions presented. As a result, the 2022-2023 Grand Jury chose to revisit the four plants to determine their current status.

III. METHODOLOGY

Reviewed 2018-19 Solano County Civil Grand Jury Report “Wastewater Treatment Plants.”
 Toured Suisun-Fairfield Wastewater Treatment Plant.
 Toured Vacaville Wastewater Treatment Plant.
 Toured Dixon Wastewater Treatment Plant.
 Toured Benicia Wastewater Treatment Plant.
 Interviewed staff at all four facilities.

IV. STATEMENT OF FACTS

Wastewater treatment plants operate to remove the bulk of contaminants in sewer water to prepare it for return to the environment. Two common methods of solid waste digestion used in wastewater treatment include aerobic (in the presence of oxygen) and anaerobic (without the presence of oxygen) microbes. These microbes digest waste solids and produce gases as a byproduct.

Benicia Wastewater Treatment Plant

Benicia Wastewater Treatment Plant staff reported that it would not be economically feasible at this time to develop commercial clients for its effluent. Also, the plant does not currently possess the necessary permits to utilize the treated wastewater in any other manner. The effluent is pumped into the nearby Sacramento River/Carquinez Strait. The Benicia City Council discussed issues regarding water supply and wastewater treatment at its March 7, 2023, council meeting but did not vote to institute any changes.

This facility’s anaerobic digestion tanks produce methane gas as a byproduct of processing solids in wastewater. Most of the methane gas becomes fuel for boilers to maintain the proper operating

temperature for the digestion tanks. According to staff, the amount of methane left over is not sufficient to justify capture for co-generation of electricity. What cannot be used for fuel gets burnt off in flares before releasing it into the atmosphere in compliance with applicable standards.

Plant staff indicated several renewable sources of energy had been discussed in the past. Residents near the wastewater plant opposed the proposal for solar energy panels due to aesthetic reasons, primarily due to unwanted reflection of light. Another consideration came from nearby Travis Air Force Base relating to potential interference with glare from solar panels and radar reflection from wind turbines. However, several other wastewater treatment plants in the area operate wind turbines and/or solar panels.

Dixon Wastewater Treatment Plant

The Dixon Wastewater Treatment Plant did not submit legally-required responses to the previous Grand Jury report. According to staff, the plant does not discharge its effluent into the surrounding area. Instead, they allow the processed water to seep into the ground or evaporate into the atmosphere. As the discharge of treated wastewater spreads into the plant's ground, the managers file reports with the Solano County Water Agency to monitor nearby groundwater sources for contamination as specified by regulation.

With respect to the release of methane into the atmosphere, staff reported they have no plans to capture methane emissions for the purpose of electrical co-generation. The Dixon plant contains several areas used for composting, which may decrease production of green house gases.

The Dixon plant does not utilize renewable sources of energy and depends on the local grid for power with a fuel oil backup system capable of providing up to thirty days of electricity.

Fairfield-Suisun Wastewater Treatment Plant

Effluent water not discharged into local waterways can be obtained from a spigot onsite at no cost. The Fairfield-Suisun Wastewater Treatment Plant staff reported effluent has been used to irrigate local farms, but they do not have plans to sell the water to industrial customers.

Vacaville Wastewater Treatment Plant

The staff stated the plant's effluent water is channeled into Alamo Creek, and they have no plans to provide water directly to industrial users or surrounding agricultural businesses. However, they reported several people draw water from the creek downstream.

As of the date of this report, the Vacaville Wastewater Treatment Plant adopted one of the recommendations from the previous report and has begun construction of a solar collector project that will generate one megawatt of electricity to power the plant.

V. FINDINGS AND RECOMMENDATIONS

FINDING 1 – The Benicia Wastewater Treatment Plant depends on the city electrical supply, as it does not have plans to install renewable energy sources. In the event of a citywide electrical blackout, staff stated the plant can operate for up to thirty days on gas/oil fuel, the burning of which would diminish local air quality.

RECOMMENDATION 1 – To maximize air quality of the surrounding area, continue to investigate the use of renewable energy sources to reduce fossil fuel use.

FINDING 2 – As the Dixon Wastewater Treatment Plant does not capture methane gas produced onsite, available methane cannot be used as fuel for co-generation energy production.

RECOMMENDATION 2 – Investigate the benefits of installing methane capture equipment for digestive tanks and compost areas.

COMMENTS

Overall, the quality of the effluent water from the treatment plants in Solano County is quite good. The plants should be encouraged to work with Federal and State Environmental Protection Agencies to develop ways to make this water available to County residents and businesses, rather than releasing it into the ground or local waterways.

Several wastewater treatment plants in Solano County use chlorination as a final step in the decontamination process. This requires maintaining adequate supplies of chemicals for chlorination and dechlorination. The staff members we spoke with assured us that their stored amounts never reached a critical level, even during times of supply chain issues.

The Fairfield-Suisun plant uses Ultraviolet radiation to complete the decontamination process. Other plants' staff indicated it is an expensive upgrade and not feasible at the time of this report, even though it would avoid potential bottleneck supply or hazardous materials incidents.

The Solano County wastewater treatment plants that do not use Ultraviolet radiation decontamination equipment should be encouraged to investigate the possibilities of installing this system.

REQUIRED RESPONSES

City Manager of Benicia (Finding 1)
City Manager of Dixon (Finding 2)

COURTESY COPIES

Solano County Board of Supervisors
General Manager of Fairfield-Suisun Sewage District
City Manager of Vacaville