

# BIOSOLIDS Annual Report Details

## 1. Federal regulatory compliance

There were no regulatory violations for biosolids in 2021. The SFPUC met all federal requirements for biosolids including metals levels, pathogen reduction, and vector attraction reduction.

## 2. Biosolids production and distribution

Biosolids production increased slightly this year at both plants, however, overall production is still lower compared to years prior to 2020, due to a reduction in workers commuting to the city. Notable changes in management practices were the discontinuation of landfill use and a new wet weather storage option.

A total of 55,930 wet tons of biosolids were produced at Southeast Treatment Plant (SEP) and Oceanside Treatment Plant (OSP) in 2021 (Figure 1). Both plants had a slight increase in 2021 (Figure 2).

SEP and OSP annual biosolids production		
Year	Wet tons	Dry metric tons
2016	69,236	14,724
2017	63,746	14,605
2018	68,805	16,254
2019	64,146	13,808
2020	51,622	10,796
2021	55,930	11,681

Figure 1. Biosolids production at SEP and OSP. Dry metric tons are calculated by creating a monthly average from the weekly composite total solids sample taken at each plant and multiplying the monthly wet tonnage at a plant by the monthly total solids average.

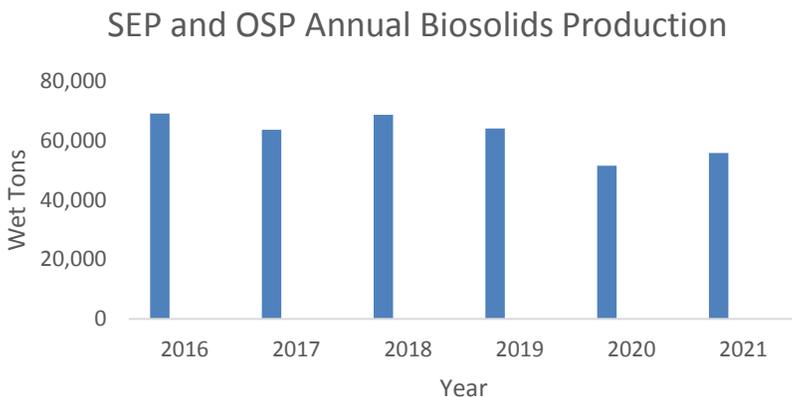
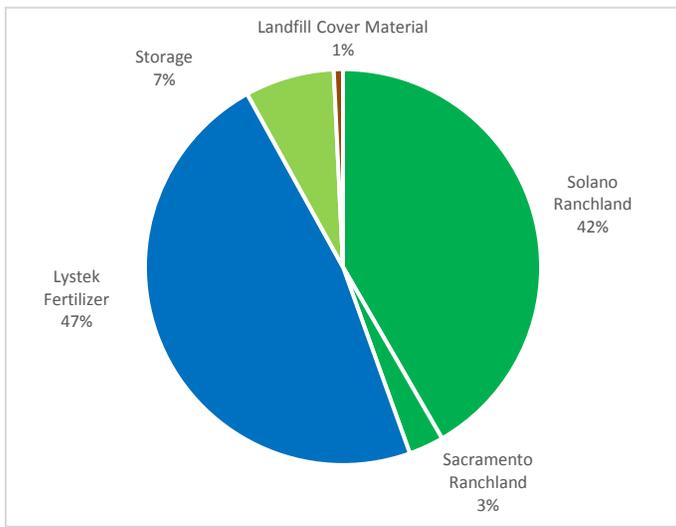


Figure 2. Annual biosolids production at SEP and OSP in wet tons.



While biosolids were sent to the Potrero Hills Landfill to be used as a cover material during the 2019-2020 wet weather season, no biosolids were sent to the Potrero Hills Landfill during the 2020-2021 and 2021-2022 wet weather season.

Figure 3. Distribution of biosolids in 2021.

### 3. Status of goals set in 2021

Four goals regarding the biosolids program were set in 2021 for biosolids mine reclamation, biosolids dewatering at OSP, training at OSP, and evaluation of the financial benefit of avoiding weekend hauling

**Goal 1.** Assess potential for using biosolids to restore degraded lands.

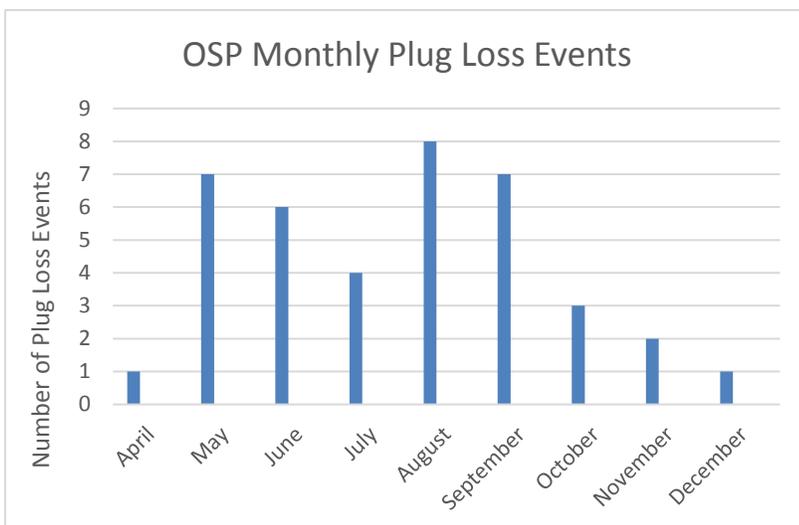
- Sylvis Environmental is investigating how this project could be implemented and has created an outline for how reclamation could occur.

**Goal 2.** Reduce the number of incidents where the plug is lost on the screw press at OSP to less than three times per month in the second half of 2020.

- As conditioned, un-dewatered biosolids are conveyed and pressed in the back end of the screw press, a mass of solids, called plug, forms. Under normal operating conditions, this mass of solids occupies the entire cross-sectional area of the screw. The plug plays a role in the biosolids dewatering process, as it prevents more liquid material to be discharged directly into the hopper. As dewatered solids from the plug slowly falls into the hoppers, more solids accumulate in the back and the plug is continuously regenerated.

Under certain conditions, the entire plug can be pushed out of the screw, creating what is called a loss of plug event. At this point, the conditioned sludge can no longer be dewatered until the plug is re-established.

- While OSP did not meet the goal of less than three-plug loss incidents per month (Figure 4), an alarm was developed to alert staff when issues arise. Since the implementation of the alarm, plug loss incidents have been short in duration and has increased awareness around the issue. In addition, an interlocked alarm is currently being developed and will have the ability to shut down specific equipment when the issue arises.



The incidents where OSP were below the targeted % total solids resulted from a number of issues including clogging of screw presses, polymer mixing ratio issues, plant-wide process shutdowns, staffing shortage, glitchy controls, high headbox levels in screw press, and other operational issues.

Figure 4. Plug Loss Events at Oceanside Treatment Plant.

**Goal 3.** *A Competency Based Training program is being implemented to provide consistency in operations and set standards for performance at OSP.*

- Standard operating procedures (SOPs) are being developed to provide operators guidelines on how to operate treatment plant processes. Assessments will be made to grade operator performance in meeting operating standards. Follow up training and assessments will occur approximately three months after initial assessments.
- Pretreatment, primary and secondary SOPs have been completed. Solids, pump stations, and maintenance SOPs are currently being developed.

**Goal 4.** *Evaluation of the financial benefit of avoiding weekend hauling.*

- In 2021, weekend hauling occurred primarily from OSP throughout the year. 729 wet tons of biosolids from SEP and 4,367 wet tons of biosolids from OSP were hauled on the weekends.
- SFPUC would experience approximately \$92,000 in annual savings if the biosolids produced on the weekends were hauled and managed on weekdays.

## 5. SEP Demonstration Garden

**The SEP demonstration garden continues to grow flowers and vegetables.** It was installed using a soil amendment made from biosolids from the OSP treatment plant. Below are the various plants in the garden.

