

BIOSOLIDS Annual Report Details

1. Federal regulatory compliance

There were no regulatory violations for biosolids in 2020. The SFPUC met all federal requirements for biosolids including metals levels, pathogen reduction, and vector attraction reduction.

2. Biosolids production and distribution

Biosolids production dropped sharply this year, primarily at SEP, 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 51,622 wet tons of biosolids were produced at SEP and OSP in 2020 (Figure 2). This drop was mostly due to a drop in production at SEP (Figure 3).

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

Figure 2. 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.

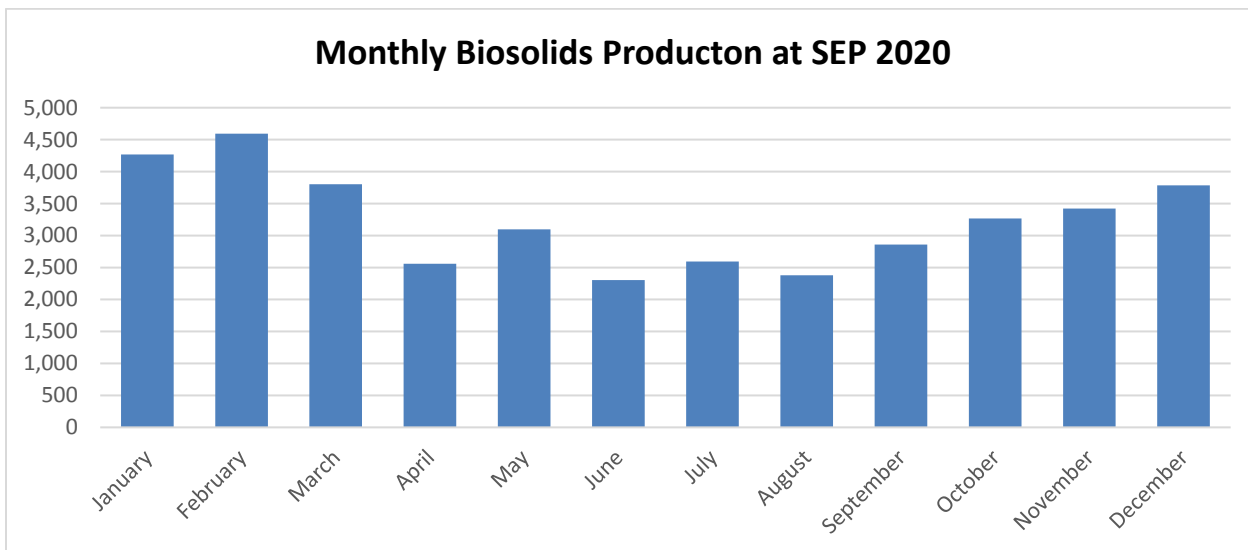
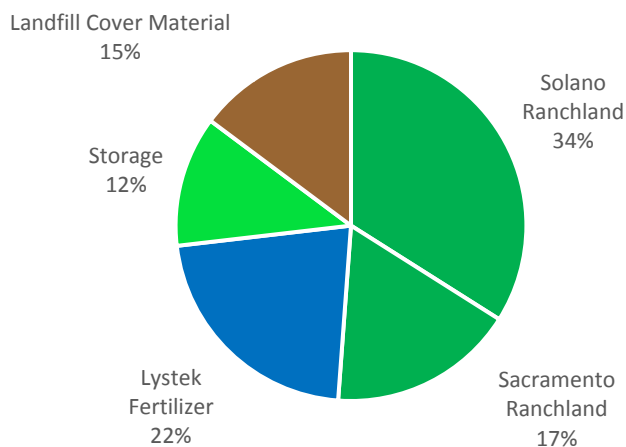


Figure 3. Monthly biosolids production at SEP in wet tons.



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 wet weather season.

Figure 4. Distribution of SFPUC biosolids in 2020.

3. Status of goals set in 2019

Three goals regarding the biosolids program were set in 2020 regarding biosolids mine reclamation, biosolids dewatering at OSP, and training at OSP.

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

- Both EPA Region 9 and the State Water Board have been notified about our intentions with this project and have been asked to be kept abreast of developments. It is not clear which Regional Board or County the project will be in, but once that is determined they can be approached about project details
- 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 3 times per month in the 2nd half of 2020.*

- As conditioned, undewatered 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.

- OSP process engineering developed an alarm which uses the DCS on the biosolids hopper scales. When the weight of biosolids in the hoppers increases at a faster rate than normal, this indicates liquid is pouring into the hopper and an email and text alert is sent out to a number of individuals. Since this alarm was implemented in October plug loss incidents have been short in duration and there has been increased awareness around the problem.
- Currently OSP is meeting this goal.

Date of Plug Loss Events at OSP
1/18/2020 7:51
2/7/2020 17:01
3/19/2020 1:35
3/22/2020 21:59
3/25/2020 7:24
3/30/2020 7:35
4/6/2020 19:57
6/9/2020 15:11
6/10/2020 10:14
6/22/2020 23:38
6/26/2020 15:21
7/7/2020 12:55
7/17/2020 7:51
7/17/2020 23:39
7/21/2020 11:47
8/4/2020 13:14
8/4/2020 17:36
8/6/2020 19:22
8/15/2020 6:01
9/23/2020 5:39
9/28/2020 10:34
10/4/2020 1:52
10/15/2020 22:21
11/4/2020 15:40
12/9/2020 23:56
12/22/2020 0:03

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

- While BMS team is not directly involved in the execution of this goal, proper operation of biosolids critical control points have a direct impact on biosolids quality and this effort is being captured in the BMS framework.
- Standard operating procedures (SOPs) will be put in place that will give operators guidelines on how to operate treatment plant processes. Operators with a high level of competency will be trained so that they can in turn provide training to their fellow operators on these SOPs. These “trainer operators” will then provide instruction based on developed training modules. Assessments will be made to grade operator performance in meeting operating standards. Follow up training and assessments will occur approximately 3 months after initial assessments.
- SOPs for pretreatment, primary and secondary have mostly been completed while work has begun on SOPs for solids, pump stations, and maintenance SOPs.

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 pumpkins grown from a single plant in the garden.

