



GOLETA SANITARY

Water Resource Recovery District

February 7, 2024

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Lauren Fondahl
US EPA Region 9 WTR-2-3
75 Hawthorne Street
San Francisco, CA 94105-3901

SUBJECT: 2023 BIOSOLIDS ANNUAL REPORT

Dear Ms. Fondahl:

Enclosed is Goleta Sanitary District's 2023 Biosolids Annual Report. The report was prepared as required for compliance with 40 CFR Part 503 Sludge Regulations. It documents the Goleta Sanitary District's monitoring, distribution, and record keeping regarding biosolids quality. The report summarizes the monitoring results for the biosolids generated during 2023. The laboratory analytical reports are available and will be provided upon request.

Should you have any questions regarding the report, please do not hesitate to contact me at this office.

Sincerely,

Steve Wagner, P.E.
General Manager / District Engineer

Enclosure

cc: Executive Officer, Central Coast RWQCB

Prepared by:

Reviewed by:

GOLETA SANITARY DISTRICT

BIOSOLIDS ANNUAL REPORT 2023



GOLETA SANITARY
Water Resource Recovery District

“Protecting Public Health and the Environment”

Submitted: February 7, 2024

TABLE OF CONTENTS

I.	General	Page
1.	Name of Generator.....	2
2.	Permit Number.....	2
3.	Location	2
4.	Mailing Address.....	2
5.	Contact Person	2
6.	Telephone	2
7.	Influent Flow	2
8.	Sludge Treatment Process	2
9.	Biosolids Distribution Program	3
10.	Summary	3
II.	Land Applied Biosolids.....	4
1.	Volume	4
2.	Priority Pollutants	5
3.	Class B	10
4.	Certification Statement-Class B.....	11
III.	Appendix A – Solids Flow Diagram	

BIOSOLIDS ANNUAL REPORT

I. GENERAL

1. **Name of Generator:** Goleta Sanitary District
2. **Permit No.:** CA 0048160
Order No.: R3-2017-0021
3. **Location:** 1 William Moffett Place
Goleta, CA 93117
4. **Mailing Address:** 1 William Moffett Place
Goleta, CA 93117
5. **Contact Person:** Pete Regis, Operations Manager
6. **Telephone:** (805) 967-4519
7. **Influent Flow:** 5.3 MGD 2023 Average Daily Flow
8. **Sludge Treatment Process:**

The Goleta Sanitary District (GSD) completed a major treatment plant upgrading project in December 2013. The main purpose of the construction project was to upgrade the partial secondary treatment portion of the facility to be able to treat 100% of the inflow to the full secondary level. The solids treatment portion of the facility was also upgraded as part of the project. Two of the five sludge drying beds were demolished to make room for a new solids handling building. The solids handling building contains two screw presses, two secondary sludge thickeners, pumping equipment, a chemical storage area, a screw conveyor for loading biosolids trucks and a sludge holding tank.

Settleable solids and floatable materials are skimmed from the primary clarifiers and transferred to one of the three anaerobic digesters. Secondary solids are mechanically thickened also using polymer and fed to the anaerobic digesters. The raw sludge is digested in the three heated anaerobic digesters for an average of 25 days at an annual average temperature of 96.5°F (35.8°C). Anaerobic digestion decomposes organic material, which produces digester gas composed primarily of methane. The digester gas is circulated to the boilers where it is used as fuel to heat the sludge in the digesters.

Sludge from the digesters can be sent directly to the screw press or can be pumped into one of two stabilization basins (lagoons) where the sludge is allowed to settle and continue to decompose. As the stabilization basins fill, stabilized sludge is dredged from the bottom of these basins and is dewatered by a screw press and

thickened by the addition of polymer to enhance coagulation. The resultant sludge was compressed to an average of 14.0 percent solids. These methods are used to generate Class B biosolids.

9. Biosolids Distribution Programs:

There were no Class A exceptional quality (EQ) biosolids produced by extended air drying in the sludge drying beds during 2023.

The District's Class B biosolids were hauled to Synagro West, LLC. at the former Liberty Composting facility located at 12421 Holloway Road, Lost Hills, CA 93249. Copies of the agreement with Synagro West are available upon request. The annual biosolids results submitted by Synagro West LLC. are herewith incorporated by reference.

10. Summary

On November 10, 2017, the Goleta Sanitary District's current NPDES permit became effective. The Goleta Sanitary District operates under NPDES Permit No. CA0048160 and Waste Discharge Requirements (WDR) Order No. R3-2017-0021. These permits contain sludge-monitoring programs requiring the District to analyze its sludge for various constituents on either an annual or quarterly basis depending on the constituent. The District's NPDES permit also stipulates that the District's biosolids must meet all of the regulations contained in 40 CFR Part 503.

All of the District's quarterly and annual biosolids sampling involved collecting biosolids samples from the screw press. Pollutants identified in Tables 2 and 3 of 40 CFR Part 503.13 were measured five times throughout the year while the other priority pollutants such as, grease and oils, PCBs, organochlorine pesticides, etc., are monitored annually, in October. Frequency requirements for vector attraction reduction and pathogen classification monitoring follow the criteria set forth in 40 CFR 503 Regulations.

All biosolids currently being produced and distributed by GSD are released in bulk form as "Pollutant Concentration (PC) Biosolids, Class B", and, as such, they meet 40 CFR Part 503 sections 503.12 and 503.14, General Requirements and Management Practices. During 2023, a total of 416 dry metric tons of bulk biosolids were produced by the Goleta Sanitary District.

II. LAND APPLIED BIOSOLIDS

1. Volume:

From January 2023 to December 2023, the Goleta Sanitary District distributed a total of 416 dry metric tons of biosolids. According to 40 CFR 503.8(b)(4) and Table E-12 *Amount of Biosolids and Frequency of Analysis* this amount of biosolids is required to be monitored quarterly.

Table 1 summarizes the total amount of biosolids in wet tonnage distributed on a monthly basis. The values in Table 1 are not reported on a dry weight basis, however the annual total in the final row is reported on a dry weight basis.

Table 1. Monthly Biosolids Distribution 2023, Wet Tons

Month	Synagro West LLC. Class B
January	232.40
February	387.74
March	162.25
April	374.01
May	411.95
June	452.69
July	149.69
August	76.82
September	NA
October	166.16
November	412.09
December	449.91
Wet Ton Total	
3,275.71	
Dry Metric Ton Total	
416.03	

2. Priority Pollutants:

Based on the amount of biosolids distributed from January 2023 to December 2023 the District was required to monitor 503.13 priority pollutant concentrations at a frequency of once per quarter as stated in Table 1 of 40 CFR part 503.16, *Frequency of Monitoring-Land Application*. The priority pollutant monitoring occurred in February, April, June, October, and December which also fulfilled the sludge monitoring requirements of the District's NPDES permit.

Trace Metals

The results of the trace metal priority pollutants are tabulated in Table 2 and Table 3. Synagro West also had the biosolids from GSD analyzed for trace metals and other constituents twice a year. Table 4 summarizes the Synagro West testing results. Not all metals were analyzed for all samples every quarter. An analysis that was not performed on a specific sample is denoted by the letters "NA". Samples listed as NA – not analyzed - are analyzed typically on an annual basis in October only. All laboratory results indicate that the District's biosolids meet all of the metal pollutant limits found in TABLE 4 of 503.13 for the "Exceptional Quality" and "Pollutant Concentration" designations.

Class B results in Table 2, Table 3 and Table 4 are reported in mg/kg – dry weight basis. Percent moisture at the time of sampling is also recorded. Laboratory reports will be provided upon request.

Table 2. PRIORITY POLLUTANTS BIOSOLIDS 2023, mg/dry Kg

POLLUTANT	POLLUTANT LIMITS Part 503 Table 3, Sec 503.13	February 2023 2/7/2023	April 2023 4/18/2023	June 2023 6/22/2023
Antimony	NL	NA	NA	NA
Arsenic	41	< 7.2	< 7.2	< 7.6
Beryllium	NL	NA	NA	NA
Boron	NL	< 18	< 18	< 19
Cadmium	39	< 1.1	< 1.1	< 1.1
Chromium	* (1)	39	47	49
Copper	1,500	690	570	650
Lead	300	7.7	12	12
Mercury	17	0.30	0.36	0.40
Molybdenum ^{*(2)}	75	25	23	24
Nickel	420	23	27	25
Phosphorus	NL	22,000	25,000	26,000
Selenium	100	< 7.2	< 7.2	< 7.6
Silver	NL	2.3	2.0	2.1
Thallium	NL	NA	NA	NA
Zinc	2,800	1,100	1,000	1,000
pH	NL	NA	NA	NA
Oil & Grease	NL	NA	NA	NA
% Moisture	NL	86.4	86.4	87.9
Nitrate	NL	< 3.5	< 3.7	< 4.1
Organic Nitrogen	NL	62,500	40,000	45,000
Kjeldahl Nitrogen	NL	72,000	50,000	59,000
Ammonia	NL	9,500	10,000	14,000

NL = No Limit. NA = Not Analyzed.

*(1) On October 25, 1995 the EPA amended Part 503 to delete chromium standards from Tables 1 through 4 of Subpart B, Land Application.

*(2) The EPA amended Part 503 on February 25, 1994 to delete temporarily the Table 3 molybdenum limits. However, the ceiling limit of 75 mg/Kg from Table 1 has been retained and must be met.

Table 3. PRIORITY POLLUTANTS BIOSOLIDS 2023 CONTINUED, mg/dry Kg

POLLUTANT	POLLUTANT LIMITS Part 503 Table 3, Sec 503.13	October 2023 10/16/2023	December 2023 12/5/2023
Antimony	NL	< 7.0	NA
Arsenic	41	< 7.0	< 6.3
Beryllium	NL	2.7	NA
Boron	NL	< 17	< 16
Cadmium	39	< 1.0	< 0.94
Chromium	* (1)	59	56
Copper	1,500	680	650
Lead	300	13	13
Mercury	17	0.53	0.30
Molybdenum ^{*(2)}	75	37	28
Nickel	420	30	29
Phosphorus	NL	16,000	29,000
Selenium	100	< 7.0	< 6.3
Silver	NL	2.3	1.9
Thallium	NL	< 3.5	NA
Zinc	2,800	1,100	1,000
pH	NL	8.35	NA
Oil & Grease	NL	62,700	NA
% Moisture	NL	86.2	85.4
Nitrate	NL	< 3.6	< 3.3
Organic Nitrogen	NL	50,000	53,640
Kjeldahl Nitrogen	NL	66,000	54,000
Ammonia	NL	16,000	360

NL = No Limit. NA = Not Analyzed.

- *(1) On October 25, 1995 the EPA amended Part 503 to delete chromium standards from Tables 1 through 4 of Subpart B, Land Application.
- *(2) The EPA amended Part 503 on February 25, 1994 to delete temporarily the Table 3 molybdenum limits. However, the ceiling limit of 75 mg/Kg from Table 1 has been retained and must be met.

**Table 4. LIBERTY COMPOSTING/SYNAGRO PRIORITY POLLUTANTS BIOSOLIDS RESULTS
2023, mg/dry Kg**

POLLUTANT	POLLUTANT LIMITS Part 503 Table 3, Sec 503.13	January 2023 1/13/2023	July 2023 7/10/2023
Total Coliform (MPN/g)	NL	24,200	>24,200
Antimony	NL	<129	<37.5
Arsenic	41	<38.6	<11.3
Barium	NL	357	337
Beryllium	NL	<6.44	<1.88
Cadmium	39	<6.44	1.36
Chromium	* (1)	33.8	42.1
Chromium ⁶⁺	NL	<20.9	<2.96
Cobalt	NL	<12.9	2.96
Copper	1,500	650	540
Lead	300	<25.8	9.95
Mercury	17	<1.12	0.610
Molybdenum ^{*(2)}	75	27.4	20.7
Nickel	420	<25.8	27.5
Selenium	100	<38.6	9.34
Silver	NL	<19.3	1.74
Thallium	NL	<129	<37.5
Vanadium	NL	13.8	17.9
Zinc	2,800	930	826
pH	NL	6.8	7.5
TDS	NL	2,920	10,600
% Solids	NL	7.61	26.1
Nitrate	NL	<13	0.60
Kjeldahl Nitrogen	NL	65,500	41,900

NL = No Limit. NA = Not Analyzed. *(1) & *(2) footnotes can be found below Table 2.

Organic Nitrogen

The biosolids were analyzed individually for both total kjeldahl nitrogen and ammonia nitrogen. *Standard Methods for the Examination of Water and Wastewater, 18th Edition*, Method 4500-N_{org} B states that "Should kjeldahl nitrogen and ammonia nitrogen be determined individually, "organic nitrogen" can be obtained by difference." The organic nitrogen concentrations that are summarized in Table 2 and Table 3 were determined in this manner.

Pesticides and Organics

As part of the annual October sampling requirement, biosolids samples were collected by District personnel and analyzed by Oilfield Environmental & Compliance (OEC) Lab, for organochlorine pesticides and organic chemicals as defined by EPA methods 8081A, 8260B, 8270C. Of the over 150 compounds analyzed none of the compounds were detected. No limits for these compounds are specified by 40 CFR Part 503. Table 5 has the cyanide result which was below the detection limit for the analysis. The laboratory reports will be provided upon request.

Table 5. DETECTED PARAMETERS, BIOSOLIDS, October 2023

Parameter, concentration unit	Concentration
Cyanide, mg/kg dry	< 0.73

3. Class B

Bulk Distribution – Management Practices

The bulk biosolids were used by Synagro West at the former Liberty Composting facility. The composting facility is located on 162-acres located in Lost Hills, CA. Synagro West employs both windrow composting and aerated static pile composting for attainment of Class A sewage sludge in accordance with provisions of the Federal Part 503 Regulations – Standards for the Use or Disposal of Sewage Sludge, 503.32(a)(1), *Sewage Sludge Class A*.

Pathogen Classification

The bulk biosolids prepared at the Goleta Sanitary District for land application meet Class B requirements of 40 CFR Part 503.32(b)(3), Class B-Alternative 2. This alternative states that the Class B requirements can be met if the sewage sludge is treated in one of the Processes to Significantly Reduce Pathogens as described in Appendix B to Part 503-Pathogen Treatment Processes.

The sewage sludge at the Goleta Sanitary District is treated in anaerobic digesters in the absence of air for an average of approximately 25 days at 35.8 degrees Celsius. This process meets the mean cell residence time and temperature of 15 days at 35 to 55 degrees Celsius described in Appendix B to Part 503.

Class B - Vector Attraction Reduction

Biosolids prepared at the Goleta Sanitary District meet the vector attraction reduction requirement listed in 503.33(b)(1) which states that "the mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38%." The fractional volatile solids reduction (FVSR) was calculated using the Van Kleeck Equation as found in EPA/625/R-92/013, "Control of Pathogens and Vector Attraction in Sewage Sludge", December 1992, p. 89. Results are summarized below in TABLE 6.

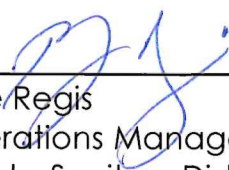
Table 6. VOLATILE SOLIDS REDUCTION

Screw Pressed Biosolids	Fractional Volatile Solids of Feed Sludge	Fractional Volatile Solids of Biosolids	Fractional Volatile Solids Reduction*	Percent Volatile Solids Reduction
2023 Averages	0.8194	0.6828	0.5256	52.6%

*FVSR is calculated using the Van Kleeck Equation as found in EPA/625/R-92/013, "Control of Pathogens and Vector Attraction in Sewage Sludge, December 1992, p. 89.

4. Certification Statement – Class B

"I certify, under penalty of law, that the information that will be used to determine compliance with the pathogen requirements in 503.32(b) and the vector attraction reduction requirement in 503.33(b)(1) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."



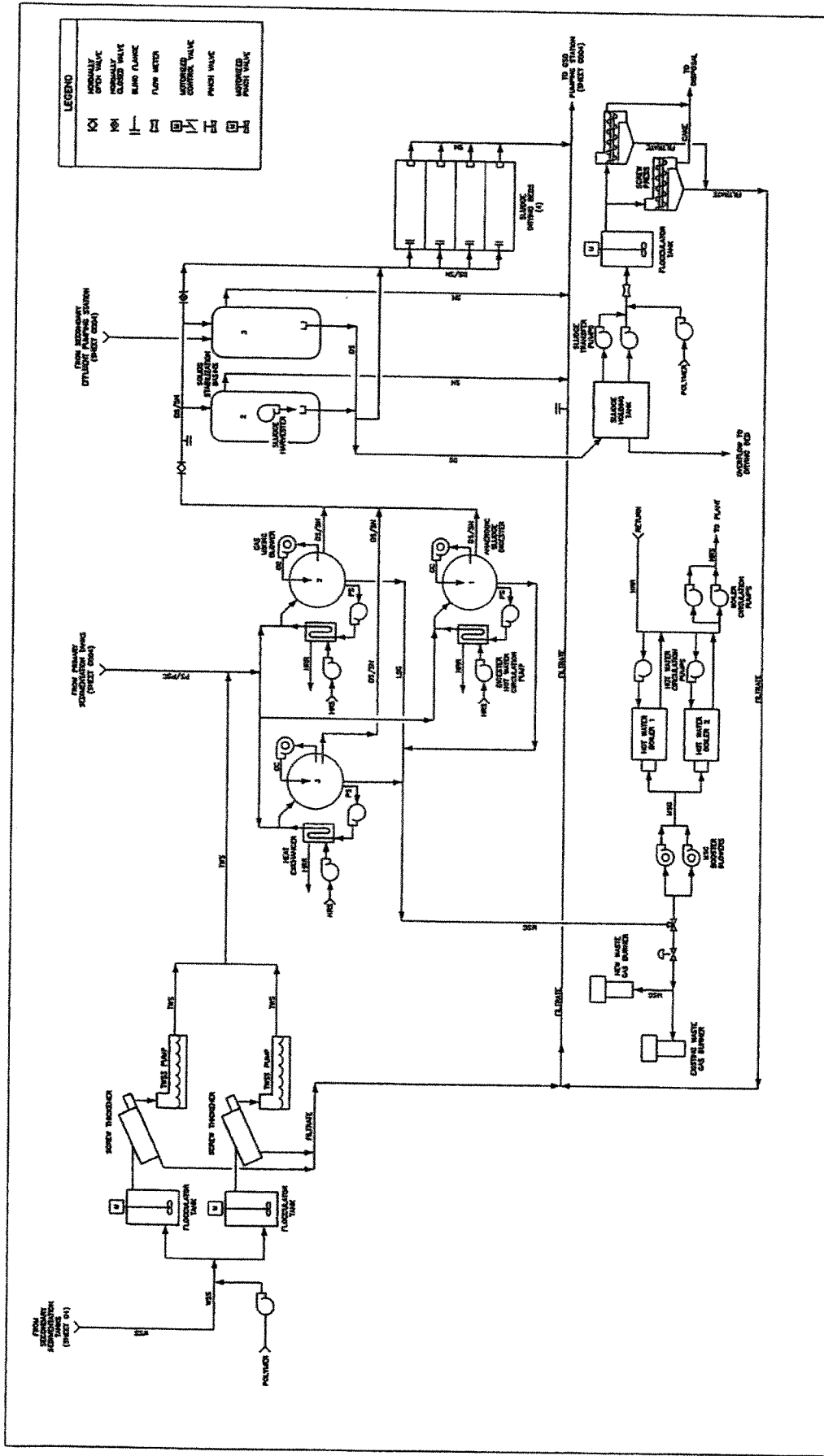
Pete Regis
Operations Manager
Goleta Sanitary District

2-7-24

Date

APPENDIX A

Solids Flow Diagram






PLANT FLOW DIAGRAM

SOLIDS

GOLETA WASTEWATER TREATMENT PLANT

DATE: 04-01-12

FIGURE: 0005