

**City of Morro Bay and
Cayucos Sanitary District**

**OFFSHORE MONITORING
AND REPORTING PROGRAM**

**RESIDUAL BIOSOLIDS
CHEMICAL ANALYSIS RESULTS**

AUGUST 2020



Marine Research Specialists
4744 Telephone Rd Ste 3 PMB 315
Ventura, California 93003

Report to
City of Morro Bay and
Cayucos Sanitary District

955 Shasta Avenue
Morro Bay, California 93442
(805) 772-6272

MONITORING
AND
REPORTING PROGRAM

ANNUAL BIOSOLIDS REPORT

CHEMICAL ANALYSIS RESULTS

August 2020

Prepared by

Douglas A. Coats

Marine Research Specialists

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September 2020

marine research specialists
4744 Telephone Rd., Suite 3 PMB 315 · Ventura, CA 93003 · (805) 644-1180

John Gunderlock
Wastewater Treatment & Collection Systems Supervisor
City of Morro Bay
955 Shasta Avenue
Morro Bay, CA 93442

18 September 2020

Reference: Chemical Analysis Results for Biosolid Samples Collected in August 2020

Dear Mr. Gunderlock:

Enclosed are the results of chemical analyses conducted on a representative composite of biosolid subsamples collected from the drying beds on 24 August 2020. Also included in this report are pertinent QA/QC data, including chains of custody and analyses of method blanks and spikes. All analyses were conducted following the requirements^a set forth in Order Number R3-2017-0050 of NPDES discharge Permit Number CA0047881.

Based on a comparison between measured chemical concentrations in the composite sample and applicable State and Federal regulations, the biosolids amassed in 2020 are not considered hazardous waste, and are deemed suitable for land application. A summary of the analytical results is presented in Table 1. As in prior years, only a few of the more than 150 compounds analyzed in the composite sample were detected at quantifiable concentrations, and all detected chemicals had concentrations well below the applicable standards. Bulk trace-metal concentrations measured in the August-2020 samples were comparable to concentrations measured in most samples collected annually from 1999 through 2019.^b

All trace-metal concentrations measured in the August-2020 sample were below Total Threshold Limit Concentrations (TTLC) that would designate them as hazardous under federal regulations.^c Similarly, dry-weight concentrations for all the metals were well below the federally mandated limits, including the monthly limits for biosolids suitable for land application. One metal, copper, had a bulk wet-weight concentration that exceeded ten-times the Soluble Threshold Limit Concentration (STLC). As a result, the required waste extraction test (WET) was conducted on this compound. The test indicated that the soluble concentration of copper (0.59 mg/L) was 42-times lower than the applicable STLC limit (25 mg/L) that would designate the biosolids as hazardous within the State of California. Lead's bulk wet-weight concentration (17 mg/kg) was less than ten-times its STLC (50 ppm), but the laboratory performed a WET anyway. As expected, the soluble lead concentration (0.64 mg/L) was found to be one-seventh of its STLC (5 ppm).^d

The consistent presence of low but detectable metal concentrations within the biosolids was expected. Many of the metals occur naturally in the mineralogy of ambient sediments within the central coast region. As a result, their presence in bulk biosolid samples was anticipated because sediments enter the collection system through runoff. Some of the metals also enter the collection system through internal corrosion of household plumbing systems, which accounts for their regular presence at low concentrations within effluent samples.

Other compounds listed in Table 1 further characterize the biosolids as specified in the waste discharge requirements.

Please contact the undersigned if you have any questions regarding these results.

Sincerely,

Douglas A. Coats
Program Manager

Enclosure (Three Report Copies)

Table 1. Summary of Results for Biosolids Analyses

Constituent	Units	Wet Weight				Dry Weight		
		Measured		Limit		Measured	Limit	
		Bulk ^e	WET ^f	STLC ^g	TTLT ^h	Bulk	Monthly ⁱ	Ceiling ^j
Solids	%	88.5	— ^k	—	—	—	—	—
Total Dissolved Solids	ppm	—	6,000.	—	—	—	—	—
Cyanide	ppm	1.8	—	—	—	2.1	—	—
Antimony	ppm	ND ^l	—	15.	500.	ND	—	—
Arsenic	ppm	1.6	—	5.	500.	1.8	41.	75.
Barium	ppm	280.	—	100.	10,000.	320.	—	—
Beryllium	ppm	≈0.13 ^m	—	0.75	75.	≈0.15	—	—
Boron	ppm	11.	—	—	—	13.	—	—
Cadmium	ppm	1.5	—	1.	100.	1.7	39.	85.
Chromium (Total)	ppm	28.	—	560.	2,500.	32.	1,200.	3,000.
Chromium (Hexavalent)	ppm	5.1	ND	5.	500.	5.7	—	—
Cobalt	ppm	≈1.8	—	80.	8,000.	≈2.0	—	—
Copper	ppm	290.	0.59	25.	2,500.	330.	1,500.	4,300.
Lead	ppm	17.	0.64	5.	1,000.	19.	300.	840.
Mercury	ppm	0.58	—	0.2	20.	0.66	17.	57.
Molybdenum	ppm	7.5	—	350.	3,500.	8.4	18.	75.
Nickel	ppm	19.	—	20.	2,000.	21.	420.	420.
Selenium	ppm	2.9	—	1.	100.	3.3	36.	100.
Silver	ppm	1.3	—	5.	500.	1.5	—	—
Thallium	ppm	ND	—	7.	700.	ND	—	—
Vanadium	ppm	12.	—	24.	2,400.	14.	—	—
Zinc	ppm	750.	—	250.	5,000.	850.	2,800.	7,500.
Hydrogen-Ion	pH	6.29	—	—	—	—	—	—
Phosphate	ppm	36,000.	—	—	—	40,000.	—	—
Ammonia	ppm	6,300.	—	—	—	7,100.	—	—
TKN	ppm	19,000.	—	—	—	21,000.	—	—
Organic Nitrogen ⁿ	ppm	12,700.	—	—	—	13,900.	—	—
Nitrate as NO ₃	ppm	38.	—	—	—	43.	—	—
Oil & Grease	ppm	14,000.	—	—	—	15,000.	—	—

^a Although Method EPA-8240 did not explicitly test for the presence of 2-chloroethyl vinyl ether (2-CEVE), a detectable concentration of this analyte would be reported as one of the Method's Tentatively Identified Compounds (TICs). As described in the Laboratory Report's *Case Narrative*, 2-CEVE was not detected in the August-2020 composite biosolids sample.

^b Marine Research Specialists (MRS). 1999 through 2019. City of Morro Bay and Cayucos Sanitary District, Residual Biosolids Chemical Analysis Results. Prepared for the City of Morro Bay and Cayucos Sanitary District, Morro Bay, CA. <http://www.morro-bay.ca.us/Archive.aspx?ADID=4607>

^c U.S. Government Printing Office (USGPO). 1997b. Code of Federal Regulations. Environmental Protection. Standards for the use or disposal of Sewage Sludge, Land Application, Pollutant Limits. Chapter 40, Part 503, Subpart B. 1 July 1997 edition.

^d Similarly, hexavalent chromium's bulk concentration (5.1 mg/kg) did not exceed ten-times its STLC (50 ppm), and a WET found no detectable concentration in the leachate.

^e The total wet-weight concentration (mg/kg) within a bulk biosolid sample consisting of the entire millable solid matrix rather than just the leachate.

^f Waste Extraction Tests (WET) measure the soluble leachate (mg/L) or the extractable amount of a substance contained within a bulk sample of biosolids. A WET is indicated if the bulk wet-weight concentration of a contaminant in a biosolids sample exceeds ten times the STLC.

-
- ^g Soluble Threshold Limit Concentrations (STLC) apply to the measured concentration in the liquid extract from a biosolid sample, as determined by a WET. Biosolids with leachate concentrations exceeding the STLC are classified as hazardous in the State of California as described in the California Code of Regulations (CCR), Title 22, Chapter 11: *Identification and Listing of Hazardous Waste*.
- ^h Total Threshold Limit Concentrations (TTLC) apply to the total wet-weight concentration of a contaminant (mg/kg) within a bulk biosolid sample. Biosolids are designated as hazardous wastes in the State of California if measured bulk concentrations exceed the TTLC as described in the CCRs, *op. cit.*
- ⁱ Federally mandated dry-weight limits imposed on biosolids suitable for application on agricultural land apply to monthly average concentrations as defined in Table 3 of the Code of Federal Regulations (CFRs). *Environmental Protection. Standards for the use or disposal of Sewage Sludge, Land Application, Pollutant Limits*. Chapter 40, Part 503, Subpart B [40 CFR §503.13(b)(1)].
- ^j Federally mandated dry-weight ceiling concentrations above which biosolids are considered hazardous waste as defined in Table 1 of the CFRs, *op. cit.*
- ^k “—” indicates that the measurement was not required or its limit was not specified.
- ^l “ND” indicates that the measurement was not detected in concentrations exceeding the method detection limit.
- ^m “≈” indicates the reported concentration was too low to be reliably quantified.
- ⁿ The amount of nitrogen as reported by TKN excluding ammonia



Date of Report: 09/18/2020

John Gunderlock

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Client Project: Biosolids Monitoring 2020
BCL Project: Biosolids from MBWWTP
BCL Work Order: 2024846
Invoice ID: B392178

Enclosed are the results of analyses for samples received by the laboratory on 8/26/2020. If you have any questions concerning this report, please feel free to contact me.

Revised Report: This report supercedes Report ID 1001074023

Sincerely,

Contact Person: Tina Green
Client Services

Authorized Signature

Certifications: CA ELAP #1186; NV #CA00014; OR ELAP #4032-001; AK UST101

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Case Narratives

Case Narrative for Work Order 2024846

2-CEVE can only be reported as a TIC (Tentatively Identified Compound). 2-CEVE was not found as a TIC for lab number 20-24849.



City of Morro Bay

Chain of Custody Form (Addenda)

Page 3 of 4

Analysis and Reporting for the Biosolids Sample from the Morro Bay Wastewater Treatment Plant^a 20-24846

Analysis ^b	Method
Level IIA QC	
Waste Extraction Tests on Copper ^c (CCR Title 22, Article 11)	STLC (6010)
Moisture	EPA 160.3 or BC
Total Dissolved Solids (TDS)	Modified Waste Extraction Test (STLC) EPA 160.1
CAM-17 Metals and Boron^d	
Antimony (Sb)	6010
Arsenic (As)	6010
Barium (Ba)	6010
Beryllium (Be)	6010
Boron (B)	6010
Cadmium (Cd)	6010
Total Chromium (Cr)	6010
Cobalt (Co)	6010
Copper (Cu)	6010
Lead (Pb)	6010
Mercury (Hg)	7471
Molybdenum (Mo)	6010
Nickel (Ni)	6010
Selenium (Se)	6010
Silver (Ag)	6010
Thallium (Tl)	6010
Vanadium (Va)	6010
Zinc (Zn)	6010
Total Kjeldahl Nitrogen (TKN) ^d	EPA 351.2
Ammonia as N ^d	EPA 230.1

^a Treatment plant personnel are coordinating with Jerry Mason regarding the existing bottle inventory at the plant and need for additional sample containers. They will also select a suitable date to coincide with regular courier pickups in August.

^b Prior to analysis, homogenize the composite sample in the laboratory to ensure uniform distribution of multiple subsamples in the sample container(s).

^c Other metals may need to be WET tested depending on their bulk concentrations (e.g. lead, mercury).

^d Sample results to be reported on an 'as received' and 'dry basis.'

^e Report 2-CEVE non-detects in the case narrative as an absence of an associated Tentatively Identified Compound (TIC), as has been the case for biosolids reporting in the past.

^f Modified-extraction, using DI water to extract not citric acid.

PAGE 3 of 4



City of Morro Bay

Chain of Custody Form (Addenda)

Page 4 of 4

20-24846

Analysis ^b	Method
Nitrate as NO ₃ ^d	EPA 300.0 or 353.2
Total Phosphate ^d	EPA 365.4
Total Cyanide ^d	EPA 9012
pH	EPA 9045 or 150.1
Oil and Grease	EPA 1664
Semi-volatile Organics	EPA 8270/625
Pesticides	EPA 8081 A
PCBs	EPA 8082
Volatile Organics – Low Level; report all EPA priority pollutants not reported Under other methods (including acrolein, acrylonitrile, and 2-chloroethyl vinyl ether ^e)	EPA 8240/624
Hexavalent Chromium (Total) ^d	EPA 7196
Hexavalent Chromium ^f	Modified Waste Extraction

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BC LABORATORIES INC. COOLER RECEIPT FORM Page 4 of 1

Submission #: 2024846

SHIPPING INFORMATION: Fed Ex UPS Ontrac Hand Delivery BC Lab Field Service Other (Specify) _____

SHIPPING CONTAINER: Ice Chest None Box Other (Specify) _____

FREE LIQUID: YES NO W / S _____

Refrigerant: Ice Blue Ice None Other Comments: _____

Custody Seals: Ice Chest Containers None Comments: _____

All samples received? Yes No All samples containers intact? Yes No Description(s) match COC? Yes No

COC Received: YES NO Emissivity: 0.95 Container: Clear glass Thermometer ID: 208 Date/Time: 8/26 1925

Temperature: (A) 3.1 °C / (C) 3.1 °C Analyst Init: GSP

SAMPLE CONTAINERS	SAMPLE NUMBERS									
	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES										
4oz / 8oz / 16oz PE UNPRES										
2oz Cr ⁶⁺										
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PLA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL										
QT EPA 1664										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 502/508/509										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.J										
8oz EPA 548										
QT EPA 549										
QT EPA 801SM										
QT EPA 8270										
8oz / 16oz / 32oz AMBER										
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments: _____

Sample Numbering Completed By: GSP Date/Time: 8/26 2000

A = Actual / C = Corrected

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City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
2024846-01	COC Number:	---	Receive Date:	08/26/2020 19:25
	Project Number:	---	Sampling Date:	08/24/2020 11:30
	Sampling Location:	---	Sample Depth:	---
	Sampling Point:	Composite Biosolids	Lab Matrix:	Solids
	Sampled By:	John Gunderlock	Sample Type:	Sludge

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City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Organochlorine Pesticides (EPA Method 8081A)

BCL Sample ID:	2024846-01	Client Sample Name:	Composite Biosolids, 8/24/2020 11:30:00AM, John Gunderlock							
Constituent	Dry Basis Result	As Recvd Result	Units	As Received		Method	TTLT Limits	Lab Quals	Run #	
				PQL	MDL					
Aldrin	ND	ND	mg/kg	0.15	0.0054	EPA-8081A	1.4	A10	1	
alpha-BHC	ND	ND	mg/kg	0.15	0.011	EPA-8081A		A10	1	
beta-BHC	ND	ND	mg/kg	0.15	0.014	EPA-8081A		A10	1	
delta-BHC	ND	ND	mg/kg	0.15	0.011	EPA-8081A		A10	1	
gamma-BHC (Lindane)	ND	ND	mg/kg	0.15	0.0054	EPA-8081A	4.0	A10	1	
Chlordane (Technical)	ND	ND	mg/kg	15	0.30	EPA-8081A	2.5	A10	1	
4,4'-DDD	ND	ND	mg/kg	0.15	0.019	EPA-8081A	1.0	A10	1	
4,4'-DDE	ND	ND	mg/kg	0.15	0.028	EPA-8081A	1.0	A10	1	
4,4'-DDT	ND	ND	mg/kg	0.15	0.012	EPA-8081A	1.0	A10	1	
Dieldrin	ND	ND	mg/kg	0.15	0.011	EPA-8081A	8.0	A10	1	
Endosulfan I	ND	ND	mg/kg	0.15	0.0060	EPA-8081A		A10	1	
Endosulfan II	ND	ND	mg/kg	0.15	0.010	EPA-8081A		A10	1	
Endosulfan sulfate	ND	ND	mg/kg	0.15	0.0078	EPA-8081A		A10	1	
Endrin	ND	ND	mg/kg	0.15	0.020	EPA-8081A	0.2	A10	1	
Endrin aldehyde	ND	ND	mg/kg	0.15	0.0054	EPA-8081A		A10	1	
Heptachlor	ND	ND	mg/kg	0.15	0.026	EPA-8081A	4.7	A10	1	
Heptachlor epoxide	ND	ND	mg/kg	0.15	0.0051	EPA-8081A		A10	1	
Methoxychlor	ND	ND	mg/kg	0.15	0.028	EPA-8081A	100	A10	1	
Toxaphene	ND	ND	mg/kg	15	0.42	EPA-8081A	5	A10	1	
TCMX (Surrogate)	51.5	51.5	%	20 - 130 (LCL - UCL)		EPA-8081A		A10	1	
Decachlorobiphenyl (Surrogate)	52.6	52.6	%	40 - 130 (LCL - UCL)		EPA-8081A		A10	1	

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8081A	09/01/20 13:45	09/02/20 15:34	HKS	GC-17	300	B086356	EPA 3550B

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City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

PCB Analysis (EPA Method 8082)

BCL Sample ID:	2024846-01	Client Sample Name:	Composite Biosolids, 8/24/2020 11:30:00AM, John Gunderlock							
Constituent	Dry Basis Result	As Recvd Result	Units	As Received		Method	TTLT Limits	Lab Quals	Run #	
				PQL	MDL					
PCB-1016	ND	ND	mg/kg	2.7	0.63	EPA-8082	50	A10	1	
PCB-1221	ND	ND	mg/kg	2.7	0.90	EPA-8082	50	A10	1	
PCB-1232	ND	ND	mg/kg	2.7	0.71	EPA-8082	50	A10	1	
PCB-1242	ND	ND	mg/kg	2.7	0.41	EPA-8082	50	A10	1	
PCB-1248	ND	ND	mg/kg	2.7	0.57	EPA-8082	50	A10	1	
PCB-1254	ND	ND	mg/kg	2.7	0.44	EPA-8082	50	A10	1	
PCB-1260	2.1	1.8	mg/kg	2.7	0.49	EPA-8082	50	J,A10	1	
Total PCB's (Summation)	2.1	1.8	mg/kg	2.7	1.4	EPA-8082	50	J,A10	1	
Decachlorobiphenyl (Surrogate)	83.3	83.3	%	40 - 120 (LCL - UCL)		EPA-8082		A10	1	

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8082	09/01/20 11:30	09/01/20 21:10	HKS	GC-14	272.73	B086357	EPA 3550B

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City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8240)

BCL Sample ID:	2024846-01	Client Sample Name:	Composite Biosolids, 8/24/2020 11:30:00AM, John Gunderlock						
Constituent	Dry Basis Result	As Recvd Result	Units	As Received		Method	TTLT Limits	Lab Quals	Run #
				PQL	MDL				
Benzene	0.0019	0.0017	mg/kg	0.010	0.0013	EPA-8240		J,A10	1
Bromodichloromethane	ND	ND	mg/kg	0.010	0.0016	EPA-8240		A10	1
Bromoform	ND	ND	mg/kg	0.010	0.0014	EPA-8240		A10	1
Bromomethane	ND	ND	mg/kg	0.010	0.0034	EPA-8240		A10	1
Carbon tetrachloride	ND	ND	mg/kg	0.010	0.0016	EPA-8240		A10	1
Chlorobenzene	ND	ND	mg/kg	0.010	0.0015	EPA-8240		A10	1
Chloroethane	ND	ND	mg/kg	0.010	0.0022	EPA-8240		A10	1
Chloroform	ND	ND	mg/kg	0.010	0.0018	EPA-8240		A10	1
Chloromethane	ND	ND	mg/kg	0.010	0.0022	EPA-8240		A10	1
Dibromochloromethane	ND	ND	mg/kg	0.010	0.0016	EPA-8240		A10	1
1,2-Dichlorobenzene	ND	ND	mg/kg	0.010	0.0016	EPA-8240		A10	1
1,3-Dichlorobenzene	ND	ND	mg/kg	0.010	0.0015	EPA-8240		A10	1
1,4-Dichlorobenzene	ND	ND	mg/kg	0.010	0.0015	EPA-8240		A10	1
1,1-Dichloroethane	ND	ND	mg/kg	0.010	0.0013	EPA-8240		A10	1
1,2-Dichloroethane	ND	ND	mg/kg	0.010	0.0015	EPA-8240		A10	1
1,1-Dichloroethene	ND	ND	mg/kg	0.010	0.0022	EPA-8240		A10	1
trans-1,2-Dichloroethene	ND	ND	mg/kg	0.010	0.0074	EPA-8240		A10	1
1,2-Dichloropropane	ND	ND	mg/kg	0.010	0.0016	EPA-8240		A10	1
cis-1,3-Dichloropropene	ND	ND	mg/kg	0.010	0.0012	EPA-8240		A10	1
trans-1,3-Dichloropropene	ND	ND	mg/kg	0.010	0.0013	EPA-8240		A10	1
Ethylbenzene	ND	ND	mg/kg	0.010	0.0014	EPA-8240		A10	1
Methylene chloride	ND	ND	mg/kg	0.020	0.0022	EPA-8240		A10	1
Methyl t-butyl ether	ND	ND	mg/kg	0.010	0.0011	EPA-8240		A10	1
1,1,2,2-Tetrachloroethane	ND	ND	mg/kg	0.010	0.0017	EPA-8240		A10	1
Tetrachloroethene	ND	ND	mg/kg	0.010	0.0019	EPA-8240		A10	1
Toluene	0.0024	0.0021	mg/kg	0.010	0.0014	EPA-8240		J,A10	1
1,1,1-Trichloroethane	ND	ND	mg/kg	0.010	0.0013	EPA-8240		A10	1
1,1,2-Trichloroethane	ND	ND	mg/kg	0.010	0.0019	EPA-8240		A10	1
Trichloroethene	ND	ND	mg/kg	0.010	0.0015	EPA-8240	2040	A10	1
Trichlorofluoromethane	ND	ND	mg/kg	0.010	0.0030	EPA-8240		A10	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ND	mg/kg	0.010	0.0020	EPA-8240		A10	1
Vinyl chloride	ND	ND	mg/kg	0.010	0.0012	EPA-8240		A10	1

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City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8240)

BCL Sample ID:	2024846-01	Client Sample Name:	Composite Biosolids, 8/24/2020 11:30:00AM, John Gunderlock						
Constituent	Dry Basis Result	As Recvd Result	Units	As Received		Method	TTLT Limits	Lab Quals	Run #
				PQL	MDL				
Total Xylenes	0.0064	0.0057	mg/kg	0.020	0.0050	EPA-8240		J,A10	1
Acrolein	ND	ND	mg/kg	0.10	0.011	EPA-8240		A10	1
Acrylonitrile	ND	ND	mg/kg	0.040	0.0040	EPA-8240		A10	1
1,2-Dichloroethane-d4 (Surrogate)	114	114	%	70 - 121 (LCL - UCL)		EPA-8240			1
Toluene-d8 (Surrogate)	88.6	88.6	%	81 - 117 (LCL - UCL)		EPA-8240			1
4-Bromofluorobenzene (Surrogate)	88.2	88.2	%	74 - 121 (LCL - UCL)		EPA-8240			1
TIC: 2-Butanone	0.62	0.55	mg/kg			EPA-8240		A10	1
TIC: 2-Heptanone	0.040	0.036	mg/kg			EPA-8240		A10	1
TIC: Acetone	3.2	2.8	mg/kg			EPA-8240		A10	1
TIC: Eucalyptol	0.039	0.034	mg/kg			EPA-8240		A10	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8240	08/27/20 07:15	08/27/20 19:06	BYM	MS-V3	2	B085942	EPA 5030 Soil MS

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Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID:	2024846-01	Client Sample Name:	Composite Biosolids, 8/24/2020 11:30:00AM, John Gunderlock						
Constituent	Dry Basis Result	As Recvd Result	Units	As Received		Method	TTLT Limits	Lab Quals	Run #
				PQL	MDL				
Acenaphthene	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
Acenaphthylene	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
Aldrin	ND	ND	mg/kg	2.3	0.15	EPA-8270C	1.4		1
Aniline	ND	ND	mg/kg	4.6	0.25	EPA-8270C			1
Anthracene	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
Benzidine	ND	ND	mg/kg	69	0.21	EPA-8270C			1
Benzo[a]anthracene	1.1	0.99	mg/kg	2.3	0.18	EPA-8270C		J	1
Benzo[b]fluoranthene	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
Benzo[k]fluoranthene	ND	ND	mg/kg	2.3	0.19	EPA-8270C			1
Benzo[a]pyrene	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
Benzo[g,h,i]perylene	ND	ND	mg/kg	2.3	0.30	EPA-8270C			1
Benzoic acid	ND	ND	mg/kg	12	0.32	EPA-8270C			1
Benzyl alcohol	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
Benzyl butyl phthalate	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
alpha-BHC	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
beta-BHC	ND	ND	mg/kg	2.3	0.17	EPA-8270C			1
delta-BHC	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
gamma-BHC (Lindane)	ND	ND	mg/kg	2.3	0.15	EPA-8270C	4.0		1
bis(2-Chloroethoxy)methane	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
bis(2-Chloroethyl) ether	ND	ND	mg/kg	2.3	0.22	EPA-8270C			1
bis(2-Chloroisopropyl)ether	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
bis(2-Ethylhexyl)phthalate	13	11	mg/kg	4.6	0.15	EPA-8270C			1
4-Bromophenyl phenyl ether	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
4-Chloroaniline	ND	ND	mg/kg	2.3	0.35	EPA-8270C			1
2-Chloronaphthalene	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
4-Chlorophenyl phenyl ether	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
Chrysene	1.2	1.0	mg/kg	2.3	0.15	EPA-8270C		J	1
4,4'-DDD	ND	ND	mg/kg	2.3	0.15	EPA-8270C	1.0		1
4,4'-DDE	ND	ND	mg/kg	2.3	0.16	EPA-8270C	1.0		1
4,4'-DDT	ND	ND	mg/kg	2.3	0.15	EPA-8270C	1.0		1
Dibenzo[a,h]anthracene	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
Dibenzofuran	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1

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Morro Bay, CA 93442

Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID:	2024846-01	Client Sample Name:	Composite Biosolids, 8/24/2020 11:30:00AM, John Gunderlock						
Constituent	Dry Basis Result	As Recvd Result	Units	As Received		Method	TTLC Limits	Lab Quals	Run #
				PQL	MDL				
1,2-Dichlorobenzene	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
1,3-Dichlorobenzene	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
1,4-Dichlorobenzene	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
3,3-Dichlorobenzidine	ND	ND	mg/kg	4.6	0.15	EPA-8270C			1
Dieldrin	ND	ND	mg/kg	2.3	0.18	EPA-8270C	8.0		1
Diethyl phthalate	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
Dimethyl phthalate	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
Di-n-butyl phthalate	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
2,4-Dinitrotoluene	ND	ND	mg/kg	2.3	0.20	EPA-8270C			1
2,6-Dinitrotoluene	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
Di-n-octyl phthalate	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
1,2-Diphenylhydrazine	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
Endosulfan I	ND	ND	mg/kg	4.6	0.20	EPA-8270C			1
Endosulfan II	ND	ND	mg/kg	4.6	0.20	EPA-8270C			1
Endosulfan sulfate	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
Endrin	ND	ND	mg/kg	4.6	0.20	EPA-8270C	0.2		1
Endrin aldehyde	ND	ND	mg/kg	12	0.16	EPA-8270C			1
Fluoranthene	1.7	1.5	mg/kg	2.3	0.15	EPA-8270C		J	1
Fluorene	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
Heptachlor	ND	ND	mg/kg	2.3	0.15	EPA-8270C	4.7		1
Heptachlor epoxide	ND	ND	mg/kg	2.3	0.30	EPA-8270C			1
Hexachlorobenzene	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
Hexachlorobutadiene	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
Hexachlorocyclopentadiene	ND	ND	mg/kg	2.3	0.35	EPA-8270C			1
Hexachloroethane	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
Indeno[1,2,3-cd]pyrene	ND	ND	mg/kg	2.3	0.16	EPA-8270C			1
Isophorone	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
2-Methylnaphthalene	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
Naphthalene	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
2-Naphthylamine	ND	ND	mg/kg	69	0.83	EPA-8270C			1
2-Nitroaniline	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
3-Nitroaniline	ND	ND	mg/kg	4.6	0.15	EPA-8270C			1

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City of Morro Bay
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Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID:	2024846-01	Client Sample Name:	Composite Biosolids, 8/24/2020 11:30:00AM, John Gunderlock						
Constituent	Dry Basis Result	As Recvd Result	Units	As Received		Method	TTLT Limits	Lab Quals	Run #
				PQL	MDL				
4-Nitroaniline	ND	ND	mg/kg	4.6	0.25	EPA-8270C			1
Nitrobenzene	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
N-Nitrosodimethylamine	ND	ND	mg/kg	2.3	0.92	EPA-8270C			1
N-Nitrosodi-N-propylamine	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
N-Nitrosodiphenylamine	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
Phenanthrene	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
Pyrene	2.5	2.2	mg/kg	2.3	0.15	EPA-8270C		J	1
1,2,4-Trichlorobenzene	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
4-Chloro-3-methylphenol	ND	ND	mg/kg	4.6	0.15	EPA-8270C			1
2-Chlorophenol	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
2,4-Dichlorophenol	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
2,4-Dimethylphenol	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
4,6-Dinitro-2-methylphenol	ND	ND	mg/kg	12	0.15	EPA-8270C			1
2,4-Dinitrophenol	ND	ND	mg/kg	12	0.15	EPA-8270C			1
2-Methylphenol	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
3- & 4-Methylphenol	ND	ND	mg/kg	4.6	0.32	EPA-8270C			1
2-Nitrophenol	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
4-Nitrophenol	ND	ND	mg/kg	4.6	0.42	EPA-8270C			1
Pentachlorophenol	ND	ND	mg/kg	4.6	0.39	EPA-8270C	17		1
Phenol	ND	ND	mg/kg	2.3	0.15	EPA-8270C			1
2,4,5-Trichlorophenol	ND	ND	mg/kg	4.6	0.25	EPA-8270C			1
2,4,6-Trichlorophenol	ND	ND	mg/kg	4.6	0.15	EPA-8270C			1
2-Fluorophenol (Surrogate)	65.8	65.8	%	20 - 130 (LCL - UCL)		EPA-8270C			1
Phenol-d5 (Surrogate)	67.8	67.8	%	30 - 130 (LCL - UCL)		EPA-8270C			1
Nitrobenzene-d5 (Surrogate)	65.6	65.6	%	30 - 130 (LCL - UCL)		EPA-8270C			1
2-Fluorobiphenyl (Surrogate)	68.6	68.6	%	30 - 140 (LCL - UCL)		EPA-8270C			1
2,4,6-Tribromophenol (Surrogate)	122	122	%	20 - 150 (LCL - UCL)		EPA-8270C			1
p-Terphenyl-d14 (Surrogate)	85.0	85.0	%	30 - 150 (LCL - UCL)		EPA-8270C			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8270C	09/01/20 15:00	09/02/20 03:42	MK1	HPCHEM	23.077	B086355	EPA 3550B

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Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

EPA Method 1664

BCL Sample ID: 2024846-01	Client Sample Name: Composite Biosolids, 8/24/2020 11:30:00AM, John Gunderlock								
Constituent	Dry Basis Result	As Recvd Result	Units	As Received		Method	MB Bias	Lab Quals	Run #
Oil and Grease	15000	14000	mg/kg	PQL 82	MDL 36	EPA-1664A HEM	ND		1

Run #	Method	Prep Date	Run		Analyst	Instrument	Dilution	QC	
			Date/Time					Batch ID	Prep Method
1	EPA-1664A HEM	08/28/20 09:00	09/02/20 15:39		MAM	Inst	1.639	B086003	EPA 1664/HEM

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Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Chemical Analysis

BCL Sample ID:	2024846-01	Client Sample Name:	Composite Biosolids, 8/24/2020 11:30:00AM, John Gunderlock						
Constituent	Dry Basis Result	As Recvd Result	Units	As Received		Method	MB Bias	Lab Quals	Run #
				PQL	MDL				
Moisture	0	11.5	%	0.05	0.05	Calc	ND		1
Total Cyanide	2.1	1.8	mg/kg	0.50	0.17	EPA-9012	0.23		2
pH	6.29	6.29	pH Units	0.05	0.05	EPA-9045D	ND	pHdil	3
pH Measurement Temperature	22.6	22.6	C	0.1	0.1	EPA-9045D	ND		3
Nitrate as NO3	43	38	mg/kg	4.4	1.2	EPA-300.0	ND		4
Total Kjeldahl Nitrogen	21000	19000	mg/kg	2000	650	EPA-351.2	ND	A07	5
Ammonia as N	7100	6300	mg/kg	1000	250	EPA-350.1	ND	A07	6
Total Phosphate	40000	36000	mg/kg	1500	490	EPA-365.4	ND	A07	7
Solids	100	88.5	%	0.05	0.05	SM-2540G			8

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	Calc	08/28/20 14:01	09/01/20 18:01	AMM	Calc	1	B^H0329	Calc
2	EPA-9012	09/01/20 07:55	09/02/20 11:49	MC1	KONE-1	0.926	B086173	EPA 9012
3	EPA-9045D	09/04/20 10:15	09/04/20 10:15	JMN	PH10	1	B086561	EPA 9045
4	EPA-300.0	09/10/20 07:10	09/10/20 16:49	KB1	IC5	1	B086826	Water Extract X10
5	EPA-351.2	08/28/20 17:00	09/02/20 14:39	JMH2	SC-1	50	B086043	EPA 351.2
6	EPA-350.1	08/31/20 08:46	09/01/20 10:03	JMH2	SC-2	47.170	B086083	EPA 350.1
7	EPA-365.4	08/28/20 17:00	09/02/20 15:26	JMH2	SC-1	50	B086044	EPA 365.4
8	SM-2540G	09/01/20 00:30	09/01/20 00:30	DRC	MANUAL	1	B086168	SM 2540G

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Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Modified WET Test (STLC)

BCL Sample ID: 2024846-01	Client Sample Name: Composite Biosolids, 8/24/2020 11:30:00AM, John Gunderlock								
Constituent	Dry Basis Result	As Recvd Result	Units	As Received		Method	STLC Limits	Lab Quals	Run #
Hexavalent Chromium		ND	mg/L	PQL 0.40	MDL 0.14	EPA-7196	5	A07	1
Total Dissolved Solids @ 180 C		6000	mg/L	500	250	EPA-160.1		A07	2

Run #	Method	Prep Date	Run		Analyst	Instrument	Dilution	QC	
			Date/Time	Date/Time				Batch ID	Prep Method
1	EPA-7196	09/11/20 12:50	09/11/20 12:50	09/11/20 14:50	MC1	KONE-1	2	B087116	Title 22 - Mod STLC
2	EPA-160.1	09/11/20 14:30	09/11/20 14:30	09/11/20 14:30	CAD	MANUAL	50	B087023	Title 22 - Mod STLC

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Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

WET Test (STLC)

BCL Sample ID: 2024846-01	Client Sample Name: Composite Biosolids, 8/24/2020 11:30:00AM, John Gunderlock								
Constituent	Dry Basis Result	As Recvd Result	Units	As Received		Method	STLC Limits	Lab Quals	Run #
				PQL	MDL				
Copper		0.59	mg/L	0.10	0.012	EPA-6010B	25		1
Lead		0.64	mg/L	0.50	0.16	EPA-6010B	5.0		1

Run #	Method	Prep Date	Run		Analyst	Instrument	Dilution	QC	
			Date/Time					Batch ID	Prep Method
1	EPA-6010B	09/08/20 11:00	09/10/20 14:19		JCC	PE-OP3	1	B086893	EPA 3005A

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Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Total Concentrations (TTLC)

BCL Sample ID:	2024846-01	Client Sample Name:	Composite Biosolids, 8/24/2020 11:30:00AM, John Gunderlock						
Constituent	Dry Basis Result	As Recvd Result	Units	As Received		Method	TTLC Limits	Lab Quals	Run #
				PQL	MDL				
Antimony	ND	ND	mg/kg	5.0	0.33	EPA-6010B	500		1
Arsenic	1.8	1.6	mg/kg	1.0	0.40	EPA-6010B	500		1
Barium	320	280	mg/kg	0.50	0.18	EPA-6010B	10000		1
Beryllium	0.15	0.13	mg/kg	0.50	0.047	EPA-6010B	75	J	1
Cadmium	1.7	1.5	mg/kg	0.50	0.052	EPA-6010B	100		1
Chromium	32	28	mg/kg	0.50	0.050	EPA-6010B	2500		1
Total Hexavalent Chromium	5.7	5.1	mg/kg	5.0	1.5	EPA-7199			2
Cobalt	2.0	1.8	mg/kg	2.5	0.098	EPA-6010B	8000	J	1
Copper	330	290	mg/kg	1.0	0.050	EPA-6010B	2500		1
Lead	19	17	mg/kg	2.5	0.41	EPA-6010B	1000		1
Mercury	0.66	0.58	mg/kg	0.16	0.016	EPA-7471A	20		3
Molybdenum	8.4	7.5	mg/kg	2.5	0.050	EPA-6010B	3500		1
Nickel	21	19	mg/kg	0.50	0.15	EPA-6010B	2000		1
Selenium	3.3	2.9	mg/kg	1.0	0.98	EPA-6010B	100		1
Silver	1.5	1.3	mg/kg	0.50	0.067	EPA-6010B	500		1
Thallium	ND	ND	mg/kg	5.0	0.64	EPA-6010B	700		1
Vanadium	14	12	mg/kg	0.50	0.11	EPA-6010B	2400		1
Zinc	850	750	mg/kg	2.5	0.087	EPA-6010B	5000		1
Boron	13	11	mg/kg	5.0	0.50	EPA-6010B			1

Run #	Method	Prep Date	Run		Analyst	Instrument	Dilution	QC	
			Date/Time					Batch ID	Prep Method
1	EPA-6010B	08/28/20 21:10	08/31/20 13:28		JCC	PE-OP3	0.909	B086047	EPA 3050B
2	EPA-7199	09/08/20 09:30	09/10/20 14:02		SAV	IC-4	5	B086636	EPA 3060A
3	EPA-7471A	08/28/20 09:30	08/28/20 11:35		TMT	CETAC3	1.008	B085952	EPA 7471A

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City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Organochlorine Pesticides (EPA Method 8081A)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B086356						
Aldrin	B086356-BLK1	ND	mg/kg	0.00050	0.000018	
alpha-BHC	B086356-BLK1	ND	mg/kg	0.00050	0.000038	
beta-BHC	B086356-BLK1	ND	mg/kg	0.00050	0.000048	
delta-BHC	B086356-BLK1	ND	mg/kg	0.00050	0.000037	
gamma-BHC (Lindane)	B086356-BLK1	ND	mg/kg	0.00050	0.000018	
Chlordane (Technical)	B086356-BLK1	ND	mg/kg	0.050	0.0010	
4,4'-DDD	B086356-BLK1	ND	mg/kg	0.00050	0.000064	
4,4'-DDE	B086356-BLK1	ND	mg/kg	0.00050	0.000095	
4,4'-DDT	B086356-BLK1	ND	mg/kg	0.00050	0.000040	
Dieldrin	B086356-BLK1	ND	mg/kg	0.00050	0.000036	
Endosulfan I	B086356-BLK1	ND	mg/kg	0.00050	0.000020	
Endosulfan II	B086356-BLK1	ND	mg/kg	0.00050	0.000034	
Endosulfan sulfate	B086356-BLK1	ND	mg/kg	0.00050	0.000026	
Endrin	B086356-BLK1	ND	mg/kg	0.00050	0.000065	
Endrin aldehyde	B086356-BLK1	ND	mg/kg	0.00050	0.000018	
Heptachlor	B086356-BLK1	ND	mg/kg	0.00050	0.000086	
Heptachlor epoxide	B086356-BLK1	ND	mg/kg	0.00050	0.000017	
Methoxychlor	B086356-BLK1	ND	mg/kg	0.00050	0.000094	
Toxaphene	B086356-BLK1	ND	mg/kg	0.050	0.0014	
TCMX (Surrogate)	B086356-BLK1	81.8	%	20 - 130 (LCL - UCL)		
Decachlorobiphenyl (Surrogate)	B086356-BLK1	94.4	%	40 - 130 (LCL - UCL)		

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Organochlorine Pesticides (EPA Method 8081A)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits		Lab
								Percent Recovery	RPD	
QC Batch ID: B086356										
Aldrin	B086356-BS1	LCS	0.0036132	0.0050847	mg/kg	71.1		70 - 130		
gamma-BHC (Lindane)	B086356-BS1	LCS	0.0038553	0.0050847	mg/kg	75.8		60 - 140		
4,4'-DDT	B086356-BS1	LCS	0.0044841	0.0050847	mg/kg	88.2		60 - 140		
Dieldrin	B086356-BS1	LCS	0.0041620	0.0050847	mg/kg	81.9		70 - 130		
Endrin	B086356-BS1	LCS	0.0044454	0.0050847	mg/kg	87.4		60 - 140		
Heptachlor	B086356-BS1	LCS	0.0042064	0.0050847	mg/kg	82.7		60 - 140		
TCMX (Surrogate)	B086356-BS1	LCS	0.0080034	0.010169	mg/kg	78.7		20 - 130		
Decachlorobiphenyl (Surrogate)	B086356-BS1	LCS	0.018151	0.020339	mg/kg	89.2		40 - 130		

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Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Organochlorine Pesticides (EPA Method 8081A)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery		Lab
								RPD	Recovery	
QC Batch ID: B086356		Used client sample: N								
Aldrin	MS	2024962-01	ND	0.0029615	0.0049342	mg/kg		60.0		50 - 140
	MSD	2024962-01	ND	0.0029473	0.0050336	mg/kg	0.5	58.6	30	50 - 140
gamma-BHC (Lindane)	MS	2024962-01	ND	0.0033668	0.0049342	mg/kg		68.2		50 - 140
	MSD	2024962-01	ND	0.0033403	0.0050336	mg/kg	0.8	66.4	30	50 - 140
4,4'-DDT	MS	2024962-01	0.0014689	0.0061543	0.0049342	mg/kg		95.0		50 - 140
	MSD	2024962-01	0.0014689	0.0062433	0.0050336	mg/kg	1.4	94.9	30	50 - 140
Dieldrin	MS	2024962-01	ND	0.0031421	0.0049342	mg/kg		63.7		40 - 140
	MSD	2024962-01	ND	0.0031715	0.0050336	mg/kg	0.9	63.0	30	40 - 140
Endrin	MS	2024962-01	ND	0.0039204	0.0049342	mg/kg		79.5		50 - 150
	MSD	2024962-01	ND	0.0039651	0.0050336	mg/kg	1.1	78.8	30	50 - 150
Heptachlor	MS	2024962-01	ND	0.0034102	0.0049342	mg/kg		69.1		60 - 140
	MSD	2024962-01	ND	0.0033094	0.0050336	mg/kg	3.0	65.7	30	60 - 140
TCMX (Surrogate)	MS	2024962-01	ND	0.0069132	0.0098684	mg/kg		70.1		20 - 130
	MSD	2024962-01	ND	0.0069262	0.010067	mg/kg	0.2	68.8		20 - 130
Decachlorobiphenyl (Surrogate)	MS	2024962-01	ND	0.015631	0.019737	mg/kg		79.2		40 - 130
	MSD	2024962-01	ND	0.015811	0.020134	mg/kg	1.1	78.5		40 - 130

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Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

PCB Analysis (EPA Method 8082)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B086357						
PCB-1016	B086357-BLK1	ND	mg/kg	0.010	0.0023	
PCB-1221	B086357-BLK1	ND	mg/kg	0.010	0.0033	
PCB-1232	B086357-BLK1	ND	mg/kg	0.010	0.0026	
PCB-1242	B086357-BLK1	ND	mg/kg	0.010	0.0015	
PCB-1248	B086357-BLK1	ND	mg/kg	0.010	0.0021	
PCB-1254	B086357-BLK1	ND	mg/kg	0.010	0.0016	
PCB-1260	B086357-BLK1	ND	mg/kg	0.010	0.0018	
Total PCB's (Summation)	B086357-BLK1	ND	mg/kg	0.010	0.0050	
Decachlorobiphenyl (Surrogate)	B086357-BLK1	80.0	%	40 - 120 (LCL - UCL)		

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Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

PCB Analysis (EPA Method 8082)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits		Lab
								Percent Recovery	RPD	
QC Batch ID: B086357										
PCB-1016	B086357-BS1	LCS	0.087789	0.082508	mg/kg	106		60 - 120		
PCB-1260	B086357-BS1	LCS	0.084488	0.082508	mg/kg	102		60 - 120		
Decachlorobiphenyl (Surrogate)	B086357-BS1	LCS	0.016832	0.019802	mg/kg	85.0		40 - 120		

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Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

PCB Analysis (EPA Method 8082)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent		Lab Quals	
								Recovery	RPD		Recovery
QC Batch ID: B086357		Used client sample: N									
PCB-1016	MS	2024978-01	ND	0.030263	0.082237	mg/kg		36.8		60 - 120	Q03
	MSD	2024978-01	ND	0.029043	0.082508	mg/kg	4.1	35.2	30	60 - 120	Q03
PCB-1260	MS	2024978-01	ND	0.038816	0.082237	mg/kg		47.2		60 - 120	Q03
	MSD	2024978-01	ND	0.047525	0.082508	mg/kg	20.2	57.6	30	60 - 120	Q03
Decachlorobiphenyl (Surrogate)	MS	2024978-01	ND	0.011184	0.019737	mg/kg		56.7		40 - 120	
	MSD	2024978-01	ND	0.010891	0.019802	mg/kg	2.7	55.0		40 - 120	

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Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8240)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B085942						
Benzene	B085942-BLK1	ND	mg/kg	0.0050	0.00067	
Bromodichloromethane	B085942-BLK1	ND	mg/kg	0.0050	0.00078	
Bromoform	B085942-BLK1	ND	mg/kg	0.0050	0.00070	
Bromomethane	B085942-BLK1	ND	mg/kg	0.0050	0.0017	
Carbon tetrachloride	B085942-BLK1	ND	mg/kg	0.0050	0.00078	
Chlorobenzene	B085942-BLK1	ND	mg/kg	0.0050	0.00077	
Chloroethane	B085942-BLK1	ND	mg/kg	0.0050	0.0011	
Chloroform	B085942-BLK1	ND	mg/kg	0.0050	0.00090	
Chloromethane	B085942-BLK1	ND	mg/kg	0.0050	0.0011	
Dibromochloromethane	B085942-BLK1	ND	mg/kg	0.0050	0.00080	
1,2-Dichlorobenzene	B085942-BLK1	ND	mg/kg	0.0050	0.00079	
1,3-Dichlorobenzene	B085942-BLK1	ND	mg/kg	0.0050	0.00073	
1,4-Dichlorobenzene	B085942-BLK1	ND	mg/kg	0.0050	0.00073	
1,1-Dichloroethane	B085942-BLK1	ND	mg/kg	0.0050	0.00064	
1,2-Dichloroethane	B085942-BLK1	ND	mg/kg	0.0050	0.00073	
1,1-Dichloroethene	B085942-BLK1	ND	mg/kg	0.0050	0.0011	
trans-1,2-Dichloroethene	B085942-BLK1	ND	mg/kg	0.0050	0.0037	
1,2-Dichloropropane	B085942-BLK1	ND	mg/kg	0.0050	0.00080	
cis-1,3-Dichloropropene	B085942-BLK1	ND	mg/kg	0.0050	0.00058	
trans-1,3-Dichloropropene	B085942-BLK1	ND	mg/kg	0.0050	0.00066	
Ethylbenzene	B085942-BLK1	ND	mg/kg	0.0050	0.00069	
Methylene chloride	B085942-BLK1	ND	mg/kg	0.010	0.0011	
Methyl t-butyl ether	B085942-BLK1	ND	mg/kg	0.0050	0.00056	
1,1,2,2-Tetrachloroethane	B085942-BLK1	ND	mg/kg	0.0050	0.00084	
Tetrachloroethene	B085942-BLK1	ND	mg/kg	0.0050	0.00097	
Toluene	B085942-BLK1	ND	mg/kg	0.0050	0.00069	
1,1,1-Trichloroethane	B085942-BLK1	ND	mg/kg	0.0050	0.00067	
1,1,2-Trichloroethane	B085942-BLK1	ND	mg/kg	0.0050	0.00094	
Trichloroethene	B085942-BLK1	ND	mg/kg	0.0050	0.00074	
Trichlorofluoromethane	B085942-BLK1	ND	mg/kg	0.0050	0.0015	
1,1,2-Trichloro-1,2,2-trifluoroethane	B085942-BLK1	ND	mg/kg	0.0050	0.0010	
Vinyl chloride	B085942-BLK1	ND	mg/kg	0.0050	0.00059	
Total Xylenes	B085942-BLK1	ND	mg/kg	0.010	0.0025	
Acrolein	B085942-BLK1	ND	mg/kg	0.050	0.0053	

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Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8240)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B085942						
Acrylonitrile	B085942-BLK1	ND	mg/kg	0.020	0.0020	
1,2-Dichloroethane-d4 (Surrogate)	B085942-BLK1	94.6	%	70 - 121 (LCL - UCL)		
Toluene-d8 (Surrogate)	B085942-BLK1	98.9	%	81 - 117 (LCL - UCL)		
4-Bromofluorobenzene (Surrogate)	B085942-BLK1	97.8	%	74 - 121 (LCL - UCL)		

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Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8240)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits		Lab
								Percent Recovery	RPD	
QC Batch ID: B085942										
Benzene	B085942-BS1	LCS	0.12622	0.12500	mg/kg	101		70 - 130		
Bromodichloromethane	B085942-BS1	LCS	0.12796	0.12500	mg/kg	102		70 - 130		
Chlorobenzene	B085942-BS1	LCS	0.12508	0.12500	mg/kg	100		70 - 130		
Chloroethane	B085942-BS1	LCS	0.12610	0.12500	mg/kg	101		70 - 130		
1,4-Dichlorobenzene	B085942-BS1	LCS	0.12898	0.12500	mg/kg	103		70 - 130		
1,1-Dichloroethane	B085942-BS1	LCS	0.12502	0.12500	mg/kg	100		70 - 130		
1,1-Dichloroethene	B085942-BS1	LCS	0.13237	0.12500	mg/kg	106		70 - 130		
Toluene	B085942-BS1	LCS	0.12895	0.12500	mg/kg	103		70 - 130		
Trichloroethene	B085942-BS1	LCS	0.12775	0.12500	mg/kg	102		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	B085942-BS1	LCS	0.050680	0.050000	mg/kg	101		70 - 121		
Toluene-d8 (Surrogate)	B085942-BS1	LCS	0.049650	0.050000	mg/kg	99.3		81 - 117		
4-Bromofluorobenzene (Surrogate)	B085942-BS1	LCS	0.051600	0.050000	mg/kg	103		74 - 121		

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Volatile Organic Analysis (EPA Method 8240)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery		Lab
								RPD	Percent Recovery	
QC Batch ID: B085942										
Used client sample: N										
Benzene	MS	2021481-94	ND	0.12680	0.12500	mg/kg		101		70 - 130
	MSD	2021481-94	ND	0.13370	0.12500	mg/kg	5.3	107	20	70 - 130
Bromodichloromethane	MS	2021481-94	ND	0.13480	0.12500	mg/kg		108		70 - 130
	MSD	2021481-94	ND	0.13770	0.12500	mg/kg	2.1	110	20	70 - 130
Chlorobenzene	MS	2021481-94	ND	0.13814	0.12500	mg/kg		111		70 - 130
	MSD	2021481-94	ND	0.13753	0.12500	mg/kg	0.4	110	20	70 - 130
Chloroethane	MS	2021481-94	ND	0.12736	0.12500	mg/kg		102		70 - 130
	MSD	2021481-94	ND	0.13677	0.12500	mg/kg	7.1	109	20	70 - 130
1,4-Dichlorobenzene	MS	2021481-94	ND	0.14126	0.12500	mg/kg		113		70 - 130
	MSD	2021481-94	ND	0.14114	0.12500	mg/kg	0.1	113	20	70 - 130
1,1-Dichloroethane	MS	2021481-94	ND	0.12673	0.12500	mg/kg		101		70 - 130
	MSD	2021481-94	ND	0.13308	0.12500	mg/kg	4.9	106	20	70 - 130
1,1-Dichloroethene	MS	2021481-94	ND	0.13289	0.12500	mg/kg		106		70 - 130
	MSD	2021481-94	ND	0.14261	0.12500	mg/kg	7.1	114	20	70 - 130
Toluene	MS	2021481-94	ND	0.13469	0.12500	mg/kg		108		70 - 130
	MSD	2021481-94	ND	0.13955	0.12500	mg/kg	3.5	112	20	70 - 130
Trichloroethene	MS	2021481-94	ND	0.13489	0.12500	mg/kg		108		70 - 130
	MSD	2021481-94	ND	0.13857	0.12500	mg/kg	2.7	111	20	70 - 130
1,2-Dichloroethane-d4 (Surrogate)	MS	2021481-94	ND	0.046900	0.050000	mg/kg		93.8		70 - 121
	MSD	2021481-94	ND	0.049210	0.050000	mg/kg	4.8	98.4		70 - 121
Toluene-d8 (Surrogate)	MS	2021481-94	ND	0.049890	0.050000	mg/kg		99.8		81 - 117
	MSD	2021481-94	ND	0.049400	0.050000	mg/kg	1.0	98.8		81 - 117
4-Bromofluorobenzene (Surrogate)	MS	2021481-94	ND	0.050820	0.050000	mg/kg		102		74 - 121
	MSD	2021481-94	ND	0.050960	0.050000	mg/kg	0.3	102		74 - 121

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Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B086355						
Acenaphthene	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Acenaphthylene	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Aldrin	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Aniline	B086355-BLK1	ND	mg/kg	0.20	0.011	
Anthracene	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Benzidine	B086355-BLK1	ND	mg/kg	3.0	0.0093	
Benzo[a]anthracene	B086355-BLK1	ND	mg/kg	0.10	0.0077	
Benzo[b]fluoranthene	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Benzo[k]fluoranthene	B086355-BLK1	ND	mg/kg	0.10	0.0082	
Benzo[a]pyrene	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Benzo[g,h,i]perylene	B086355-BLK1	ND	mg/kg	0.10	0.013	
Benzoic acid	B086355-BLK1	ND	mg/kg	0.50	0.014	
Benzyl alcohol	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Benzyl butyl phthalate	B086355-BLK1	ND	mg/kg	0.10	0.0067	
alpha-BHC	B086355-BLK1	ND	mg/kg	0.10	0.0067	
beta-BHC	B086355-BLK1	ND	mg/kg	0.10	0.0075	
delta-BHC	B086355-BLK1	ND	mg/kg	0.10	0.0067	
gamma-BHC (Lindane)	B086355-BLK1	ND	mg/kg	0.10	0.0067	
bis(2-Chloroethoxy)methane	B086355-BLK1	ND	mg/kg	0.10	0.0067	
bis(2-Chloroethyl) ether	B086355-BLK1	ND	mg/kg	0.10	0.0097	
bis(2-Chloroisopropyl)ether	B086355-BLK1	ND	mg/kg	0.10	0.0067	
bis(2-Ethylhexyl)phthalate	B086355-BLK1	ND	mg/kg	0.20	0.0067	
4-Bromophenyl phenyl ether	B086355-BLK1	ND	mg/kg	0.10	0.0067	
4-Chloroaniline	B086355-BLK1	ND	mg/kg	0.10	0.015	
2-Chloronaphthalene	B086355-BLK1	ND	mg/kg	0.10	0.0067	
4-Chlorophenyl phenyl ether	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Chrysene	B086355-BLK1	ND	mg/kg	0.10	0.0067	
4,4'-DDD	B086355-BLK1	ND	mg/kg	0.10	0.0067	
4,4'-DDE	B086355-BLK1	ND	mg/kg	0.10	0.0068	
4,4'-DDT	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Dibenzo[a,h]anthracene	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Dibenzofuran	B086355-BLK1	ND	mg/kg	0.10	0.0067	
1,2-Dichlorobenzene	B086355-BLK1	ND	mg/kg	0.10	0.0067	
1,3-Dichlorobenzene	B086355-BLK1	ND	mg/kg	0.10	0.0067	

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City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B086355						
1,4-Dichlorobenzene	B086355-BLK1	ND	mg/kg	0.10	0.0067	
3,3-Dichlorobenzidine	B086355-BLK1	ND	mg/kg	0.20	0.0067	
Dieldrin	B086355-BLK1	ND	mg/kg	0.10	0.0077	
Diethyl phthalate	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Dimethyl phthalate	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Di-n-butyl phthalate	B086355-BLK1	ND	mg/kg	0.10	0.0067	
2,4-Dinitrotoluene	B086355-BLK1	ND	mg/kg	0.10	0.0085	
2,6-Dinitrotoluene	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Di-n-octyl phthalate	B086355-BLK1	ND	mg/kg	0.10	0.0067	
1,2-Diphenylhydrazine	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Endosulfan I	B086355-BLK1	ND	mg/kg	0.20	0.0088	
Endosulfan II	B086355-BLK1	ND	mg/kg	0.20	0.0088	
Endosulfan sulfate	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Endrin	B086355-BLK1	ND	mg/kg	0.20	0.0086	
Endrin aldehyde	B086355-BLK1	ND	mg/kg	0.50	0.0070	
Fluoranthene	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Fluorene	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Heptachlor	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Heptachlor epoxide	B086355-BLK1	ND	mg/kg	0.10	0.013	
Hexachlorobenzene	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Hexachlorobutadiene	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Hexachlorocyclopentadiene	B086355-BLK1	ND	mg/kg	0.10	0.015	
Hexachloroethane	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Indeno[1,2,3-cd]pyrene	B086355-BLK1	ND	mg/kg	0.10	0.0069	
Isophorone	B086355-BLK1	ND	mg/kg	0.10	0.0067	
2-Methylnaphthalene	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Naphthalene	B086355-BLK1	ND	mg/kg	0.10	0.0067	
2-Naphthylamine	B086355-BLK1	ND	mg/kg	3.0	0.036	
2-Nitroaniline	B086355-BLK1	ND	mg/kg	0.10	0.0067	
3-Nitroaniline	B086355-BLK1	ND	mg/kg	0.20	0.0067	
4-Nitroaniline	B086355-BLK1	ND	mg/kg	0.20	0.011	
Nitrobenzene	B086355-BLK1	ND	mg/kg	0.10	0.0067	
N-Nitrosodimethylamine	B086355-BLK1	ND	mg/kg	0.10	0.040	
N-Nitrosodi-N-propylamine	B086355-BLK1	ND	mg/kg	0.10	0.0067	

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Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B086355						
N-Nitrosodiphenylamine	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Phenanthrene	B086355-BLK1	ND	mg/kg	0.10	0.0067	
Pyrene	B086355-BLK1	ND	mg/kg	0.10	0.0067	
1,2,4-Trichlorobenzene	B086355-BLK1	ND	mg/kg	0.10	0.0067	
4-Chloro-3-methylphenol	B086355-BLK1	ND	mg/kg	0.20	0.0067	
2-Chlorophenol	B086355-BLK1	ND	mg/kg	0.10	0.0067	
2,4-Dichlorophenol	B086355-BLK1	ND	mg/kg	0.10	0.0067	
2,4-Dimethylphenol	B086355-BLK1	ND	mg/kg	0.10	0.0067	
4,6-Dinitro-2-methylphenol	B086355-BLK1	ND	mg/kg	0.50	0.0067	
2,4-Dinitrophenol	B086355-BLK1	ND	mg/kg	0.50	0.0067	
2-Methylphenol	B086355-BLK1	ND	mg/kg	0.10	0.0067	
3- & 4-Methylphenol	B086355-BLK1	ND	mg/kg	0.20	0.014	
2-Nitrophenol	B086355-BLK1	ND	mg/kg	0.10	0.0067	
4-Nitrophenol	B086355-BLK1	ND	mg/kg	0.20	0.018	
Pentachlorophenol	B086355-BLK1	ND	mg/kg	0.20	0.017	
Phenol	B086355-BLK1	ND	mg/kg	0.10	0.0067	
2,4,5-Trichlorophenol	B086355-BLK1	ND	mg/kg	0.20	0.011	
2,4,6-Trichlorophenol	B086355-BLK1	ND	mg/kg	0.20	0.0067	
2-Fluorophenol (Surrogate)	B086355-BLK1	80.1	%	20 - 130 (LCL - UCL)		
Phenol-d5 (Surrogate)	B086355-BLK1	80.7	%	30 - 130 (LCL - UCL)		
Nitrobenzene-d5 (Surrogate)	B086355-BLK1	76.9	%	30 - 130 (LCL - UCL)		
2-Fluorobiphenyl (Surrogate)	B086355-BLK1	78.5	%	30 - 140 (LCL - UCL)		
2,4,6-Tribromophenol (Surrogate)	B086355-BLK1	137	%	20 - 150 (LCL - UCL)		
p-Terphenyl-d14 (Surrogate)	B086355-BLK1	88.1	%	30 - 150 (LCL - UCL)		

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City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	Reported: 09/18/2020 10:30 Project: Biosolids from MBWWTP Project Number: Biosolids Monitoring 2020 Project Manager: John Gunderlock
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Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits		Lab Quals
								Percent Recovery	RPD	
QC Batch ID: B086355										
Acenaphthene	B086355-BS1	LCS	1.3021	1.6892	mg/kg	77.1		50 - 130		
1,4-Dichlorobenzene	B086355-BS1	LCS	1.5458	1.6892	mg/kg	91.5		50 - 130		
2,4-Dinitrotoluene	B086355-BS1	LCS	1.7431	1.6892	mg/kg	103		50 - 130		
Hexachlorobenzene	B086355-BS1	LCS	1.8137	1.6892	mg/kg	107		40 - 130		
Hexachlorobutadiene	B086355-BS1	LCS	1.4935	1.6892	mg/kg	88.4		50 - 130		
Hexachloroethane	B086355-BS1	LCS	1.6246	1.6892	mg/kg	96.2		50 - 130		
Nitrobenzene	B086355-BS1	LCS	1.7481	1.6892	mg/kg	103		50 - 130		
N-Nitrosodi-N-propylamine	B086355-BS1	LCS	1.4402	1.6892	mg/kg	85.3		40 - 120		
Pyrene	B086355-BS1	LCS	1.6087	1.6892	mg/kg	95.2		40 - 150		
1,2,4-Trichlorobenzene	B086355-BS1	LCS	1.6432	1.6892	mg/kg	97.3		50 - 120		
4-Chloro-3-methylphenol	B086355-BS1	LCS	1.5746	1.6892	mg/kg	93.2		50 - 130		
2-Chlorophenol	B086355-BS1	LCS	1.3005	1.6892	mg/kg	77.0		50 - 130		
2-Methylphenol	B086355-BS1	LCS	1.4289	1.6892	mg/kg	84.6		50 - 130		
3- & 4-Methylphenol	B086355-BS1	LCS	2.7351	3.3784	mg/kg	81.0		50 - 130		
4-Nitrophenol	B086355-BS1	LCS	1.1502	1.6892	mg/kg	68.1		30 - 130		
Pentachlorophenol	B086355-BS1	LCS	1.3207	1.6892	mg/kg	78.2		20 - 130		
Phenol	B086355-BS1	LCS	1.3333	1.6892	mg/kg	78.9		40 - 120		
2,4,6-Trichlorophenol	B086355-BS1	LCS	1.4376	1.6892	mg/kg	85.1		50 - 130		
2-Fluorophenol (Surrogate)	B086355-BS1	LCS	1.0823	1.3514	mg/kg	80.1		20 - 130		
Phenol-d5 (Surrogate)	B086355-BS1	LCS	1.1204	1.3514	mg/kg	82.9		30 - 130		
Nitrobenzene-d5 (Surrogate)	B086355-BS1	LCS	1.1512	1.3514	mg/kg	85.2		30 - 130		
2-Fluorobiphenyl (Surrogate)	B086355-BS1	LCS	1.0952	1.3514	mg/kg	81.0		30 - 140		
2,4,6-Tribromophenol (Surrogate)	B086355-BS1	LCS	1.8852	1.3514	mg/kg	139		20 - 150		
p-Terphenyl-d14 (Surrogate)	B086355-BS1	LCS	0.65057	0.67568	mg/kg	96.3		30 - 150		

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City of Morro Bay
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Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Control Limits		
								Percent Recovery	RPD	Percent Recovery
QC Batch ID: B086355		Used client sample: N								
Acenaphthene	MS	2024978-01	0.026738	1.2264	1.6722	mg/kg		71.7		30 - 140
	MSD	2024978-01	0.026738	1.2675	1.6667	mg/kg	3.3	74.4	30	30 - 140
1,4-Dichlorobenzene	MS	2024978-01	ND	1.4241	1.6722	mg/kg		85.2		50 - 130
	MSD	2024978-01	ND	1.4576	1.6667	mg/kg	2.3	87.5	30	50 - 130
2,4-Dinitrotoluene	MS	2024978-01	ND	1.5754	1.6722	mg/kg		94.2		50 - 130
	MSD	2024978-01	ND	1.6125	1.6667	mg/kg	2.3	96.7	30	50 - 130
Hexachlorobenzene	MS	2024978-01	ND	1.6370	1.6722	mg/kg		97.9		50 - 130
	MSD	2024978-01	ND	1.7130	1.6667	mg/kg	4.5	103	30	50 - 130
Hexachlorobutadiene	MS	2024978-01	ND	1.4122	1.6722	mg/kg		84.4		50 - 130
	MSD	2024978-01	ND	1.4080	1.6667	mg/kg	0.3	84.5	30	50 - 130
Hexachloroethane	MS	2024978-01	ND	1.4777	1.6722	mg/kg		88.4		50 - 130
	MSD	2024978-01	ND	1.5219	1.6667	mg/kg	2.9	91.3	30	50 - 130
Nitrobenzene	MS	2024978-01	ND	1.5744	1.6722	mg/kg		94.1		30 - 120
	MSD	2024978-01	ND	1.6253	1.6667	mg/kg	3.2	97.5	30	30 - 120
N-Nitrosodi-N-propylamine	MS	2024978-01	ND	1.2867	1.6722	mg/kg		76.9		20 - 130
	MSD	2024978-01	ND	1.3200	1.6667	mg/kg	2.6	79.2	30	20 - 130
Pyrene	MS	2024978-01	ND	1.6151	1.6722	mg/kg		96.6		40 - 140
	MSD	2024978-01	ND	1.5898	1.6667	mg/kg	1.6	95.4	30	40 - 140
1,2,4-Trichlorobenzene	MS	2024978-01	ND	1.5519	1.6722	mg/kg		92.8		50 - 130
	MSD	2024978-01	ND	1.5661	1.6667	mg/kg	0.9	94.0	30	50 - 130
4-Chloro-3-methylphenol	MS	2024978-01	ND	1.5863	1.6722	mg/kg		94.9		50 - 130
	MSD	2024978-01	ND	1.5299	1.6667	mg/kg	3.6	91.8	30	50 - 130
2-Chlorophenol	MS	2024978-01	ND	1.2016	1.6722	mg/kg		71.9		50 - 130
	MSD	2024978-01	ND	1.2330	1.6667	mg/kg	2.6	74.0	30	50 - 130
2-Methylphenol	MS	2024978-01	ND	1.3208	1.6722	mg/kg		79.0		50 - 130
	MSD	2024978-01	ND	1.3485	1.6667	mg/kg	2.1	80.9	30	50 - 130
3- & 4-Methylphenol	MS	2024978-01	ND	2.5058	3.3445	mg/kg		74.9		50 - 130
	MSD	2024978-01	ND	2.5923	3.3333	mg/kg	3.4	77.8	30	50 - 130
4-Nitrophenol	MS	2024978-01	ND	0.86517	1.6722	mg/kg		51.7		30 - 140
	MSD	2024978-01	ND	0.86048	1.6667	mg/kg	0.5	51.6	30	30 - 140
Pentachlorophenol	MS	2024978-01	ND	1.3138	1.6722	mg/kg		78.6		30 - 130
	MSD	2024978-01	ND	1.2768	1.6667	mg/kg	2.9	76.6	30	30 - 130
Phenol	MS	2024978-01	ND	1.2334	1.6722	mg/kg		73.8		40 - 150
	MSD	2024978-01	ND	1.2646	1.6667	mg/kg	2.5	75.9	30	40 - 150
2,4,6-Trichlorophenol	MS	2024978-01	ND	1.3953	1.6722	mg/kg		83.4		50 - 130
	MSD	2024978-01	ND	1.4064	1.6667	mg/kg	0.8	84.4	30	50 - 130

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Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits		
									RPD	Percent Recovery	Lab
QC Batch ID: B086355		Used client sample: N									
2-Fluorophenol (Surrogate)	MS	2024978-01	ND	1.0155	1.3378	mg/kg		75.9	20 - 130		
	MSD	2024978-01	ND	1.0240	1.3333	mg/kg	0.8	76.8	20 - 130		
Phenol-d5 (Surrogate)	MS	2024978-01	ND	1.0254	1.3378	mg/kg		76.6	30 - 130		
	MSD	2024978-01	ND	1.0448	1.3333	mg/kg	1.9	78.4	30 - 130		
Nitrobenzene-d5 (Surrogate)	MS	2024978-01	ND	1.0324	1.3378	mg/kg		77.2	30 - 130		
	MSD	2024978-01	ND	1.0637	1.3333	mg/kg	3.0	79.8	30 - 130		
2-Fluorobiphenyl (Surrogate)	MS	2024978-01	ND	1.0234	1.3378	mg/kg		76.5	30 - 140		
	MSD	2024978-01	ND	1.0384	1.3333	mg/kg	1.5	77.9	30 - 140		
2,4,6-Tribromophenol (Surrogate)	MS	2024978-01	ND	1.7542	1.3378	mg/kg		131	20 - 150		
	MSD	2024978-01	ND	1.8458	1.3333	mg/kg	5.1	138	20 - 150		
p-Terphenyl-d14 (Surrogate)	MS	2024978-01	ND	0.63075	0.66890	mg/kg		94.3	30 - 150		
	MSD	2024978-01	ND	0.62816	0.66667	mg/kg	0.4	94.2	30 - 150		

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Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

EPA Method 1664

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B086003						
Oil and Grease	B086003-BLK1	ND	mg/kg	50	22	

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Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

EPA Method 1664

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits		Lab	Quals
								Percent Recovery	RPD		
QC Batch ID: B086003											
Oil and Grease	B086003-BS1	LCS	797.41	788.42	mg/kg	101		70 - 130			

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Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

EPA Method 1664

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits		Lab Quals
									RPD	Percent Recovery	
QC Batch ID: B086003		Used client sample: N									
Oil and Grease	DUP	2024089-26	ND	ND		mg/kg				30	
	MS	2024089-26	ND	847.39	793.17	mg/kg		107		70 - 130	
	MSD	2024089-26	ND	848.70	791.58	mg/kg	0.2	107	30	70 - 130	

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Project Manager: John Gunderlock

Chemical Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B^H0329						
Moisture	B^H0329-BLK1	ND	%	0.05	0.05	
QC Batch ID: B086043						
Total Kjeldahl Nitrogen	B086043-BLK1	ND	mg/kg	40	13	
QC Batch ID: B086044						
Total Phosphate	B086044-BLK1	ND	mg/kg	30	9.8	
QC Batch ID: B086083						
Ammonia as N	B086083-BLK1	ND	mg/kg	20	5.0	
QC Batch ID: B086173						
Total Cyanide	B086173-BLK1	0.22593	mg/kg	0.50	0.17	J
QC Batch ID: B086561						
pH	B086561-BLK1	ND	pH Units	0.05	0.05	
pH Measurement Temperature	B086561-BLK1	ND	C	0.1	0.1	
QC Batch ID: B086826						
Nitrate as NO3	B086826-BLK1	ND	mg/kg	4.4	1.2	

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City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Chemical Analysis

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits		Lab	Quals
								Percent Recovery	RPD		
QC Batch ID: B086043											
Total Kjeldahl Nitrogen	B086043-BS1	LCS	398.90	400.00	mg/kg	99.7		90 - 110			
QC Batch ID: B086044											
Total Phosphate	B086044-BS1	LCS	634.15	613.20	mg/kg	103		85 - 115			
QC Batch ID: B086083											
Ammonia as N	B086083-BS1	LCS	175.35	185.19	mg/kg	94.7		80 - 120			
QC Batch ID: B086173											
Total Cyanide	B086173-BS1	LCS	13.900	13.636	mg/kg	102		80 - 120			
QC Batch ID: B086561											
pH	B086561-BS1	LCS	6.9950	7.0000	pH Units	99.9		95 - 105			
QC Batch ID: B086826											
Nitrate as NO3	B086826-BS1	LCS	22.147	22.358	mg/kg	99.1		90 - 110			

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Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Chemical Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits		Lab Quals
									RPD	Percent Recovery	
QC Batch ID: B086043		Used client sample: Y - Description: Composite Biosolids, 08/24/2020 11:30									
Total Kjeldahl Nitrogen	DUP	2024846-01	18677	18568		mg/kg	0.6		20		
	MS	2024846-01	18677	19608	400.00	mg/kg		233		90 - 110	A03
	MSD	2024846-01	18677	19866	400.00	mg/kg	1.3	297	20	90 - 110	A03
QC Batch ID: B086044		Used client sample: Y - Description: Composite Biosolids, 08/24/2020 11:30									
Total Phosphate	DUP	2024846-01	35724	35988		mg/kg	0.7		20		
	MS	2024846-01	35724	39447	613.20	mg/kg		607		80 - 120	A03
	MSD	2024846-01	35724	39134	613.20	mg/kg	0.8	556	20	80 - 120	A03
QC Batch ID: B086083		Used client sample: N									
Ammonia as N	DUP	2024654-01	2581.1	2651.2		mg/kg	2.7		20		
	MS	2024654-01	2581.1	2741.2	188.68	mg/kg		84.9		80 - 120	
	MSD	2024654-01	2581.1	2866.5	196.08	mg/kg	4.5	146	20	80 - 120	A03
QC Batch ID: B086168		Used client sample: N									
Solids	DUP	2024657-01	99.150	98.880		%	0.3		20		
QC Batch ID: B086173		Used client sample: Y - Description: Composite Biosolids, 08/24/2020 11:30									
Total Cyanide	DUP	2024846-01	1.8336	1.1642		mg/kg	44.7		20		Q01
	MS	2024846-01	1.8336	2.3251	9.4340	mg/kg		5.2		80 - 120	Q03
	MSD	2024846-01	1.8336	6.4360	9.2593	mg/kg	93.8	49.7	20	80 - 120	Q03
QC Batch ID: B086561		Used client sample: N									
pH	DUP	2024760-01	8.9960	9.0280		pH Units	0.4		20		
QC Batch ID: B086826		Used client sample: Y - Description: Composite Biosolids, 08/24/2020 11:30									
Nitrate as NO3	DUP	2024846-01	37.805	38.115		mg/kg	0.8		20		
	MS	2024846-01	37.805	269.23	223.58	mg/kg		104		80 - 120	
	MSD	2024846-01	37.805	264.76	223.58	mg/kg	1.7	102	20	80 - 120	

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Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Modified WET Test (STLC)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B087023						
Total Dissolved Solids @ 180 C	B087023-BLK1	ND	mg/L	6.7	3.3	
QC Batch ID: B087116						
Hexavalent Chromium	B087116-BLK1	ND	mg/L	0.20	0.070	

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Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Modified WET Test (STLC)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits		Lab	Quals
								Percent Recovery	RPD		
QC Batch ID: B087023											
Total Dissolved Solids @ 180 C	B087023-BS1	LCS	600.00	586.00	mg/L	102		90 - 110			
QC Batch ID: B087116											
Hexavalent Chromium	B087116-BS1	LCS	4.7857	5.0000	mg/L	95.7		85 - 115			

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Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Modified WET Test (STLC)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits		Lab Quals	
									RPD	Percent Recovery		
QC Batch ID: B087023		Used client sample: Y - Description: Composite Biosolids, 08/24/2020 11:30										
Total Dissolved Solids @ 180 C	DUP	2024846-01	5950.0	5900.0		mg/L	0.8		20			
QC Batch ID: B087116		Used client sample: Y - Description: Composite Biosolids, 08/24/2020 11:30										
Hexavalent Chromium	DUP	2024846-01	ND	0.16460		mg/L			20			J
	MS	2024846-01	ND	8.9918	10.526	mg/L		85.4		85 - 115		
	MSD	2024846-01	ND	9.2434	10.526	mg/L	2.8	87.8	20	85 - 115		

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Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

WET Test (STLC)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B086893						
Copper	B086893-BLK1	0.042758	mg/L	0.10	0.012	J
Lead	B086893-BLK1	ND	mg/L	0.50	0.16	

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Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

WET Test (STLC)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits		Lab
								Percent Recovery	RPD	
QC Batch ID: B086893										
Copper	B086893-BS1	LCS	22.020	20.000	mg/L	110		85 - 115		
Lead	B086893-BS1	LCS	22.447	20.000	mg/L	112		85 - 115		

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Project Manager: John Gunderlock

WET Test (STLC)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits		Lab Quals
									RPD	Percent Recovery	
QC Batch ID: B086893		Used client sample: N									
Copper	DUP	2025505-01	3.2705	3.1464		mg/L	3.9		20		
	MS	2025505-01	3.2705	26.014	20.408	mg/L		111		75 - 125	
	MSD	2025505-01	3.2705	24.495	20.408	mg/L	6.0	104	20	75 - 125	
Lead	DUP	2025505-01	ND	ND		mg/L			20		
	MS	2025505-01	ND	21.998	20.408	mg/L		108		75 - 125	
	MSD	2025505-01	ND	20.434	20.408	mg/L	7.4	100	20	75 - 125	

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Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Total Concentrations (TTLIC)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B085952						
Mercury	B085952-BLK1	ND	mg/kg	0.16	0.016	
QC Batch ID: B086047						
Antimony	B086047-BLK1	ND	mg/kg	5.0	0.33	
Arsenic	B086047-BLK1	ND	mg/kg	1.0	0.40	
Barium	B086047-BLK1	ND	mg/kg	0.50	0.18	
Beryllium	B086047-BLK1	ND	mg/kg	0.50	0.047	
Cadmium	B086047-BLK1	ND	mg/kg	0.50	0.052	
Chromium	B086047-BLK1	0.21886	mg/kg	0.50	0.050	J
Cobalt	B086047-BLK1	ND	mg/kg	2.5	0.098	
Copper	B086047-BLK1	0.052513	mg/kg	1.0	0.050	J
Lead	B086047-BLK1	ND	mg/kg	2.5	0.41	
Molybdenum	B086047-BLK1	ND	mg/kg	2.5	0.050	
Nickel	B086047-BLK1	0.15591	mg/kg	0.50	0.15	J
Selenium	B086047-BLK1	ND	mg/kg	1.0	0.98	
Silver	B086047-BLK1	ND	mg/kg	0.50	0.067	
Thallium	B086047-BLK1	ND	mg/kg	5.0	0.64	
Vanadium	B086047-BLK1	ND	mg/kg	0.50	0.11	
Zinc	B086047-BLK1	0.28975	mg/kg	2.5	0.087	J
Boron	B086047-BLK1	ND	mg/kg	5.0	0.50	
QC Batch ID: B086636						
Total Hexavalent Chromium	B086636-BLK1	ND	mg/kg	1.0	0.30	

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Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Total Concentrations (TTL)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits		Lab Quals
								Percent Recovery	RPD	
QC Batch ID: B085952										
Mercury	B085952-BS1	LCS	0.67360	0.80000	mg/kg	84.2		80 - 120		
QC Batch ID: B086047										
Antimony	B086047-BS1	LCS	96.614	100.00	mg/kg	96.6		75 - 125		
Arsenic	B086047-BS1	LCS	17.870	20.000	mg/kg	89.4		75 - 125		
Barium	B086047-BS1	LCS	110.09	100.00	mg/kg	110		75 - 125		
Beryllium	B086047-BS1	LCS	10.226	10.000	mg/kg	102		75 - 125		
Cadmium	B086047-BS1	LCS	9.9882	10.000	mg/kg	99.9		75 - 125		
Chromium	B086047-BS1	LCS	100.64	100.00	mg/kg	101		75 - 125		
Cobalt	B086047-BS1	LCS	99.830	100.00	mg/kg	99.8		75 - 125		
Copper	B086047-BS1	LCS	99.370	100.00	mg/kg	99.4		75 - 125		
Lead	B086047-BS1	LCS	105.88	100.00	mg/kg	106		75 - 125		
Molybdenum	B086047-BS1	LCS	99.282	100.00	mg/kg	99.3		75 - 125		
Nickel	B086047-BS1	LCS	104.74	100.00	mg/kg	105		75 - 125		
Selenium	B086047-BS1	LCS	17.567	20.000	mg/kg	87.8		75 - 125		
Silver	B086047-BS1	LCS	9.5847	10.000	mg/kg	95.8		75 - 125		
Thallium	B086047-BS1	LCS	111.35	100.00	mg/kg	111		75 - 125		
Vanadium	B086047-BS1	LCS	99.920	100.00	mg/kg	99.9		75 - 125		
Zinc	B086047-BS1	LCS	97.875	100.00	mg/kg	97.9		75 - 125		
Boron	B086047-BS1	LCS	88.280	100.00	mg/kg	88.3		75 - 125		
QC Batch ID: B086636										
Total Hexavalent Chromium	B086636-BS1	LCS	41.380	40.000	mg/kg	103		80 - 120		

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Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Total Concentrations (TTLC)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Control Limits		
								Percent Recovery	RPD	Percent Recovery
QC Batch ID: B085952		Used client sample: N								
Mercury	DUP	2024573-12	ND	ND		mg/kg			20	
	MS	2024573-12	ND	0.76250	0.78125	mg/kg		97.6		80 - 120
	MSD	2024573-12	ND	0.81719	0.78125	mg/kg	6.9	105	20	80 - 120
QC Batch ID: B086047		Used client sample: N								
Antimony	DUP	2025090-04	ND	ND		mg/kg			20	
	MS	2025090-04	ND	24.356	100.00	mg/kg		24.4		16 - 119
	MSD	2025090-04	ND	25.046	100.00	mg/kg	2.8	25.0	20	16 - 119
Arsenic	DUP	2025090-04	5.5480	5.5796		mg/kg	0.6		20	
	MS	2025090-04	5.5480	22.944	20.000	mg/kg		87.0		75 - 125
	MSD	2025090-04	5.5480	22.459	20.000	mg/kg	2.1	84.6	20	75 - 125
Barium	DUP	2025090-04	96.884	112.18		mg/kg	14.6		20	
	MS	2025090-04	96.884	206.38	100.00	mg/kg		110		75 - 125
	MSD	2025090-04	96.884	192.84	100.00	mg/kg	6.8	96.0	20	75 - 125
Beryllium	DUP	2025090-04	0.45727	0.46239		mg/kg	1.1		20	J
	MS	2025090-04	0.45727	10.057	10.000	mg/kg		96.0		75 - 125
	MSD	2025090-04	0.45727	10.230	10.000	mg/kg	1.7	97.7	20	75 - 125
Cadmium	DUP	2025090-04	0.82297	0.83596		mg/kg	1.6		20	J
	MS	2025090-04	0.82297	10.217	10.000	mg/kg		93.9		75 - 125
	MSD	2025090-04	0.82297	10.245	10.000	mg/kg	0.3	94.2	20	75 - 125
Chromium	DUP	2025090-04	21.371	21.496		mg/kg	0.6		20	
	MS	2025090-04	21.371	116.64	100.00	mg/kg		95.3		75 - 125
	MSD	2025090-04	21.371	116.75	100.00	mg/kg	0.1	95.4	20	75 - 125
Cobalt	DUP	2025090-04	4.7963	4.7456		mg/kg	1.1		20	J
	MS	2025090-04	4.7963	98.932	100.00	mg/kg		94.1		75 - 125
	MSD	2025090-04	4.7963	100.35	100.00	mg/kg	1.4	95.6	20	75 - 125
Copper	DUP	2025090-04	12.037	12.347		mg/kg	2.5		20	
	MS	2025090-04	12.037	105.75	100.00	mg/kg		93.7		75 - 125
	MSD	2025090-04	12.037	107.18	100.00	mg/kg	1.3	95.1	20	75 - 125
Lead	DUP	2025090-04	5.4230	5.0494		mg/kg	7.1		20	
	MS	2025090-04	5.4230	98.886	100.00	mg/kg		93.5		75 - 125
	MSD	2025090-04	5.4230	99.865	100.00	mg/kg	1.0	94.4	20	75 - 125
Molybdenum	DUP	2025090-04	0.75258	0.44539		mg/kg	51.3		20	J,A02
	MS	2025090-04	0.75258	88.740	100.00	mg/kg		88.0		75 - 125
	MSD	2025090-04	0.75258	90.096	100.00	mg/kg	1.5	89.3	20	75 - 125
Nickel	DUP	2025090-04	27.832	27.465		mg/kg	1.3		20	
	MS	2025090-04	27.832	118.95	100.00	mg/kg		91.1		75 - 125
	MSD	2025090-04	27.832	120.32	100.00	mg/kg	1.1	92.5	20	75 - 125

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Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Total Concentrations (TTL)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits		Lab
									RPD	Percent Recovery	
QC Batch ID: B086047		Used client sample: N									
Selenium	DUP	2025090-04	ND	ND		mg/kg			20		
	MS	2025090-04	ND	17.489	20.000	mg/kg		87.4		75 - 125	
	MSD	2025090-04	ND	16.744	20.000	mg/kg	4.4	83.7	20	75 - 125	
Silver	DUP	2025090-04	ND	ND		mg/kg			20		
	MS	2025090-04	ND	9.2988	10.000	mg/kg		93.0		75 - 125	
	MSD	2025090-04	ND	9.4489	10.000	mg/kg	1.6	94.5	20	75 - 125	
Thallium	DUP	2025090-04	ND	ND		mg/kg			20		
	MS	2025090-04	ND	96.741	100.00	mg/kg		96.7		75 - 125	
	MSD	2025090-04	ND	99.171	100.00	mg/kg	2.5	99.2	20	75 - 125	
Vanadium	DUP	2025090-04	29.126	29.647		mg/kg	1.8		20		
	MS	2025090-04	29.126	124.66	100.00	mg/kg		95.5		75 - 125	
	MSD	2025090-04	29.126	125.23	100.00	mg/kg	0.5	96.1	20	75 - 125	
Zinc	DUP	2025090-04	40.147	40.433		mg/kg	0.7		20		
	MS	2025090-04	40.147	135.60	100.00	mg/kg		95.5		75 - 125	
	MSD	2025090-04	40.147	128.15	100.00	mg/kg	5.7	88.0	20	75 - 125	
Boron	DUP	2025090-04	8.9950	8.7239		mg/kg	3.1		20		J
	MS	2025090-04	8.9950	89.629	100.00	mg/kg		80.6		75 - 125	
	MSD	2025090-04	8.9950	92.195	100.00	mg/kg	2.8	83.2	20	75 - 125	
QC Batch ID: B086636		Used client sample: Y - Description: Composite Biosolids, 08/24/2020 11:30									
Total Hexavalent Chromium	DUP	2024846-01	5.0700	5.1100		mg/kg	0.8		20		
	MS	2024846-01	5.0700	5.6800	200.00	mg/kg		0.3		75 - 125	Q03
	MSD	2024846-01	5.0700	5.7400	200.00	mg/kg	1.1	0.3	20	75 - 125	Q03

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Reported: 09/18/2020 10:30
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2020
Project Manager: John Gunderlock

Notes And Definitions

- J Estimated Value (CLP Flag)
- MDL Method Detection Limit
- ND Analyte Not Detected
- PQL Practical Quantitation Limit
- A02 The difference between duplicate readings is less than the quantitation limit.
- A03 The sample concentration was more than 4 times the spike level.
- A07 Detection and quantitation limits were raised due to sample dilution caused by high analyte concentration or matrix interference.
- A10 Detection and quantitation limits were raised due to matrix interference.
- Q01 Sample precision is not within the control limits.
- Q03 Matrix spike recovery(s) was(were) not within the control limits.
- pHdil pH result reported on a 1:7 dilution of sample