

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

**OFFSHORE MONITORING
AND REPORTING PROGRAM**

**RESIDUAL BIOSOLIDS
CHEMICAL ANALYSIS RESULTS**

SEPTEMBER 2021



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

September 2021

Prepared by
Douglas A. Coats

Marine Research Specialists

4744 Telephone Rd Ste 3 PMB 315
Ventura, California 93003

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September 2021

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

4 October 2021

Reference: Chemical Analysis Results for Biosolid Samples Collected in September 2021

Dear Mr. Gunderlock:

Enclosed are the results of chemical analyses conducted on a representative composite of biosolid subsamples collected from the drying beds on September 8th. Also included in this report are pertinent QA/QC data, comprised of 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 2021 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 September-2021 sample were comparable to concentrations measured in most samples collected annually from 1999 through 2020.^b

All trace-metal concentrations measured in the September-2021 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). Accordingly, the required waste extraction test (WET) was conducted on this compound. The test indicated that the soluble concentration of copper (0.2 mg/L) was 125-times lower than the applicable STLC (25 mg/L) that would designate the biosolids as hazardous within the State of California. Although hexavalent chromium's bulk concentration (≈ 0.36 mg/kg) did not exceed ten-times its STLC (50 ppm), a WET was conducted nonetheless. It detected soluble hexavalent chromium in the biosolid leachate at a concentration (≈ 0.12 mg/L) too low to be reliably quantified and 40-times lower than the applicable STLC objective (5 mg/L) for this oxidation state.

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. Consequently, their presence in bulk biosolid samples was expected 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 also 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 ^d	WET ^e	STLC ^f	TTLT ^g	Bulk	Monthly ^h	Ceiling ⁱ
Solids	%	85.0	— ^j	—	—	—	—	—
Total Dissolved Solids	ppm	—	8,000.	—	—	—	—	—
Cyanide	ppm	2.4	—	—	—	2.8	—	—
Antimony	ppm	ND ^k	—	15.	500.	ND	—	—
Arsenic	ppm	6.7	—	5.	500.	7.8	41.	75.
Barium	ppm	110.	—	100.	10,000.	130.	—	—
Beryllium	ppm	≈0.29 ^l	—	0.75	75.	≈0.34	—	—
Boron	ppm	≈19.	—	—	—	≈22.	—	—
Cadmium	ppm	2.6	—	1.	100.	3.0	39.	85.
Chromium (Total)	ppm	43.	—	560.	2,500.	50.	1,200.	3,000.
Chromium (Hexavalent)	ppm	≈0.36	≈0.12	5.	500.	≈0.43	—	—
Cobalt	ppm	≈2.7	—	80.	8,000.	≈3.2	—	—
Copper	ppm	430.	0.20	25.	2,500.	500.	1,500.	4,300.
Lead	ppm	33.	—	5.	1,000.	39.	300.	840.
Mercury	ppm	0.48	—	0.2	20.	0.57	17.	57.
Molybdenum	ppm	17.	—	350.	3,500.	19.	18.	75.
Nickel	ppm	27.	—	20.	2,000.	31.	420.	420.
Selenium	ppm	ND	—	1.	100.	ND	36.	100.
Silver	ppm	≈1.8	—	5.	500.	≈2.1	—	—
Thallium	ppm	ND	—	7.	700.	ND	—	—
Vanadium	ppm	18.	—	24.	2,400.	21.	—	—
Zinc	ppm	1,400.	—	250.	5,000.	1,600.	2,800.	7,500.
Hydrogen-Ion	pH	6.52	—	—	—	—	—	—
Phosphate	ppm	65,000.	—	—	—	76,000.	—	—
Ammonia	ppm	6,000.	—	—	—	7,100.	—	—
TKN	ppm	32,000.	—	—	—	38,000.	—	—
Organic Nitrogen ^m	ppm	26,000.	—	—	—	30,900.	—	—
Nitrate as NO ₃	ppm	110.	—	—	—	130.	—	—
Oil & Grease	ppm	13000.	—	—	—	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 September-2021 composite biosolids sample.

^b Marine Research Specialists (MRS). 1999 through 2020. 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. <https://www.morro-bay.ca.us/Archive.aspx?ADID=5475>

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

^e 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.

-
- ^f 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*.
- ^g 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.*
- ^h 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)].
- ⁱ Federally mandated dry-weight ceiling concentrations above which biosolids are considered hazardous waste as defined in Table 1 of the CFRs, *op. cit.*
- ^j “—” indicates that the measurement was not required or its limit was not specified.
- ^k “ND” indicates that the measurement was not detected in concentrations exceeding the method detection limit.
- ^l “≈” indicates the reported concentration was too low to be reliably quantified.
- ^m The amount of nitrogen as reported by TKN excluding ammonia



Date of Report: 10/04/2021

John Gunderlock

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

Client Project: Biosolids Monitoring 2021
BCL Project: Biosolids from MBWWTP
BCL Work Order: 2128553
Invoice ID: B430363

Enclosed are the results of analyses for samples received by the laboratory on 9/8/2021. If you have any questions concerning this report, please feel free to contact me.

Revised Report: This report supercedes Report ID 1001225743

Sincerely,

Contact Person: Eli Velazquez
Client Service Rep

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 2128553

2-CEVE can only be reported as a TIC (Tentatively Identified Compound). 2-CEVE was not found as a TIC for lab number 2128553.



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Environmental Testing Laboratory Since 1949

Chain of Custody and Cooler Receipt Form for 2128553 Page 1 of 5

BC LABORATORIES

4100 Atlas Court Bakersfield, Ca. 93308
(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

21-28553

Chain of Custody

* Required Fields

TEMP: _____

Client/Company Name *		Report Attention *		Phone * #: _____ FAX * #: _____	
City of Morro Bay		John Gunderlock		E-mail: jgunderlock@morrobayca.gov	
Address *		City *		State *	
955 Shasta Avenue		Morro Bay		CA	
Zip *		93442		Carbon Copies:	
Project Information:		PO #		CDHS <input type="checkbox"/> Fresno Co <input type="checkbox"/> EPA <input type="checkbox"/>	
2019 Biosolids Monitoring 2021		BCL Quote #		Merced Co <input type="checkbox"/> Tulare Co <input type="checkbox"/>	
How would you like your completed results sent?		QC Request		Other:	
<input checked="" type="checkbox"/> E-Mail <input type="checkbox"/> Fax <input type="checkbox"/> BMD <input type="checkbox"/> Mail Only		Result Request ** Surcharge		Regulatory Compliance	
Sampler Name Printed / Signature		<input type="checkbox"/> STD <input checked="" type="checkbox"/> Level II <input checked="" type="checkbox"/> STD <input type="checkbox"/> 5 Day** <input type="checkbox"/> 3 Day** <input type="checkbox"/> 1 Day**		Electronic Data Transfer: Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	
Matrix Types:		Result Request ** Surcharge		System No. *	
RSW = Raw Surface Water CFW = Chlorinated Finished Water CWW = Chlorinated Waste Water BW = Bottled Water					
RGW = Raw Ground Water FW = Finished Water WW = Waste Water SW = Steam Water DW = Drinking Water SD = Solid					
Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *
-1	4	9/8/21	1045	Composite Biosolids	Sludge
Comments / Station Code					
see COC addenda & footnotes					
CHK BY: [Signature] DISTRIBUTION: [Signature] SUB OUT: <input type="checkbox"/>					
Relinquished by: (Signature and Printed Name)		Company		Received by: (Signature and Print Name)	
[Signature] John Gunderlock		City of Morro Bay		[Signature] [Signature] [Signature] [Signature]	
Relinquished by: (Signature and Printed Name)		Company		Received by: (Signature and Print Name)	
[Signature] Jerry Mason		JC		[Signature]	
Received for Lab by: (Signature and Printed Name)		Date		Time	
[Signature] Patrick E		9/8/21		2010	
Shipping Method:		Cooling Method:		Payment Received at Delivery:	
CAO UPS GSO WALK-IN SJVC FED EX OTHER		WET BLUE NONE		Date: _____ Amount: _____ Check/Cash/Cred PIA # _____ Init _____	
				Packing Material:	

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Report ID: 1001226505
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City of Morro Bay

Chain of Custody Form (Addenda)

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21-28553

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

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.

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City of Morro Bay

Chain of Custody Form (Addenda)

Page 4 of 4

21-28553

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

Page 4 of 4

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Laboratories, Inc.

Environmental Testing Laboratory Since 1949

BC LABORATORIES INC.		COOLER RECEIPT FORM		Page <u>1</u> Of <u>1</u>	
Submission #: <u>21-28553</u>					
SHIPPING INFORMATION Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> GSO / GLS <input type="checkbox"/> Hand Delivery <input type="checkbox"/> BC Lab Field Service <input checked="" type="checkbox"/> Other <input type="checkbox"/> (Specify) _____			SHIPPING CONTAINER Ice Chest <input checked="" type="checkbox"/> None <input type="checkbox"/> Box <input type="checkbox"/> Other <input type="checkbox"/> (Specify) _____		FREE LIQUID YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> W / S

Refrigerant: Ice Blue Ice None Other Comments: _____

Custody Seals Ice Chest Containers None Comments: _____
 Intact? Yes No Intact? Yes No

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: new Thermometer ID: 208 Date/Time: 9/8/21
 Temperature: (A) 0.4 °C / (C) 0.1 °C Analyst Init: FE 2010

SAMPLE CONTAINERS	SAMPLE NUMBERS									
	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES										
4oz / 8oz / 16oz PE UNPRES										
2oz Cr ⁺⁺										
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										
PIA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL										
QT EPA 1664B										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/508.3/508.1A										
QT EPA 515.1/515.1A										
QT EPA 525.2										
QT EPA 525.2 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548.1										
QT EPA 549.2										
QT EPA 8015M										
QT EPA 8270C										
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: PRE Date/Time: 9/8/21 22:00
 A = Actual / C = Corrected

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

Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
Project Manager: John Gunderlock

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
2128553-01	COC Number:	---	Receive Date:	09/08/2021 20:10
	Project Number:	---	Sampling Date:	09/08/2021 10:45
	Sampling Location:	---	Sample Depth:	---
	Sampling Point:	Composite Biosolids	Lab Matrix:	Solids
	Sampled By:	Client	Sample Type:	Sludge

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

Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
Project Manager: John Gunderlock

Organochlorine Pesticides (EPA Method 8081A)

BCL Sample ID:	2128553-01	Client Sample Name:	Composite Biosolids, 9/8/2021 10:45:00AM, Client						
Constituent	Dry Basis Result	As Recvd Result	Units	As Received		Method	TTLT Limits	Lab Quals	Run #
				PQL	MDL				
Aldrin	ND	ND	mg/kg	0.088	0.0032	EPA-8081A	1.4	A10	1
alpha-BHC	ND	ND	mg/kg	0.088	0.0067	EPA-8081A		A10	1
beta-BHC	ND	ND	mg/kg	0.088	0.0085	EPA-8081A		A10	1
delta-BHC	ND	ND	mg/kg	0.088	0.0065	EPA-8081A		A10	1
gamma-BHC (Lindane)	ND	ND	mg/kg	0.088	0.0032	EPA-8081A	4.0	A10	1
Chlordane (Technical)	ND	ND	mg/kg	8.8	0.18	EPA-8081A	2.5	A10	1
4,4'-DDD	ND	ND	mg/kg	0.088	0.011	EPA-8081A	1.0	A10	1
4,4'-DDE	ND	ND	mg/kg	0.088	0.017	EPA-8081A	1.0	A10	1
4,4'-DDT	ND	ND	mg/kg	0.088	0.0071	EPA-8081A	1.0	A10	1
Dieldrin	ND	ND	mg/kg	0.088	0.0064	EPA-8081A	8.0	A10	1
Endosulfan I	ND	ND	mg/kg	0.088	0.0035	EPA-8081A		A10	1
Endosulfan II	ND	ND	mg/kg	0.088	0.0060	EPA-8081A		A10	1
Endosulfan sulfate	ND	ND	mg/kg	0.088	0.0046	EPA-8081A		A10	1
Endrin	ND	ND	mg/kg	0.088	0.011	EPA-8081A	0.2	A10	1
Endrin aldehyde	ND	ND	mg/kg	0.088	0.0032	EPA-8081A		A10	1
Heptachlor	ND	ND	mg/kg	0.088	0.015	EPA-8081A	4.7	A10	1
Heptachlor epoxide	ND	ND	mg/kg	0.088	0.0030	EPA-8081A		A10	1
Methoxychlor	ND	ND	mg/kg	0.088	0.017	EPA-8081A	100	A10	1
Toxaphene	ND	ND	mg/kg	8.8	0.25	EPA-8081A	5	A10	1
TCMX (Surrogate)	66.9	66.9	%	20 - 130 (LCL - UCL)		EPA-8081A		A10	1
Decachlorobiphenyl (Surrogate)	110	110	%	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	09/16/21 16:50	09/17/21 14:16	HKS	GC-17	176.47	B119988	EPA 3550B

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

Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
Project Manager: John Gunderlock

PCB Analysis (EPA Method 8082)

BCL Sample ID: 2128553-01		Client Sample Name: Composite Biosolids, 9/8/2021 10:45:00AM, Client							
Constituent	Dry Basis	As Recvd	Units	As Received		Method	TTLT	Lab	Run #
	Result	Result		PQL	MDL				
PCB-1016	ND	ND	mg/kg	3.0	0.69	EPA-8082	50	A10	1
PCB-1221	ND	ND	mg/kg	3.0	0.99	EPA-8082	50	A10	1
PCB-1232	ND	ND	mg/kg	3.0	0.78	EPA-8082	50	A10	1
PCB-1242	ND	ND	mg/kg	3.0	0.45	EPA-8082	50	A10	1
PCB-1248	ND	ND	mg/kg	3.0	0.63	EPA-8082	50	A10	1
PCB-1254	ND	ND	mg/kg	3.0	0.48	EPA-8082	50	A10	1
PCB-1260	ND	ND	mg/kg	3.0	0.54	EPA-8082	50	A10	1
Total PCB's (Summation)	ND	ND	mg/kg	3.0	1.5	EPA-8082	50	A10	1
Decachlorobiphenyl (Surrogate)	83.3	83.3	%	40 - 120 (LCL - UCL)		EPA-8082		A10	1

Run #	Method	Prep Date	Run		Analyst	Instrument	Dilution	QC	
			Date/Time					Batch ID	Prep Method
1	EPA-8082	09/17/21 10:30	09/21/21	06:46	HKS	GC-14	300	B120394	EPA 3550B

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

Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8240)

BCL Sample ID: 2128553-01		Client Sample Name: Composite Biosolids, 9/8/2021 10:45:00AM, Client							
Constituent	Dry Basis	As Recvd	Units	As Received		Method	TTLT Limits	Lab Quals	Run #
	Result	Result		PQL	MDL				
Benzene	ND	ND	mg/kg	0.025	0.0034	EPA-8240		A01	1
Bromodichloromethane	ND	ND	mg/kg	0.025	0.0039	EPA-8240		A01	1
Bromoform	ND	ND	mg/kg	0.025	0.0035	EPA-8240		A01	1
Bromomethane	ND	ND	mg/kg	0.025	0.0085	EPA-8240		A01	1
Carbon tetrachloride	ND	ND	mg/kg	0.025	0.0039	EPA-8240		A01	1
Chlorobenzene	ND	ND	mg/kg	0.025	0.0038	EPA-8240		A01	1
Chloroethane	ND	ND	mg/kg	0.025	0.0055	EPA-8240		A01	1
Chloroform	ND	ND	mg/kg	0.025	0.0045	EPA-8240		A01	1
Chloromethane	ND	ND	mg/kg	0.025	0.0055	EPA-8240		A01	1
Dibromochloromethane	ND	ND	mg/kg	0.025	0.0040	EPA-8240		A01	1
1,2-Dichlorobenzene	ND	ND	mg/kg	0.025	0.0040	EPA-8240		A01	1
1,3-Dichlorobenzene	ND	ND	mg/kg	0.025	0.0036	EPA-8240		A01	1
1,4-Dichlorobenzene	ND	ND	mg/kg	0.025	0.0036	EPA-8240		A01	1
1,1-Dichloroethane	ND	ND	mg/kg	0.025	0.0032	EPA-8240		A01	1
1,2-Dichloroethane	ND	ND	mg/kg	0.025	0.0036	EPA-8240		A01	1
1,1-Dichloroethene	ND	ND	mg/kg	0.025	0.0055	EPA-8240		A01	1
trans-1,2-Dichloroethene	ND	ND	mg/kg	0.025	0.018	EPA-8240		A01	1
1,2-Dichloropropane	ND	ND	mg/kg	0.025	0.0040	EPA-8240		A01	1
cis-1,3-Dichloropropene	ND	ND	mg/kg	0.025	0.0029	EPA-8240		A01	1
trans-1,3-Dichloropropene	ND	ND	mg/kg	0.025	0.0033	EPA-8240		A01	1
Ethylbenzene	ND	ND	mg/kg	0.025	0.0034	EPA-8240		A01	1
Methylene chloride	ND	ND	mg/kg	0.050	0.0055	EPA-8240		A01	1
Methyl t-butyl ether	ND	ND	mg/kg	0.025	0.0028	EPA-8240		A01	1
1,1,2,2-Tetrachloroethane	ND	ND	mg/kg	0.025	0.0042	EPA-8240		A01	1
Tetrachloroethene	ND	ND	mg/kg	0.025	0.0048	EPA-8240		A01	1
Toluene	ND	ND	mg/kg	0.025	0.0034	EPA-8240		A01	1
1,1,1-Trichloroethane	ND	ND	mg/kg	0.025	0.0034	EPA-8240		A01	1
1,1,2-Trichloroethane	ND	ND	mg/kg	0.025	0.0047	EPA-8240		A01	1
Trichloroethene	ND	ND	mg/kg	0.025	0.0037	EPA-8240	2040	A01	1
Trichlorofluoromethane	ND	ND	mg/kg	0.025	0.0075	EPA-8240		A01	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ND	mg/kg	0.025	0.0050	EPA-8240		A01	1
Vinyl chloride	ND	ND	mg/kg	0.025	0.0030	EPA-8240		A01	1

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

Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8240)

BCL Sample ID:	2128553-01	Client Sample Name:	Composite Biosolids, 9/8/2021 10:45:00AM, Client						
Constituent	Dry Basis Result	As Recvd Result	Units	As Received		Method	TTLIC Limits	Lab Quals	Run #
				PQL	MDL				
Total Xylenes	ND	ND	mg/kg	0.050	0.012	EPA-8240		A01	1
Acrolein	ND	ND	mg/kg	0.25	0.026	EPA-8240		A01	1
Acrylonitrile	ND	ND	mg/kg	0.10	0.010	EPA-8240		A01	1
1,2-Dichloroethane-d4 (Surrogate)	109	109	%	70 - 121 (LCL - UCL)		EPA-8240			1
Toluene-d8 (Surrogate)	97.2	97.2	%	81 - 117 (LCL - UCL)		EPA-8240			1
4-Bromofluorobenzene (Surrogate)	74.0	74.0	%	74 - 121 (LCL - UCL)		EPA-8240			1
TIC: 1,3,3-Trimethylbicyclo[2.2.1]heptan-2-one	0.034	0.029	mg/kg			EPA-8240		A01	1
TIC: 3,3,5-Trimethylcyclohexanone	0.12	0.11	mg/kg			EPA-8240		A01	1
TIC: Acetone	3.1	2.7	mg/kg			EPA-8240		A01	1
TIC: Carbon disulfide	0.13	0.11	mg/kg			EPA-8240		A01	1
TIC: Carbonyl sulfide	0.16	0.14	mg/kg			EPA-8240		A01	1
TIC: cis-2-(-Isopropylidene-3-methylcyclopropyl)propane	0.030	0.026	mg/kg			EPA-8240		A01	1
TIC: Eucalyptol	0.12	0.10	mg/kg			EPA-8240		A01	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8240	09/10/21 10:15	09/13/21 16:04	BYM	MS-V18	5	B119393	EPA 5030 Soil MS

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Morro Bay, CA 93442

Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
Project Manager: John Gunderlock

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

BCL Sample ID: 2128553-01		Client Sample Name: Composite Biosolids, 9/8/2021 10:45:00AM, Client							
Constituent	Dry Basis	As Recvd	Units	As Received		Method	TTLT	Lab	Run #
	Result	Result		PQL	MDL				
Acenaphthene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
Acenaphthylene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
Aldrin	ND	ND	mg/kg	52	3.5	EPA-8270C	1.4	A10	1
Aniline	ND	ND	mg/kg	100	5.7	EPA-8270C		A10	1
Anthracene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
Benzidine	ND	ND	mg/kg	1600	4.8	EPA-8270C		A10	1
Benzo[a]anthracene	ND	ND	mg/kg	52	4.0	EPA-8270C		A10	1
Benzo[b]fluoranthene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
Benzo[k]fluoranthene	ND	ND	mg/kg	52	4.2	EPA-8270C		A10	1
Benzo[a]pyrene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
Benzo[g,h,i]perylene	ND	ND	mg/kg	52	6.7	EPA-8270C		A10	1
Benzoic acid	ND	ND	mg/kg	260	7.3	EPA-8270C		A10	1
Benzyl alcohol	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
Benzyl butyl phthalate	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
alpha-BHC	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
beta-BHC	ND	ND	mg/kg	52	3.9	EPA-8270C		A10	1
delta-BHC	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
gamma-BHC (Lindane)	ND	ND	mg/kg	52	3.5	EPA-8270C	4.0	A10	1
bis(2-Chloroethoxy)methane	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
bis(2-Chloroethyl) ether	ND	ND	mg/kg	52	5.0	EPA-8270C		A10	1
bis(2-Chloroisopropyl)ether	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
bis(2-Ethylhexyl)phthalate	ND	ND	mg/kg	100	3.5	EPA-8270C		A10	1
4-Bromophenyl phenyl ether	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
4-Chloroaniline	ND	ND	mg/kg	52	7.8	EPA-8270C		A10	1
2-Chloronaphthalene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
4-Chlorophenyl phenyl ether	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
Chrysene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
4,4'-DDD	ND	ND	mg/kg	52	3.5	EPA-8270C	1.0	A10	1
4,4'-DDE	ND	ND	mg/kg	52	3.5	EPA-8270C	1.0	A10	1
4,4'-DDT	ND	ND	mg/kg	52	3.5	EPA-8270C	1.0	A10	1
Dibenzo[a,h]anthracene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
Dibenzofuran	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1

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

Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
Project Manager: John Gunderlock

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

BCL Sample ID: 2128553-01		Client Sample Name: Composite Biosolids, 9/8/2021 10:45:00AM, Client							
Constituent	Dry Basis Result	As Recvd Result	Units	As Received		Method	TTLT Limits	Lab Quals	Run #
				PQL	MDL				
1,2-Dichlorobenzene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
1,3-Dichlorobenzene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
1,4-Dichlorobenzene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
3,3-Dichlorobenzidine	ND	ND	mg/kg	100	3.5	EPA-8270C		A10	1
Dieldrin	ND	ND	mg/kg	52	4.0	EPA-8270C	8.0	A10	1
Diethyl phthalate	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
Dimethyl phthalate	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
Di-n-butyl phthalate	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
2,4-Dinitrotoluene	ND	ND	mg/kg	52	4.4	EPA-8270C		A10	1
2,6-Dinitrotoluene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
Di-n-octyl phthalate	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
1,2-Diphenylhydrazine	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
Endosulfan I	ND	ND	mg/kg	100	4.6	EPA-8270C		A10	1
Endosulfan II	ND	ND	mg/kg	100	4.6	EPA-8270C		A10	1
Endosulfan sulfate	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
Endrin	ND	ND	mg/kg	100	4.5	EPA-8270C	0.2	A10	1
Endrin aldehyde	ND	ND	mg/kg	260	3.6	EPA-8270C		A10	1
Fluoranthene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
Fluorene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
Heptachlor	ND	ND	mg/kg	52	3.5	EPA-8270C	4.7	A10	1
Heptachlor epoxide	ND	ND	mg/kg	52	6.7	EPA-8270C		A10	1
Hexachlorobenzene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
Hexachlorobutadiene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
Hexachlorocyclopentadiene	ND	ND	mg/kg	52	7.8	EPA-8270C		A10	1
Hexachloroethane	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
Indeno[1,2,3-cd]pyrene	ND	ND	mg/kg	52	3.6	EPA-8270C		A10	1
Isophorone	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
2-Methylnaphthalene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
Naphthalene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
2-Naphthylamine	ND	ND	mg/kg	1600	19	EPA-8270C		A10	1
2-Nitroaniline	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
3-Nitroaniline	ND	ND	mg/kg	100	3.5	EPA-8270C		A10	1

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City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	Reported: 10/04/2021 11:45 Project: Biosolids from MBWWTP Project Number: Biosolids Monitoring 2021 Project Manager: John Gunderlock
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Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID:	2128553-01		Client Sample Name:	Composite Biosolids, 9/8/2021 10:45:00AM, Client					
Constituent	Dry Basis Result	As Recvd Result	Units	As Received		Method	TTLT Limits	Lab Quals	Run #
				PQL	MDL				
4-Nitroaniline	ND	ND	mg/kg	100	5.7	EPA-8270C		A10	1
Nitrobenzene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
N-Nitrosodimethylamine	ND	ND	mg/kg	52	21	EPA-8270C		A10	1
N-Nitrosodi-N-propylamine	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
N-Nitrosodiphenylamine	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
Phenanthrene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
Pyrene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
1,2,4-Trichlorobenzene	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
4-Chloro-3-methylphenol	ND	ND	mg/kg	100	3.5	EPA-8270C		A10	1
2-Chlorophenol	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
2,4-Dichlorophenol	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
2,4-Dimethylphenol	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
4,6-Dinitro-2-methylphenol	ND	ND	mg/kg	260	3.5	EPA-8270C		A10	1
2,4-Dinitrophenol	ND	ND	mg/kg	260	3.5	EPA-8270C		A10	1
2-Methylphenol	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
3- & 4-Methylphenol	ND	ND	mg/kg	100	7.3	EPA-8270C		A10	1
2-Nitrophenol	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
4-Nitrophenol	ND	ND	mg/kg	100	9.3	EPA-8270C		A10	1
Pentachlorophenol	ND	ND	mg/kg	100	8.8	EPA-8270C	17	A10	1
Phenol	ND	ND	mg/kg	52	3.5	EPA-8270C		A10	1
2,4,5-Trichlorophenol	ND	ND	mg/kg	100	5.7	EPA-8270C		A10	1
2,4,6-Trichlorophenol	ND	ND	mg/kg	100	3.5	EPA-8270C		A10	1
2-Fluorophenol (Surrogate)	97.8	97.8	%	20 - 130 (LCL - UCL)		EPA-8270C		A10	1
Phenol-d5 (Surrogate)	98.3	98.3	%	30 - 130 (LCL - UCL)		EPA-8270C		A10	1
Nitrobenzene-d5 (Surrogate)	104	104	%	30 - 130 (LCL - UCL)		EPA-8270C		A10	1
2-Fluorobiphenyl (Surrogate)	109	109	%	30 - 140 (LCL - UCL)		EPA-8270C		A10	1
2,4,6-Tribromophenol (Surrogate)	243	243	%	20 - 150 (LCL - UCL)		EPA-8270C		A10,S09	1
p-Terphenyl-d14 (Surrogate)	74.1	74.1	%	30 - 150 (LCL - UCL)		EPA-8270C		A10	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8270C	09/15/21 20:15	09/18/21 09:23	CMM	MS-B8	518.18	B119969	EPA 3550B

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City of Morro Bay
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Morro Bay, CA 93442

Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
Project Manager: John Gunderlock

EPA Method 1664

BCL Sample ID: 2128553-01	Client Sample Name: Composite Biosolids, 9/8/2021 10:45:00AM, Client								
Constituent	Dry Basis Result	As Recvd Result	Units	As Received		Method	MB Bias	Lab Quals	Run #
Oil and Grease	15000	13000	mg/kg	PQL 50	MDL 22	EPA-1664B HEM	ND		1

Run #	Method	Prep Date	Run		Analyst	Instrument	Dilution	QC	
			Date/Time					Batch ID	Prep Method
1	EPA-1664B HEM	09/14/21 09:00	09/14/21	13:11	MAM	Inst	1.004	B119653	EPA 1664/HEM

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Morro Bay, CA 93442

Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
Project Manager: John Gunderlock

Chemical Analysis

BCL Sample ID:	2128553-01	Client Sample Name:	Composite Biosolids, 9/8/2021 10:45:00AM, Client						
Constituent	Dry Basis Result	As Recvd Result	Units	As Received		Method	MB Bias	Lab Quals	Run #
				PQL	MDL				
Moisture	0	15.0	%	0.05	0.05	Calc	ND		1
Total Cyanide	2.8	2.4	mg/kg	0.50	0.17	EPA-9012	ND		2
pH	6.52	6.52	pH Units	0.05	0.05	EPA-9045D	ND	pH1:3	3
pH Measurement Temperature	23.8	23.8	C	0.1	0.1	EPA-9045D	ND		3
Nitrate as NO3	130	110	mg/kg	8.8	2.4	EPA-300.0	ND	A10	4
Total Kjeldahl Nitrogen	38000	32000	mg/kg	4000	1500	EPA-351.2	ND	A10	5
Ammonia as N	7100	6000	mg/kg	400	100	EPA-350.1	ND	A10	6
Total Phosphate	76000	65000	mg/kg	3000	940	EPA-365.4	ND	A10	7
Solids	100	85.0	%	0.05	0.05	SM-2540G			8

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	Calc	09/09/21 11:01	09/14/21 08:01	AMM	Calc	1	B_I0105	Calc
2	EPA-9012	09/13/21 16:00	09/14/21 15:03	TMS	KONE-1	1	B119584	EPA 9012
3	EPA-9045D	09/10/21 10:50	09/10/21 10:50	JT3	MANUAL	1	B119407	EPA 9045
4	EPA-300.0	09/14/21 07:50	09/14/21 20:47	KEB	IC8	2	B119603	Water Extract X10
5	EPA-351.2	09/27/21 07:30	09/28/21 10:31	JMH2	SC-2	100	B120717	EPA 351.2
6	EPA-350.1	09/15/21 17:55	09/17/21 12:24	JMH2	SC-2	20	B119800	EPA 350.1
7	EPA-365.4	09/27/21 07:30	09/28/21 14:58	JMH2	SC-2	100	B120718	EPA 365.4
8	SM-2540G	09/13/21 07:00	09/13/21 15:06	DRC	MANUAL	1	B119545	SM 2540G

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Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
Project Manager: John Gunderlock

Modified WET Test (STLC)

BCL Sample ID: 2128553-01	Client Sample Name: Composite Biosolids, 9/8/2021 10:45:00AM, Client								
Constituent	Dry Basis Result	As Recvd Result	Units	As Received		Method	STLC Limits	Lab Quals	Run #
Hexavalent Chromium		0.12	mg/L	0.20	0.070	EPA-7196	5	J	1
Total Dissolved Solids @ 180 C		8000	mg/L	500	250	EPA-160.1		A10	2

Run #	Method	Prep Date	Run		Analyst	Instrument	Dilution	QC	
			Date/Time	Date/Time				Batch ID	Prep Method
1	EPA-7196	09/16/21 14:00	09/16/21 14:00	09/16/21 14:13	JMH	KONE-1	1	B120086	Title 22 - Mod STLC
2	EPA-160.1	09/16/21 14:30	09/16/21 14:30	09/20/21 14:30	CAD	MANUAL	50	B119677	Title 22 - Mod STLC

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

Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
Project Manager: John Gunderlock

WET Test (STLC)

BCL Sample ID: 2128553-01	Client Sample Name: Composite Biosolids, 9/8/2021 10:45:00AM, Client								
Constituent	Dry Basis Result	As Recvd Result	Units	As Received		Method	STLC Limits	Lab Quals	Run #
Copper		0.20	mg/L	0.10	0.012	EPA-6010B	25		1

Run #	Method	Prep Date	Run		Analyst	Instrument	Dilution	QC	
			Date/Time					Batch ID	Prep Method
1	EPA-6010B	09/12/21 15:10	09/13/21	14:40	JCC	PE-OP3	1	B119507	EPA 3005A

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Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
Project Manager: John Gunderlock

Total Concentrations (TTLC)

BCL Sample ID:	2128553-01	Client Sample Name:	Composite Biosolids, 9/8/2021 10:45:00AM, Client							
Constituent	Dry Basis Result	As Recvd Result	Units	As Received		Method	TTLC Limits	Lab Quals	Run #	
				PQL	MDL					
Antimony	ND	ND	mg/kg	25	1.6	EPA-6010B	500	A10	1	
Arsenic	7.8	6.7	mg/kg	5.0	2.0	EPA-6010B	500	A10	1	
Barium	130	110	mg/kg	2.5	0.90	EPA-6010B	10000	A10	1	
Beryllium	0.34	0.29	mg/kg	2.5	0.24	EPA-6010B	75	J,A10	1	
Cadmium	3.0	2.6	mg/kg	2.5	0.26	EPA-6010B	100	A10	1	
Chromium	50	43	mg/kg	2.5	0.25	EPA-6010B	2500	A10	1	
Total Hexavalent Chromium	0.43	0.36	mg/kg	1.0	0.30	EPA-7199		J	2	
Cobalt	3.2	2.7	mg/kg	12	0.49	EPA-6010B	8000	J,A10	1	
Copper	500	430	mg/kg	5.0	0.25	EPA-6010B	2500	A10	1	
Lead	39	33	mg/kg	12	2.0	EPA-6010B	1000	A10	1	
Mercury	0.57	0.48	mg/kg	0.16	0.016	EPA-7471A	20		3	
Molybdenum	19	17	mg/kg	12	0.25	EPA-6010B	3500	A10	1	
Nickel	31	27	mg/kg	2.5	0.75	EPA-6010B	2000	A10	1	
Selenium	ND	ND	mg/kg	5.0	4.9	EPA-6010B	100	A10	1	
Silver	2.1	1.8	mg/kg	2.5	0.34	EPA-6010B	500	J,A10	1	
Thallium	ND	ND	mg/kg	25	3.2	EPA-6010B	700	A10	1	
Vanadium	21	18	mg/kg	2.5	0.55	EPA-6010B	2400	A10	1	
Zinc	1600	1400	mg/kg	12	0.44	EPA-6010B	5000	A10	1	
Boron	22	19	mg/kg	25	2.5	EPA-6010B		J,A10	1	

Run #	Method	Prep Date	Run		Analyst	Instrument	Dilution	QC	
			Date/Time					Batch ID	Prep Method
1	EPA-6010B	09/09/21 08:10	09/10/21 14:29		JCC	PE-OP3	5	B119288	EPA 3050B
2	EPA-7199	09/20/21 08:10	09/21/21 18:03		KEB	IC-4	0.965	B120065	EPA 3060A
3	EPA-7471A	09/20/21 09:10	09/20/21 11:38		TMT	CETAC3	1.008	B120067	EPA 7471A

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Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
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: B119988						
Aldrin	B119988-BLK1	ND	mg/kg	0.00050	0.000018	
alpha-BHC	B119988-BLK1	ND	mg/kg	0.00050	0.000038	
beta-BHC	B119988-BLK1	ND	mg/kg	0.00050	0.000048	
delta-BHC	B119988-BLK1	ND	mg/kg	0.00050	0.000037	
gamma-BHC (Lindane)	B119988-BLK1	ND	mg/kg	0.00050	0.000018	
Chlordane (Technical)	B119988-BLK1	ND	mg/kg	0.050	0.0010	
4,4'-DDD	B119988-BLK1	ND	mg/kg	0.00050	0.000064	
4,4'-DDE	B119988-BLK1	ND	mg/kg	0.00050	0.000095	
4,4'-DDT	B119988-BLK1	ND	mg/kg	0.00050	0.000040	
Dieldrin	B119988-BLK1	ND	mg/kg	0.00050	0.000036	
Endosulfan I	B119988-BLK1	ND	mg/kg	0.00050	0.000020	
Endosulfan II	B119988-BLK1	ND	mg/kg	0.00050	0.000034	
Endosulfan sulfate	B119988-BLK1	ND	mg/kg	0.00050	0.000026	
Endrin	B119988-BLK1	ND	mg/kg	0.00050	0.000065	
Endrin aldehyde	B119988-BLK1	ND	mg/kg	0.00050	0.000018	
Heptachlor	B119988-BLK1	ND	mg/kg	0.00050	0.000086	
Heptachlor epoxide	B119988-BLK1	ND	mg/kg	0.00050	0.000017	
Methoxychlor	B119988-BLK1	ND	mg/kg	0.00050	0.000094	
Toxaphene	B119988-BLK1	ND	mg/kg	0.050	0.0014	
TCMX (Surrogate)	B119988-BLK1	85.0	%	20 - 130 (LCL - UCL)		
Decachlorobiphenyl (Surrogate)	B119988-BLK1	112	%	40 - 130 (LCL - UCL)		

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Project Number: Biosolids Monitoring 2021
Project Manager: John Gunderlock

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: B119988										
Aldrin	B119988-BS1	LCS	0.0049213	0.0050000	mg/kg	98.4		70 - 130		
gamma-BHC (Lindane)	B119988-BS1	LCS	0.0047127	0.0050000	mg/kg	94.3		60 - 140		
4,4'-DDT	B119988-BS1	LCS	0.0050257	0.0050000	mg/kg	101		60 - 140		
Dieldrin	B119988-BS1	LCS	0.0053663	0.0050000	mg/kg	107		70 - 130		
Endrin	B119988-BS1	LCS	0.0055163	0.0050000	mg/kg	110		60 - 140		
Heptachlor	B119988-BS1	LCS	0.0051293	0.0050000	mg/kg	103		60 - 140		
TCMX (Surrogate)	B119988-BS1	LCS	0.0084327	0.0100000	mg/kg	84.3		20 - 130		
Decachlorobiphenyl (Surrogate)	B119988-BS1	LCS	0.023827	0.0200000	mg/kg	119		40 - 130		

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Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
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	Control Limits		Lab Quals
									RPD	Percent Recovery	
QC Batch ID: B119988		Used client sample: N									
Aldrin	MS	2126400-38	ND	0.0045623	0.0049180	mg/kg		92.8		50 - 140	
	MSD	2126400-38	ND	0.0048380	0.0049505	mg/kg	5.9	97.7	30	50 - 140	
gamma-BHC (Lindane)	MS	2126400-38	ND	0.0044052	0.0049180	mg/kg		89.6		50 - 140	
	MSD	2126400-38	ND	0.0046432	0.0049505	mg/kg	5.3	93.8	30	50 - 140	
4,4'-DDT	MS	2126400-38	ND	0.0044846	0.0049180	mg/kg		91.2		50 - 140	
	MSD	2126400-38	ND	0.0048614	0.0049505	mg/kg	8.1	98.2	30	50 - 140	
Dieldrin	MS	2126400-38	ND	0.0050144	0.0049180	mg/kg		102		40 - 140	
	MSD	2126400-38	ND	0.0052650	0.0049505	mg/kg	4.9	106	30	40 - 140	
Endrin	MS	2126400-38	ND	0.0050839	0.0049180	mg/kg		103		50 - 150	
	MSD	2126400-38	ND	0.0054218	0.0049505	mg/kg	6.4	110	30	50 - 150	
Heptachlor	MS	2126400-38	ND	0.0047390	0.0049180	mg/kg		96.4		60 - 140	
	MSD	2126400-38	ND	0.0049670	0.0049505	mg/kg	4.7	100	30	60 - 140	
TCMX (Surrogate)	MS	2126400-38	ND	0.0082052	0.0098361	mg/kg		83.4		20 - 130	
	MSD	2126400-38	ND	0.0083739	0.0099010	mg/kg	2.0	84.6		20 - 130	
Decachlorobiphenyl (Surrogate)	MS	2126400-38	ND	0.022466	0.019672	mg/kg		114		40 - 130	
	MSD	2126400-38	ND	0.023375	0.019802	mg/kg	4.0	118		40 - 130	

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Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
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: B120394						
PCB-1016	B120394-BLK1	ND	mg/kg	0.010	0.0023	
PCB-1221	B120394-BLK1	ND	mg/kg	0.010	0.0033	
PCB-1232	B120394-BLK1	ND	mg/kg	0.010	0.0026	
PCB-1242	B120394-BLK1	ND	mg/kg	0.010	0.0015	
PCB-1248	B120394-BLK1	ND	mg/kg	0.010	0.0021	
PCB-1254	B120394-BLK1	ND	mg/kg	0.010	0.0016	
PCB-1260	B120394-BLK1	ND	mg/kg	0.010	0.0018	
Total PCB's (Summation)	B120394-BLK1	ND	mg/kg	0.010	0.0050	
Decachlorobiphenyl (Surrogate)	B120394-BLK1	68.3	%	40 - 120 (LCL - UCL)		

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Project Number: Biosolids Monitoring 2021
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	Quals
								Percent Recovery	RPD		
QC Batch ID: B120394											
PCB-1016	B120394-BS1	LCS	0.073649	0.084459	mg/kg	87.2		60 - 120			
PCB-1260	B120394-BS1	LCS	0.072973	0.084459	mg/kg	86.4		60 - 120			
Decachlorobiphenyl (Surrogate)	B120394-BS1	LCS	0.014865	0.020270	mg/kg	73.3		40 - 120			

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Project Number: Biosolids Monitoring 2021
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	
QC Batch ID: B120394		Used client sample: N								
PCB-1016	MS	2129051-01	ND	0.063851	0.084459	mg/kg		75.6		60 - 120
	MSD	2129051-01	ND	0.058054	0.083893	mg/kg	9.5	69.2	30	60 - 120
PCB-1260	MS	2129051-01	ND	0.059797	0.084459	mg/kg		70.8		60 - 120
	MSD	2129051-01	ND	0.056376	0.083893	mg/kg	5.9	67.2	30	60 - 120
Decachlorobiphenyl (Surrogate)	MS	2129051-01	ND	0.011824	0.020270	mg/kg		58.3		40 - 120
	MSD	2129051-01	ND	0.011745	0.020134	mg/kg	0.7	58.3		40 - 120

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City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	Reported: 10/04/2021 11:45 Project: Biosolids from MBWWTP Project Number: Biosolids Monitoring 2021 Project Manager: John Gunderlock
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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: B119393						
Benzene	B119393-BLK1	ND	mg/kg	0.0050	0.00067	
Bromodichloromethane	B119393-BLK1	ND	mg/kg	0.0050	0.00078	
Bromoform	B119393-BLK1	ND	mg/kg	0.0050	0.00070	
Bromomethane	B119393-BLK1	ND	mg/kg	0.0050	0.0017	
Carbon tetrachloride	B119393-BLK1	ND	mg/kg	0.0050	0.00078	
Chlorobenzene	B119393-BLK1	ND	mg/kg	0.0050	0.00077	
Chloroethane	B119393-BLK1	ND	mg/kg	0.0050	0.0011	
Chloroform	B119393-BLK1	ND	mg/kg	0.0050	0.00090	
Chloromethane	B119393-BLK1	ND	mg/kg	0.0050	0.0011	
Dibromochloromethane	B119393-BLK1	ND	mg/kg	0.0050	0.00080	
1,2-Dichlorobenzene	B119393-BLK1	ND	mg/kg	0.0050	0.00079	
1,3-Dichlorobenzene	B119393-BLK1	ND	mg/kg	0.0050	0.00073	
1,4-Dichlorobenzene	B119393-BLK1	ND	mg/kg	0.0050	0.00073	
1,1-Dichloroethane	B119393-BLK1	ND	mg/kg	0.0050	0.00064	
1,2-Dichloroethane	B119393-BLK1	ND	mg/kg	0.0050	0.00073	
1,1-Dichloroethene	B119393-BLK1	ND	mg/kg	0.0050	0.0011	
trans-1,2-Dichloroethene	B119393-BLK1	ND	mg/kg	0.0050	0.0037	
1,2-Dichloropropane	B119393-BLK1	ND	mg/kg	0.0050	0.00080	
cis-1,3-Dichloropropene	B119393-BLK1	ND	mg/kg	0.0050	0.00058	
trans-1,3-Dichloropropene	B119393-BLK1	ND	mg/kg	0.0050	0.00066	
Ethylbenzene	B119393-BLK1	ND	mg/kg	0.0050	0.00069	
Methylene chloride	B119393-BLK1	ND	mg/kg	0.010	0.0011	
Methyl t-butyl ether	B119393-BLK1	ND	mg/kg	0.0050	0.00056	
1,1,2,2-Tetrachloroethane	B119393-BLK1	ND	mg/kg	0.0050	0.00084	
Tetrachloroethene	B119393-BLK1	ND	mg/kg	0.0050	0.00097	
Toluene	B119393-BLK1	ND	mg/kg	0.0050	0.00069	
1,1,1-Trichloroethane	B119393-BLK1	ND	mg/kg	0.0050	0.00067	
1,1,2-Trichloroethane	B119393-BLK1	ND	mg/kg	0.0050	0.00094	
Trichloroethene	B119393-BLK1	ND	mg/kg	0.0050	0.00074	
Trichlorofluoromethane	B119393-BLK1	ND	mg/kg	0.0050	0.0015	
1,1,2-Trichloro-1,2,2-trifluoroethane	B119393-BLK1	ND	mg/kg	0.0050	0.0010	
Vinyl chloride	B119393-BLK1	ND	mg/kg	0.0050	0.00059	
Total Xylenes	B119393-BLK1	ND	mg/kg	0.010	0.0025	
Acrolein	B119393-BLK1	ND	mg/kg	0.050	0.0053	

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Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
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: B119393						
Acrylonitrile	B119393-BLK1	ND	mg/kg	0.020	0.0020	
1,2-Dichloroethane-d4 (Surrogate)	B119393-BLK1	115	%	70 - 121 (LCL - UCL)		
Toluene-d8 (Surrogate)	B119393-BLK1	106	%	81 - 117 (LCL - UCL)		
4-Bromofluorobenzene (Surrogate)	B119393-BLK1	105	%	74 - 121 (LCL - UCL)		

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Project: Biosolids from MBWWTP
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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: B119393										
Benzene	B119393-BS1	LCS	0.13940	0.12500	mg/kg	112		70 - 130		
Bromodichloromethane	B119393-BS1	LCS	0.13535	0.12500	mg/kg	108		70 - 130		
Chlorobenzene	B119393-BS1	LCS	0.11822	0.12500	mg/kg	94.6		70 - 130		
Chloroethane	B119393-BS1	LCS	0.13070	0.12500	mg/kg	105		70 - 130		
1,4-Dichlorobenzene	B119393-BS1	LCS	0.12209	0.12500	mg/kg	97.7		70 - 130		
1,1-Dichloroethane	B119393-BS1	LCS	0.13964	0.12500	mg/kg	112		70 - 130		
1,1-Dichloroethene	B119393-BS1	LCS	0.15076	0.12500	mg/kg	121		70 - 130		
Toluene	B119393-BS1	LCS	0.13669	0.12500	mg/kg	109		70 - 130		
Trichloroethene	B119393-BS1	LCS	0.13204	0.12500	mg/kg	106		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	B119393-BS1	LCS	0.053680	0.050000	mg/kg	107		70 - 121		
Toluene-d8 (Surrogate)	B119393-BS1	LCS	0.052860	0.050000	mg/kg	106		81 - 117		
4-Bromofluorobenzene (Surrogate)	B119393-BS1	LCS	0.051330	0.050000	mg/kg	103		74 - 121		

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Project: Biosolids from MBWWTP
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Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8240)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Control Limits			
								Percent Recovery	RPD	Percent Recovery	Lab
QC Batch ID: B119393		Used client sample: N									
Benzene	MS	2126400-84	ND	0.13789	0.12500	mg/kg		110		70 - 130	
	MSD	2126400-84	ND	0.13779	0.12500	mg/kg	0.1	110	20	70 - 130	
Bromodichloromethane	MS	2126400-84	ND	0.14431	0.12500	mg/kg		115		70 - 130	
	MSD	2126400-84	ND	0.14413	0.12500	mg/kg	0.1	115	20	70 - 130	
Chlorobenzene	MS	2126400-84	ND	0.12194	0.12500	mg/kg		97.6		70 - 130	
	MSD	2126400-84	ND	0.12138	0.12500	mg/kg	0.5	97.1	20	70 - 130	
Chloroethane	MS	2126400-84	ND	0.12463	0.12500	mg/kg		99.7		70 - 130	
	MSD	2126400-84	ND	0.12710	0.12500	mg/kg	2.0	102	20	70 - 130	
1,4-Dichlorobenzene	MS	2126400-84	ND	0.12853	0.12500	mg/kg		103		70 - 130	
	MSD	2126400-84	ND	0.12746	0.12500	mg/kg	0.8	102	20	70 - 130	
1,1-Dichloroethane	MS	2126400-84	ND	0.14002	0.12500	mg/kg		112		70 - 130	
	MSD	2126400-84	ND	0.14105	0.12500	mg/kg	0.7	113	20	70 - 130	
1,1-Dichloroethene	MS	2126400-84	ND	0.14345	0.12500	mg/kg		115		70 - 130	
	MSD	2126400-84	ND	0.14823	0.12500	mg/kg	3.3	119	20	70 - 130	
Toluene	MS	2126400-84	ND	0.14097	0.12500	mg/kg		113		70 - 130	
	MSD	2126400-84	ND	0.13871	0.12500	mg/kg	1.6	111	20	70 - 130	
Trichloroethene	MS	2126400-84	ND	0.13605	0.12500	mg/kg		109		70 - 130	
	MSD	2126400-84	ND	0.13640	0.12500	mg/kg	0.3	109	20	70 - 130	
1,2-Dichloroethane-d4 (Surrogate)	MS	2126400-84	ND	0.054190	0.050000	mg/kg		108		70 - 121	
	MSD	2126400-84	ND	0.052470	0.050000	mg/kg	3.2	105		70 - 121	
Toluene-d8 (Surrogate)	MS	2126400-84	ND	0.052830	0.050000	mg/kg		106		81 - 117	
	MSD	2126400-84	ND	0.048080	0.050000	mg/kg	9.4	96.2		81 - 117	
4-Bromofluorobenzene (Surrogate)	MS	2126400-84	ND	0.052230	0.050000	mg/kg		104		74 - 121	
	MSD	2126400-84	ND	0.052170	0.050000	mg/kg	0.1	104		74 - 121	

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

Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
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: B119969						
Acenaphthene	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Acenaphthylene	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Aldrin	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Aniline	B119969-BLK1	ND	mg/kg	0.20	0.011	
Anthracene	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Benzidine	B119969-BLK1	ND	mg/kg	3.0	0.0093	
Benzo[a]anthracene	B119969-BLK1	ND	mg/kg	0.10	0.0077	
Benzo[b]fluoranthene	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Benzo[k]fluoranthene	B119969-BLK1	ND	mg/kg	0.10	0.0082	
Benzo[a]pyrene	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Benzo[g,h,i]perylene	B119969-BLK1	ND	mg/kg	0.10	0.013	
Benzoic acid	B119969-BLK1	ND	mg/kg	0.50	0.014	
Benzyl alcohol	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Benzyl butyl phthalate	B119969-BLK1	ND	mg/kg	0.10	0.0067	
alpha-BHC	B119969-BLK1	ND	mg/kg	0.10	0.0067	
beta-BHC	B119969-BLK1	ND	mg/kg	0.10	0.0075	
delta-BHC	B119969-BLK1	ND	mg/kg	0.10	0.0067	
gamma-BHC (Lindane)	B119969-BLK1	ND	mg/kg	0.10	0.0067	
bis(2-Chloroethoxy)methane	B119969-BLK1	ND	mg/kg	0.10	0.0067	
bis(2-Chloroethyl) ether	B119969-BLK1	ND	mg/kg	0.10	0.0097	
bis(2-Chloroisopropyl)ether	B119969-BLK1	ND	mg/kg	0.10	0.0067	
bis(2-Ethylhexyl)phthalate	B119969-BLK1	ND	mg/kg	0.20	0.0067	
4-Bromophenyl phenyl ether	B119969-BLK1	ND	mg/kg	0.10	0.0067	
4-Chloroaniline	B119969-BLK1	ND	mg/kg	0.10	0.015	
2-Chloronaphthalene	B119969-BLK1	ND	mg/kg	0.10	0.0067	
4-Chlorophenyl phenyl ether	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Chrysene	B119969-BLK1	ND	mg/kg	0.10	0.0067	
4,4'-DDD	B119969-BLK1	ND	mg/kg	0.10	0.0067	
4,4'-DDE	B119969-BLK1	ND	mg/kg	0.10	0.0068	
4,4'-DDT	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Dibenzo[a,h]anthracene	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Dibenzofuran	B119969-BLK1	ND	mg/kg	0.10	0.0067	
1,2-Dichlorobenzene	B119969-BLK1	ND	mg/kg	0.10	0.0067	
1,3-Dichlorobenzene	B119969-BLK1	ND	mg/kg	0.10	0.0067	

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Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
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: B119969						
1,4-Dichlorobenzene	B119969-BLK1	ND	mg/kg	0.10	0.0067	
3,3-Dichlorobenzidine	B119969-BLK1	ND	mg/kg	0.20	0.0067	
Dieldrin	B119969-BLK1	ND	mg/kg	0.10	0.0077	
Diethyl phthalate	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Dimethyl phthalate	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Di-n-butyl phthalate	B119969-BLK1	ND	mg/kg	0.10	0.0067	
2,4-Dinitrotoluene	B119969-BLK1	ND	mg/kg	0.10	0.0085	
2,6-Dinitrotoluene	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Di-n-octyl phthalate	B119969-BLK1	ND	mg/kg	0.10	0.0067	
1,2-Diphenylhydrazine	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Endosulfan I	B119969-BLK1	ND	mg/kg	0.20	0.0088	
Endosulfan II	B119969-BLK1	ND	mg/kg	0.20	0.0088	
Endosulfan sulfate	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Endrin	B119969-BLK1	ND	mg/kg	0.20	0.0086	
Endrin aldehyde	B119969-BLK1	ND	mg/kg	0.50	0.0070	
Fluoranthene	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Fluorene	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Heptachlor	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Heptachlor epoxide	B119969-BLK1	ND	mg/kg	0.10	0.013	
Hexachlorobenzene	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Hexachlorobutadiene	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Hexachlorocyclopentadiene	B119969-BLK1	ND	mg/kg	0.10	0.015	
Hexachloroethane	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Indeno[1,2,3-cd]pyrene	B119969-BLK1	ND	mg/kg	0.10	0.0069	
Isophorone	B119969-BLK1	ND	mg/kg	0.10	0.0067	
2-Methylnaphthalene	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Naphthalene	B119969-BLK1	ND	mg/kg	0.10	0.0067	
2-Naphthylamine	B119969-BLK1	ND	mg/kg	3.0	0.036	
2-Nitroaniline	B119969-BLK1	ND	mg/kg	0.10	0.0067	
3-Nitroaniline	B119969-BLK1	ND	mg/kg	0.20	0.0067	
4-Nitroaniline	B119969-BLK1	ND	mg/kg	0.20	0.011	
Nitrobenzene	B119969-BLK1	ND	mg/kg	0.10	0.0067	
N-Nitrosodimethylamine	B119969-BLK1	ND	mg/kg	0.10	0.040	
N-Nitrosodi-N-propylamine	B119969-BLK1	ND	mg/kg	0.10	0.0067	

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

Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
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: B119969						
N-Nitrosodiphenylamine	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Phenanthrene	B119969-BLK1	ND	mg/kg	0.10	0.0067	
Pyrene	B119969-BLK1	ND	mg/kg	0.10	0.0067	
1,2,4-Trichlorobenzene	B119969-BLK1	ND	mg/kg	0.10	0.0067	
4-Chloro-3-methylphenol	B119969-BLK1	ND	mg/kg	0.20	0.0067	
2-Chlorophenol	B119969-BLK1	ND	mg/kg	0.10	0.0067	
2,4-Dichlorophenol	B119969-BLK1	ND	mg/kg	0.10	0.0067	
2,4-Dimethylphenol	B119969-BLK1	ND	mg/kg	0.10	0.0067	
4,6-Dinitro-2-methylphenol	B119969-BLK1	ND	mg/kg	0.50	0.0067	
2,4-Dinitrophenol	B119969-BLK1	ND	mg/kg	0.50	0.0067	
2-Methylphenol	B119969-BLK1	ND	mg/kg	0.10	0.0067	
3- & 4-Methylphenol	B119969-BLK1	ND	mg/kg	0.20	0.014	
2-Nitrophenol	B119969-BLK1	ND	mg/kg	0.10	0.0067	
4-Nitrophenol	B119969-BLK1	ND	mg/kg	0.20	0.018	
Pentachlorophenol	B119969-BLK1	ND	mg/kg	0.20	0.017	
Phenol	B119969-BLK1	ND	mg/kg	0.10	0.0067	
2,4,5-Trichlorophenol	B119969-BLK1	ND	mg/kg	0.20	0.011	
2,4,6-Trichlorophenol	B119969-BLK1	ND	mg/kg	0.20	0.0067	
2-Fluorophenol (Surrogate)	B119969-BLK1	72.7	%	20 - 130 (LCL - UCL)		
Phenol-d5 (Surrogate)	B119969-BLK1	76.5	%	30 - 130 (LCL - UCL)		
Nitrobenzene-d5 (Surrogate)	B119969-BLK1	77.6	%	30 - 130 (LCL - UCL)		
2-Fluorobiphenyl (Surrogate)	B119969-BLK1	82.0	%	30 - 140 (LCL - UCL)		
2,4,6-Tribromophenol (Surrogate)	B119969-BLK1	73.4	%	20 - 150 (LCL - UCL)		
p-Terphenyl-d14 (Surrogate)	B119969-BLK1	61.6	%	30 - 150 (LCL - UCL)		

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City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	Reported: 10/04/2021 11:45 Project: Biosolids from MBWWTP Project Number: Biosolids Monitoring 2021 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: B119969										
Acenaphthene	B119969-BS1	LCS	1.2341	1.6502	mg/kg	74.8		50 - 130		
1,4-Dichlorobenzene	B119969-BS1	LCS	1.3350	1.6502	mg/kg	80.9		50 - 130		
2,4-Dinitrotoluene	B119969-BS1	LCS	1.7247	1.6502	mg/kg	105		50 - 130		
Hexachlorobenzene	B119969-BS1	LCS	1.5921	1.6502	mg/kg	96.5		40 - 130		
Hexachlorobutadiene	B119969-BS1	LCS	1.2337	1.6502	mg/kg	74.8		50 - 130		
Hexachloroethane	B119969-BS1	LCS	1.3485	1.6502	mg/kg	81.7		50 - 130		
Nitrobenzene	B119969-BS1	LCS	1.4701	1.6502	mg/kg	89.1		50 - 130		
N-Nitrosodi-N-propylamine	B119969-BS1	LCS	1.2670	1.6502	mg/kg	76.8		40 - 120		
Pyrene	B119969-BS1	LCS	1.2739	1.6502	mg/kg	77.2		40 - 150		
1,2,4-Trichlorobenzene	B119969-BS1	LCS	1.3773	1.6502	mg/kg	83.5		50 - 120		
4-Chloro-3-methylphenol	B119969-BS1	LCS	1.4081	1.6502	mg/kg	85.3		50 - 130		
2-Chlorophenol	B119969-BS1	LCS	1.2268	1.6502	mg/kg	74.3		50 - 130		
2-Methylphenol	B119969-BS1	LCS	1.2297	1.6502	mg/kg	74.5		50 - 130		
3- & 4-Methylphenol	B119969-BS1	LCS	2.5324	3.3003	mg/kg	76.7		50 - 130		
4-Nitrophenol	B119969-BS1	LCS	1.0820	1.6502	mg/kg	65.6		30 - 130		
Pentachlorophenol	B119969-BS1	LCS	1.1005	1.6502	mg/kg	66.7		20 - 130		
Phenol	B119969-BS1	LCS	1.1409	1.6502	mg/kg	69.1		40 - 120		
2,4,6-Trichlorophenol	B119969-BS1	LCS	1.2717	1.6502	mg/kg	77.1		50 - 130		
2-Fluorophenol (Surrogate)	B119969-BS1	LCS	0.92805	1.3201	mg/kg	70.3		20 - 130		
Phenol-d5 (Surrogate)	B119969-BS1	LCS	0.93965	1.3201	mg/kg	71.2		30 - 130		
Nitrobenzene-d5 (Surrogate)	B119969-BS1	LCS	0.99954	1.3201	mg/kg	75.7		30 - 130		
2-Fluorobiphenyl (Surrogate)	B119969-BS1	LCS	0.99954	1.3201	mg/kg	75.7		30 - 140		
2,4,6-Tribromophenol (Surrogate)	B119969-BS1	LCS	1.0127	1.3201	mg/kg	76.7		20 - 150		
p-Terphenyl-d14 (Surrogate)	B119969-BS1	LCS	0.41637	0.66007	mg/kg	63.1		30 - 150		

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City of Morro Bay
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Morro Bay, CA 93442

Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
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: B119969		Used client sample: N								
Acenaphthene	MS	2126400-79	ND	1.2543	1.6447	mg/kg		76.3		30 - 140
	MSD	2126400-79	ND	1.3101	1.6556	mg/kg	4.4	79.1	30	30 - 140
1,4-Dichlorobenzene	MS	2126400-79	ND	1.4605	1.6447	mg/kg		88.8		50 - 130
	MSD	2126400-79	ND	1.5218	1.6556	mg/kg	4.1	91.9	30	50 - 130
2,4-Dinitrotoluene	MS	2126400-79	ND	1.7302	1.6447	mg/kg		105		50 - 130
	MSD	2126400-79	ND	1.8064	1.6556	mg/kg	4.3	109	30	50 - 130
Hexachlorobenzene	MS	2126400-79	ND	1.6146	1.6447	mg/kg		98.2		50 - 130
	MSD	2126400-79	ND	1.7553	1.6556	mg/kg	8.3	106	30	50 - 130
Hexachlorobutadiene	MS	2126400-79	ND	1.3977	1.6447	mg/kg		85.0		50 - 130
	MSD	2126400-79	ND	1.5147	1.6556	mg/kg	8.0	91.5	30	50 - 130
Hexachloroethane	MS	2126400-79	ND	1.4599	1.6447	mg/kg		88.8		50 - 130
	MSD	2126400-79	ND	1.5308	1.6556	mg/kg	4.7	92.5	30	50 - 130
Nitrobenzene	MS	2126400-79	ND	1.5313	1.6447	mg/kg		93.1		30 - 120
	MSD	2126400-79	ND	1.6480	1.6556	mg/kg	7.3	99.5	30	30 - 120
N-Nitrosodi-N-propylamine	MS	2126400-79	ND	1.3282	1.6447	mg/kg		80.8		20 - 130
	MSD	2126400-79	ND	1.4046	1.6556	mg/kg	5.6	84.8	30	20 - 130
Pyrene	MS	2126400-79	ND	1.2654	1.6447	mg/kg		76.9		40 - 140
	MSD	2126400-79	ND	1.4605	1.6556	mg/kg	14.3	88.2	30	40 - 140
1,2,4-Trichlorobenzene	MS	2126400-79	ND	1.5540	1.6447	mg/kg		94.5		50 - 130
	MSD	2126400-79	ND	1.6397	1.6556	mg/kg	5.4	99.0	30	50 - 130
4-Chloro-3-methylphenol	MS	2126400-79	ND	1.4994	1.6447	mg/kg		91.2		50 - 130
	MSD	2126400-79	ND	1.5983	1.6556	mg/kg	6.4	96.5	30	50 - 130
2-Chlorophenol	MS	2126400-79	ND	1.3083	1.6447	mg/kg		79.5		50 - 130
	MSD	2126400-79	ND	1.3959	1.6556	mg/kg	6.5	84.3	30	50 - 130
2-Methylphenol	MS	2126400-79	ND	1.2739	1.6447	mg/kg		77.5		50 - 130
	MSD	2126400-79	ND	1.3657	1.6556	mg/kg	7.0	82.5	30	50 - 130
3- & 4-Methylphenol	MS	2126400-79	ND	2.6422	3.2895	mg/kg		80.3		50 - 130
	MSD	2126400-79	ND	2.8320	3.3113	mg/kg	6.9	85.5	30	50 - 130
4-Nitrophenol	MS	2126400-79	ND	1.0885	1.6447	mg/kg		66.2		30 - 140
	MSD	2126400-79	ND	1.1161	1.6556	mg/kg	2.5	67.4	30	30 - 140
Pentachlorophenol	MS	2126400-79	ND	1.1274	1.6447	mg/kg		68.5		30 - 130
	MSD	2126400-79	ND	1.2141	1.6556	mg/kg	7.4	73.3	30	30 - 130
Phenol	MS	2126400-79	ND	1.2872	1.6447	mg/kg		78.3		40 - 150
	MSD	2126400-79	ND	1.3869	1.6556	mg/kg	7.5	83.8	30	40 - 150
2,4,6-Trichlorophenol	MS	2126400-79	ND	1.3323	1.6447	mg/kg		81.0		50 - 130
	MSD	2126400-79	ND	1.4389	1.6556	mg/kg	7.7	86.9	30	50 - 130

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Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
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 Quals
QC Batch ID: B119969		Used client sample: N									
2-Fluorophenol (Surrogate)	MS	2126400-79	ND	1.0740	1.3158	mg/kg		81.6		20 - 130	
	MSD	2126400-79	ND	1.1110	1.3245	mg/kg	3.4	83.9		20 - 130	
Phenol-d5 (Surrogate)	MS	2126400-79	ND	1.0746	1.3158	mg/kg		81.7		30 - 130	
	MSD	2126400-79	ND	1.1675	1.3245	mg/kg	8.3	88.1		30 - 130	
Nitrobenzene-d5 (Surrogate)	MS	2126400-79	ND	1.0712	1.3158	mg/kg		81.4		30 - 130	
	MSD	2126400-79	ND	1.1306	1.3245	mg/kg	5.4	85.4		30 - 130	
2-Fluorobiphenyl (Surrogate)	MS	2126400-79	ND	1.0352	1.3158	mg/kg		78.7		30 - 140	
	MSD	2126400-79	ND	1.0943	1.3245	mg/kg	5.6	82.6		30 - 140	
2,4,6-Tribromophenol (Surrogate)	MS	2126400-79	ND	1.0557	1.3158	mg/kg		80.2		20 - 150	
	MSD	2126400-79	ND	1.0985	1.3245	mg/kg	4.0	82.9		20 - 150	
p-Terphenyl-d14 (Surrogate)	MS	2126400-79	ND	0.42284	0.65789	mg/kg		64.3		30 - 150	
	MSD	2126400-79	ND	0.47247	0.66225	mg/kg	11.1	71.3		30 - 150	

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

Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
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: B119653						
Oil and Grease	B119653-BLK1	ND	mg/kg	50	22	

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Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
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: B119653											
Oil and Grease	B119653-BS1	LCS	746.53	782.18	mg/kg	95.4		70 - 130			

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Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
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		
									RPD	Percent Recovery	Lab Quals
QC Batch ID: B119653		Used client sample: N									
Oil and Grease	DUP	2126400-79	ND	ND		mg/kg			30		
	MS	2126400-79	ND	688.89	797.98	mg/kg		86.3		70 - 130	
	MSD	2126400-79	ND	763.64	797.98	mg/kg	10.3	95.7	30	70 - 130	

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Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
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_I0105						
Moisture	B_I0105-BLK1	ND	%	0.05	0.05	
QC Batch ID: B119407						
pH	B119407-BLK1	ND	pH Units	0.05	0.05	
pH Measurement Temperature	B119407-BLK1	ND	C	0.1	0.1	
QC Batch ID: B119584						
Total Cyanide	B119584-BLK1	ND	mg/kg	0.50	0.17	
QC Batch ID: B119603						
Nitrate as NO3	B119603-BLK1	ND	mg/kg	4.4	1.2	
QC Batch ID: B119800						
Ammonia as N	B119800-BLK1	ND	mg/kg	20	5.0	
QC Batch ID: B120717						
Total Kjeldahl Nitrogen	B120717-BLK1	ND	mg/kg	40	15	
QC Batch ID: B120718						
Total Phosphate	B120718-BLK1	ND	mg/kg	30	9.4	

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Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
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: B119407											
pH	B119407-BS1	LCS	6.9490	7.0000	pH Units	99.3		95 - 105			
QC Batch ID: B119584											
Total Cyanide	B119584-BS1	LCS	13.297	15.000	mg/kg	88.6		80 - 120			
QC Batch ID: B119603											
Nitrate as NO3	B119603-BS1	LCS	24.153	22.134	mg/kg	109		90 - 110			
QC Batch ID: B119800											
Ammonia as N	B119800-BS1	LCS	189.49	200.00	mg/kg	94.7		80 - 120			
QC Batch ID: B120717											
Total Kjeldahl Nitrogen	B120717-BS1	LCS	412.26	400.00	mg/kg	103		90 - 110			
QC Batch ID: B120718											
Total Phosphate	B120718-BS1	LCS	670.33	613.20	mg/kg	109		85 - 115			

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Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
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
									RPD	Percent Recovery	
QC Batch ID: B119407 Used client sample: Y - Description: Composite Biosolids, 09/08/2021 10:45											
pH	DUP	2128553-01	6.5150	6.5410		pH Units	0.4		20		
QC Batch ID: B119545 Used client sample: N											
Solids	DUP	2128616-04	95.950	96.670		%	0.7		20		
QC Batch ID: B119584 Used client sample: N											
Total Cyanide	DUP	2124781-01RE2	0.91270	0.81830		mg/kg	10.9		20		
	MS	2124781-01RE2	0.91270	2.2282	10.000	mg/kg		13.2		80 - 120	Q03
	MSD	2124781-01RE2	0.91270	2.6226	10.000	mg/kg	16.3	17.1	20	80 - 120	Q03
QC Batch ID: B119603 Used client sample: N											
Nitrate as NO3	DUP	2127652-04	19.965	20.009		mg/kg	0.2		20		
	MS	2127652-04	19.965	263.95	223.58	mg/kg		109		80 - 120	
	MSD	2127652-04	19.965	259.62	223.58	mg/kg	1.7	107	20	80 - 120	
QC Batch ID: B119800 Used client sample: N											
Ammonia as N	DUP	2126907-01	3071.2	3186.4		mg/kg	3.7		20		
	MS	2126907-01	3071.2	2650.4	200.00	mg/kg		-210		80 - 120	A03
	MSD	2126907-01	3071.2	2769.3	200.00	mg/kg	4.4	-151	20	80 - 120	A03
QC Batch ID: B120717 Used client sample: N											
Total Kjeldahl Nitrogen	DUP	2128631-01	508.40	519.08		mg/kg	2.1		20		
	MS	2128631-01	508.40	1083.0	400.00	mg/kg		144		90 - 110	Q03
	MSD	2128631-01	508.40	1127.5	400.00	mg/kg	4.0	155	20	90 - 110	Q03
QC Batch ID: B120718 Used client sample: N											
Total Phosphate	DUP	2128631-01	2420.0	2315.8		mg/kg	4.4		20		
	MS	2128631-01	2420.0	3102.7	613.20	mg/kg		111		80 - 120	
	MSD	2128631-01	2420.0	3696.4	613.20	mg/kg	17.5	208	20	80 - 120	Q03

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Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
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: B119677						
Total Dissolved Solids @ 180 C	B119677-BLK1	ND	mg/L	6.7	3.3	
QC Batch ID: B120086						
Hexavalent Chromium	B120086-BLK1	ND	mg/L	0.20	0.070	

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Project Number: Biosolids Monitoring 2021
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: B119677											
Total Dissolved Solids @ 180 C	B119677-BS1	LCS	560.00	586.00	mg/L	95.6		90 - 110			
QC Batch ID: B120086											
Hexavalent Chromium	B120086-BS1	LCS	4.9566	5.0000	mg/L	99.1		85 - 115			

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Project Number: Biosolids Monitoring 2021
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: B119677		Used client sample: Y - Description: Composite Biosolids, 09/08/2021 10:45									
Total Dissolved Solids @ 180 C	DUP	2128553-01	8000.0	8150.0		mg/L	1.9		20		
QC Batch ID: B120086		Used client sample: Y - Description: Composite Biosolids, 09/08/2021 10:45									
Hexavalent Chromium	DUP	2128553-01	0.12020	0.12340		mg/L	2.6		20		J
	MS	2128553-01	0.12020	4.4386	5.2632	mg/L		82.1		85 - 115	Q03
	MSD	2128553-01	0.12020	4.4308	5.2632	mg/L	0.2	81.9	20	85 - 115	Q03

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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: B119507						
Copper	B119507-BLK1	0.020651	mg/L	0.10	0.012	J

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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: B119507										
Copper	B119507-BS1	LCS	19.872	20.000	mg/L	99.4		85 - 115		
	B119507-BSD1	LCSD	19.298	20.000	mg/L	96.5	2.9	85 - 115		20

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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: B119507		Used client sample: N									
Copper	DUP	2128732-01	1.9381	0.56009		mg/L	110		20		Q01
	MS	2128732-01	1.9381	22.205	20.408	mg/L		99.3		75 - 125	
	MSD	2128732-01	1.9381	22.149	20.408	mg/L	0.3	99.0	20	75 - 125	

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Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
Project Manager: John Gunderlock

Total Concentrations (TTL)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B119288						
Antimony	B119288-BLK1	ND	mg/kg	5.0	0.33	
Arsenic	B119288-BLK1	ND	mg/kg	1.0	0.40	
Barium	B119288-BLK1	0.28326	mg/kg	0.50	0.18	J
Beryllium	B119288-BLK1	ND	mg/kg	0.50	0.047	
Cadmium	B119288-BLK1	ND	mg/kg	0.50	0.052	
Chromium	B119288-BLK1	0.16607	mg/kg	0.50	0.050	J
Cobalt	B119288-BLK1	ND	mg/kg	2.5	0.098	
Copper	B119288-BLK1	0.12342	mg/kg	1.0	0.050	J
Lead	B119288-BLK1	ND	mg/kg	2.5	0.41	
Molybdenum	B119288-BLK1	ND	mg/kg	2.5	0.050	
Nickel	B119288-BLK1	ND	mg/kg	0.50	0.15	
Selenium	B119288-BLK1	ND	mg/kg	1.0	0.98	
Silver	B119288-BLK1	ND	mg/kg	0.50	0.067	
Thallium	B119288-BLK1	ND	mg/kg	5.0	0.64	
Vanadium	B119288-BLK1	ND	mg/kg	0.50	0.11	
Zinc	B119288-BLK1	0.34934	mg/kg	2.5	0.087	J
Boron	B119288-BLK1	1.4465	mg/kg	5.0	0.50	J
QC Batch ID: B120065						
Total Hexavalent Chromium	B120065-BLK1	ND	mg/kg	1.0	0.30	
QC Batch ID: B120067						
Mercury	B120067-BLK1	ND	mg/kg	0.16	0.016	

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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: B119288										
Antimony	B119288-BS1	LCS	92.565	100.00	mg/kg	92.6		75 - 125		
Arsenic	B119288-BS1	LCS	17.323	20.000	mg/kg	86.6		75 - 125		
Barium	B119288-BS1	LCS	104.35	100.00	mg/kg	104		75 - 125		
Beryllium	B119288-BS1	LCS	9.8359	10.000	mg/kg	98.4		75 - 125		
Cadmium	B119288-BS1	LCS	9.4034	10.000	mg/kg	94.0		75 - 125		
Chromium	B119288-BS1	LCS	94.492	100.00	mg/kg	94.5		75 - 125		
Cobalt	B119288-BS1	LCS	95.627	100.00	mg/kg	95.6		75 - 125		
Copper	B119288-BS1	LCS	92.733	100.00	mg/kg	92.7		75 - 125		
Lead	B119288-BS1	LCS	101.57	100.00	mg/kg	102		75 - 125		
Molybdenum	B119288-BS1	LCS	93.112	100.00	mg/kg	93.1		75 - 125		
Nickel	B119288-BS1	LCS	99.177	100.00	mg/kg	99.2		75 - 125		
Selenium	B119288-BS1	LCS	18.143	20.000	mg/kg	90.7		75 - 125		
Silver	B119288-BS1	LCS	9.2565	10.000	mg/kg	92.6		75 - 125		
Thallium	B119288-BS1	LCS	106.98	100.00	mg/kg	107		75 - 125		
Vanadium	B119288-BS1	LCS	91.980	100.00	mg/kg	92.0		75 - 125		
Zinc	B119288-BS1	LCS	94.384	100.00	mg/kg	94.4		75 - 125		
Boron	B119288-BS1	LCS	82.880	100.00	mg/kg	82.9		75 - 125		
QC Batch ID: B120065										
Total Hexavalent Chromium	B120065-BS1	LCS	43.228	40.000	mg/kg	108		80 - 120		
QC Batch ID: B120067										
Mercury	B120067-BS1	LCS	0.83360	0.80000	mg/kg	104		80 - 120		

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Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
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: B119288		Used client sample: N								
Antimony	DUP	2128446-41	ND	ND		mg/kg			20	
	MS	2128446-41	ND	20.458	100.00	mg/kg		20.5		16 - 119
	MSD	2128446-41	ND	20.632	100.00	mg/kg	0.8	20.6	20	16 - 119
Arsenic	DUP	2128446-41	6.0445	5.7732		mg/kg	4.6		20	
	MS	2128446-41	6.0445	22.081	20.000	mg/kg		80.2		75 - 125
	MSD	2128446-41	6.0445	22.062	20.000	mg/kg	0.1	80.1	20	75 - 125
Barium	DUP	2128446-41	161.26	164.02		mg/kg	1.7		20	
	MS	2128446-41	161.26	264.22	100.00	mg/kg		103		75 - 125
	MSD	2128446-41	161.26	270.15	100.00	mg/kg	2.2	109	20	75 - 125
Beryllium	DUP	2128446-41	0.53596	0.61374		mg/kg	13.5		20	J
	MS	2128446-41	0.53596	9.5351	10.000	mg/kg		90.0		75 - 125
	MSD	2128446-41	0.53596	9.6618	10.000	mg/kg	1.3	91.3	20	75 - 125
Cadmium	DUP	2128446-41	0.42415	0.54209		mg/kg	24.4		20	J,A02
	MS	2128446-41	0.42415	9.2215	10.000	mg/kg		88.0		75 - 125
	MSD	2128446-41	0.42415	9.3586	10.000	mg/kg	1.5	89.3	20	75 - 125
Chromium	DUP	2128446-41	34.032	35.046		mg/kg	2.9		20	
	MS	2128446-41	34.032	121.48	100.00	mg/kg		87.5		75 - 125
	MSD	2128446-41	34.032	123.08	100.00	mg/kg	1.3	89.0	20	75 - 125
Cobalt	DUP	2128446-41	8.8657	9.8450		mg/kg	10.5		20	
	MS	2128446-41	8.8657	98.248	100.00	mg/kg		89.4		75 - 125
	MSD	2128446-41	8.8657	99.364	100.00	mg/kg	1.1	90.5	20	75 - 125
Copper	DUP	2128446-41	19.911	20.546		mg/kg	3.1		20	
	MS	2128446-41	19.911	106.87	100.00	mg/kg		87.0		75 - 125
	MSD	2128446-41	19.911	107.97	100.00	mg/kg	1.0	88.1	20	75 - 125
Lead	DUP	2128446-41	10.524	11.438		mg/kg	8.3		20	
	MS	2128446-41	10.524	98.771	100.00	mg/kg		88.2		75 - 125
	MSD	2128446-41	10.524	99.881	100.00	mg/kg	1.1	89.4	20	75 - 125
Molybdenum	DUP	2128446-41	0.69811	1.1386		mg/kg	48.0		20	J,A02
	MS	2128446-41	0.69811	80.776	100.00	mg/kg		80.1		75 - 125
	MSD	2128446-41	0.69811	81.312	100.00	mg/kg	0.7	80.6	20	75 - 125
Nickel	DUP	2128446-41	37.870	37.230		mg/kg	1.7		20	
	MS	2128446-41	37.870	124.11	100.00	mg/kg		86.2		75 - 125
	MSD	2128446-41	37.870	125.65	100.00	mg/kg	1.2	87.8	20	75 - 125
Selenium	DUP	2128446-41	ND	ND		mg/kg			20	
	MS	2128446-41	ND	15.678	20.000	mg/kg		78.4		75 - 125
	MSD	2128446-41	ND	16.131	20.000	mg/kg	2.8	80.7	20	75 - 125
Silver	DUP	2128446-41	ND	ND		mg/kg			20	
	MS	2128446-41	ND	8.7192	10.000	mg/kg		87.2		75 - 125
	MSD	2128446-41	ND	8.8140	10.000	mg/kg	1.1	88.1	20	75 - 125

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

Reported: 10/04/2021 11:45
Project: Biosolids from MBWWTP
Project Number: Biosolids Monitoring 2021
Project Manager: John Gunderlock

Total Concentrations (TTLC)

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: B119288		Used client sample: N									
Thallium	DUP	2128446-41	ND	ND		mg/kg			20		
	MS	2128446-41	ND	90.945	100.00	mg/kg		90.9		75 - 125	
	MSD	2128446-41	ND	92.957	100.00	mg/kg	2.2	93.0	20	75 - 125	
Vanadium	DUP	2128446-41	31.289	31.691		mg/kg	1.3		20		
	MS	2128446-41	31.289	115.39	100.00	mg/kg		84.1		75 - 125	
	MSD	2128446-41	31.289	116.91	100.00	mg/kg	1.3	85.6	20	75 - 125	
Zinc	DUP	2128446-41	54.113	53.403		mg/kg	1.3		20		
	MS	2128446-41	54.113	138.14	100.00	mg/kg		84.0		75 - 125	
	MSD	2128446-41	54.113	140.49	100.00	mg/kg	1.7	86.4	20	75 - 125	
Boron	DUP	2128446-41	7.9081	7.2779		mg/kg	8.3		20		J
	MS	2128446-41	7.9081	78.528	100.00	mg/kg		70.6		75 - 125	Q03
	MSD	2128446-41	7.9081	79.333	100.00	mg/kg	1.0	71.4	20	75 - 125	Q03
QC Batch ID: B120065		Used client sample: N									
Total Hexavalent Chromium	DUP	2129242-01	0.82140	0.75584		mg/kg	8.3		20		J
	MS	2129242-01	0.82140	43.290	40.000	mg/kg		106		75 - 125	
	MSD	2129242-01	0.82140	43.864	40.000	mg/kg	1.3	108	20	75 - 125	
QC Batch ID: B120067		Used client sample: N									
Mercury	DUP	2129030-01	0.11839	0.13194		mg/kg	10.8		20		J
	MS	2129030-01	0.11839	0.91129	0.80645	mg/kg		98.3		80 - 120	
	MSD	2129030-01	0.11839	0.89355	0.80645	mg/kg	2.0	96.1	20	80 - 120	

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Notes And Definitions

- J Estimated Value (CLP Flag)
- MDL Method Detection Limit
- ND Analyte Not Detected
- PQL Practical Quantitation Limit
- A01 Detection and quantitation limits are raised due to sample dilution.
- A02 The difference between duplicate readings is less than the quantitation limit.
- A03 The sample concentration was more than 4 times the spike level.
- A10 Detection and quantitation limits were raised due to matrix interference.
- pH1:3 pH result reported on a 1:3 dilution of sample
- Q01 Sample precision is not within the control limits.
- Q03 Matrix spike recovery(s) was(were) not within the control limits.
- S09 The surrogate recovery for this compound was not within the control limits.

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