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YPSILANTI COMMUNITY UTILITIES AUTHORITY

2777 STATE ROAD
YPSILANTI, MICHIGAN 48198-9112
TELEPHONE: 734-484-4600
WEBSITE: www.ycua.org

August 19, 2019

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SEP 15 2019

AIR QUALITY DIVISION

VIA MIWATERS

Mr. Scott Miller
Environmental Manager
MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
Jackson District Office, Air Quality Division
301 E. Louis B. Glick Highway
Jackson, MI 49201-1556

Re: **MI-ROP-B6237-2015**
Violation Notice

Dear Mr. Miller:

The Ypsilanti Community Utilities Authority (YCUA) is in receipt of the Violation Notice from Jackson District Office - Department of Environment, Great Lakes and Energy (EGLE) following exceedance of Beryllium in the sewage sludge fed to the incinerator. Please accept this letter and supporting information as YCUA's response to the Violation Notice.

YCUA's Renewable Operating Permit (ROP), MI-ROP-6237-2015 contains emission limits for metals and requires annual sampling for certain metals including Beryllium (Be). Pursuant to this requirement, YCUA monitors sewage sludge for Be concentration bimonthly. Per the Permit to Install (PTI No. 68-02), the Sewage sludge Be limit is 0.25 mg/Kg (dry) monitored once per year. As noted in the violation notice, YCUA's monitoring includes the following:

1. **June 22, 2018 Monitoring:** A sewage sludge sample collected on June 22, 2018 indicated analytical result for Be at 0.26 mg/Kg. Analytical results of samples collected prior to and after June 22, 2018 sampling have indicated the Be concentration in the sewage sludge below the method detection limit of 0.2 mg/Kg. Following is the synopsis of the analytical data for sewage sludge samples collected and analyzed for Be in 2018. Excerpts of the analytical reports are attached. The attached analytical results indicate that the sewage sludge processed in the Fluid Bed Incinerator (FBI) system consistently met the Be limit of 0.25 mg/Kg except for a single composite sample collected on June 22, 2018.

Date	Beryllium Results (mg/Kg)	Exceedance of PTI Limit (Yes/No)
January 11, 2018	0.20	No
March 16, 2018	0.20	No
April 4, 2018	0.20	No
May 3, 2018	0.20	No
June 6, 2018	0.20	No
June 22, 2018	0.26	Yes
July 3, 2018	0.20	No
July 12, 2018	0.20	No
August 21, 2018	0.20	No
September 19, 2018	0.20	No
October 4, 2018	0.20	No
December 7, 2018	0.20	No

2. **February 13, 2019:** Sewage sludge sample collected on February 13, 2019 indicated analytical result for Be at 0.44 mg/Kg. The Fluid Bed Incinerator (FBI) system at YCUA was in preventive maintenance between December 19, 2018 and March 25, 2019. Hence, the sewage sludge with elevated Be was not processed through the FBI system. Subsequent sampling conducted on April 3, 2019 and June 11, 2019 indicated a concentration in sewage sludge within the limits of PTI for Be.

July 8, 2019: Following the discovery of elevated Be in the sewage sludge sample collected on February 13, 2019, YCUA conducted an investigation into the sources of Be in the sludge which included plant influent sampling on July 2, 2019 and effluent water sampling on July 3, 2019, and sewage sludge sampling on July 8, 2019. The evaluation also included additives to the sewage sludge such as polymer. Be was not detected in the Plant influent, effluent and polymer above the method detection limit of 0.001 mg/L. However the sewage sludge sample collected on July 8, 2019 indicated Be level at 0.29 mg/Kg just above the PTI limit.

As required by the PTI, two additional sewage sludge samples were collected on July 23, 2019 and July 25, 2019. The sludge samples were sent to two different contract laboratories (Brighton Analytical and Paragon Laboratories) for Be analysis. YCUA has consistently utilized Brighton Analytical, Inc., (Brighton) for contract laboratory services. Following is the summary of the analytical reports. Excerpts of the laboratory reports are attached.

Sampling Date	YCUA Plant Influent (mg/L)	YCUA Plant Effluent (mg/L)	Sewage Sludge- Beryllium Results (mg/Kg)			Sludge Feed (Yes/No)	Exceedance of PTI Limit (Yes/No)
			Analysis by Brighton Analytical*	Reanalysis by Brighton Analytical*	Analysis by Paragon Laboratories*		
2/13/2019			0.44 (2/20/19)			No	Yes
4/3/2019			<0.2 (4/10/19)			Yes	No
6/11/2019			0.23 (6/19/19)			Yes	No
7/2/2019	<0.001 (7/9/19)						
7/3/2019		<0.001 (7/9/19)					
7/8/2019			0.29 (7/16/19)			Yes	Yes
7/23/2019			0.44 (7/31/19)	0.27 (8/9/19)	<0.12 (8/5/19)	Yes	No
7/25/2019			0.35 (8/2/19)	0.23 (8/9/19)	<0.11 (8/5/19)	Yes	No
* - Analysis date in parenthesis							

Findings and Conclusion:

1. The analytical data for 2018 indicate that YCUA has consistently met the PTI limit for Be in the Sewage Sludge. A total of twelve samples were analyzed for Be in 2018. With the exception of sample collected on June 22, 2018 all the samples indicated Be levels below the method detection limit (0.2 mg/Kg) and in compliance with Be limit of the PTI.
2. The plant influent analysis for Be has not indicated any elevated levels and hence YCUA believes no additional industrial input of Be to the wastewater is indicated. YCUA monitors the industrial loading in the wastewater through Control Authority monitoring of industrial users.
3. As indicated by the above synopsis of the recent analytical data on Be, there appears to be inconsistency in the analytical data provided by Brighton Analytical, Inc., for the sewage sludge sample analysis. It is evident from the repeat analysis on samples collected on July 23 and 25, 2019 that Brighton's analytical lacked precision. The analysis by Paragon laboratory on the same samples appear to be more representative Be level in sewage sludge

Mr. Scott Miller
Jackson District Office, Air Quality Division
DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
August 19, 2019
Page 4

processed by YCUA and that indicates compliance with the Be limit. Consequently, YCUA believes the sewage sludge processed in the FBI consistently met the Be level of the PTI. Any exceedance in the recent Be analysis of Sewage Sludge samples is attributable to laboratory data inconsistency and does not reflect the quality of sewage sludge with regards to the Be.

Corrective Measures: Notwithstanding the foregone conclusions and data inaccuracies in the analytical by Brighton Analytical, YCUA intends to monitor the plant influent, effluent and also sewage sludge for Be more periodically than required by the ROP. Additionally, YCUA commenced Control Authority monitoring of effluent from industrial users in order to control the industrial loading of Be in the plant influent, if any.

We hope the above responses and attached supporting documents provide adequate response to the violation notice. Should there be any questions, please do not hesitate to contact me by phone at (734) 484-4600 ext. 121 or by email at smullapudi@ycua.org.

Sincerely,



SREEDHAR MULLAPUDI, Director of Wastewater Operations/Compliance
Ypsilanti Community Utilities Authority

Cc: Ms. Diane Kavanaugh Vetort, EGLE Ms. Jenine Camilleri, EGLE
Mr. Jeff Castro Mr. Alan Schock Mr. Hamid Rahbarnoohi YCUA File



Brighton Analytical LLC
 2105 Pless Drive
 Brighton, Michigan 48114
 Phone: (810)229-7575 (810)229-8650
 e-mail: bai-brighton@sbcglobal.net
 MDNRE Certified #9404
 NELAC Accredited #176507

Sample Date: 02/13/2019
 Submit Date: 02/15/2019
 Report Date: 02/22/2019

To: Ypsilanti Comm. Utilities Auth.
 2777 State Rd.
 Ypsilanti, MI 48198

BA Report Number: **55621** Project Name: **YCUA Biosolids Analysis**
 BA Sample ID: **CJ04078** Project Number: **Biosolids-February**
 Sample ID: **February Biosolids Comp**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
Total Metal Analysis						
Total Antimony	7000	ug/Kg	300	SW846 6020A	LT	02/20/2019
Total Arsenic	4900	ug/Kg	100	SW846 6020A	LT	02/20/2019
Total Barium	340000	ug/Kg	1000	SW846 6020A	LT	02/20/2019
Total Beryllium	440	ug/Kg	200	SW846 6020A	LT	02/20/2019
Total Boron	51000	ug/Kg	8000	SW846 6010B	LT	02/21/2019
Total Cadmium	3000	ug/Kg	50	SW846 6020A	LT	02/20/2019
Total Chromium	30000	ug/Kg	500	SW846 6020A	LT	02/20/2019
Total Cobalt	23000	ug/Kg	500	SW846 6020A	LT	02/20/2019
Total Copper	240000	ug/Kg	1000	SW846 6020A	LT	02/20/2019
Total Lead	7400	ug/Kg	1000	SW846 6020A	LT	02/20/2019
Total Manganese	570000	ug/Kg	1000	SW846 6020A	LT	02/20/2019
Total Mercury	250	ug/Kg	50	SW846 7471A	LS	02/18/2019
Total Molybdenum	14000	ug/Kg	100	SW846 6020A	LT	02/20/2019
Total Nickel	26000	ug/Kg	1000	SW846 6020A	LT	02/20/2019
Total Silver	2300	ug/Kg	100	SW846 6020A	LT	02/20/2019
Total Thallium	530	ug/Kg	500	SW846 6020A	LT	02/20/2019
Total Zinc	740000	ug/Kg	1000	SW846 6020A	LT	02/20/2019
Metal Soil (digestion)	Digested			3050	LT	02/19/2019
Mercury (digestion)	Digested			7470/7471	LS	02/18/2019
%Solid	20	%			RD	02/20/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by

Date

2/22/2019



Brighton Analytical LLC
 2105 Pless Drive
 Brighton, Michigan 48114
 Phone: (810)229-7575 (810)229-8650
 e-mail: bai-brighton@sbcglobal.net
 MDNRE Certified #9404
 NELAC Accredited #176507

Sample Date: 04/03/2019
 Submit Date: 04/05/2019
 Report Date: 04/12/2019


To: Ypsilanti Comm. Utilities Auth.
 2777 State Rd.
 Ypsilanti, MI 48198

BA Report Number: **56437** Project Name: **YCUA Biosolids Analysis**
 BA Sample ID: **CJ08151** Project Number: **Biosolids-April, 2019**
 Sample ID: **April Biosolids Comp**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
Total Metal Analysis						
Total Antimony	2000	ug/Kg	300	SW846 6020A	LT	04/10/2019
Total Arsenic	4800	ug/Kg	100	SW846 6020A	LT	04/10/2019
Total Barium	340000	ug/Kg	1000	SW846 6020A	LT	04/10/2019
Total Beryllium	Not detected	ug/Kg	200	SW846 6020A	LT	04/10/2019
Total Boron	30000	ug/Kg	8000	SW846 6010B	LT	04/11/2019
Total Cadmium	3200	ug/Kg	50	SW846 6020A	LT	04/10/2019
Total Chromium	31000	ug/Kg	500	SW846 6020A	LT	04/10/2019
Total Cobalt	23000	ug/Kg	500	SW846 6020A	LT	04/10/2019
Total Copper	250000	ug/Kg	1000	SW846 6020A	LT	04/10/2019
Total Lead	7500	ug/Kg	1000	SW846 6020A	LT	04/10/2019
Total Manganese	730000	ug/Kg	1000	SW846 6020A	LT	04/10/2019
Total Mercury	220	ug/Kg	50	SW846 7471A	LS	04/08/2019
Total Molybdenum	12000	ug/Kg	100	SW846 6020A	LT	04/10/2019
Total Nickel	27000	ug/Kg	1000	SW846 6020A	LT	04/10/2019
Total Silver	1600	ug/Kg	100	SW846 6020A	LT	04/10/2019
Total Thallium	Not detected	ug/Kg	500	SW846 6020A	LT	04/10/2019
Total Zinc	660000	ug/Kg	1000	SW846 6020A	LT	04/10/2019
Metal Soil (digestion)	Digested			3050	RD	04/09/2019
Mercury (digestion)	Digested			7470/7471	LS	04/08/2019
%Solid	21	%			RD	04/08/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

All soil results based on dry weight.

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 Date 4/12/2019



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 MDNRE Certified #9404
 NELAC Accredited #176507

Sample Date: 06/11/2019
 Submit Date: 06/14/2019
 Report Date: 06/21/2019

To: Ypsilanti Comm. Utilities Auth.
 2777 State Rd.
 Ypsilanti, MI 48198

BA Report Number: **59140** Project Name: **YCUA Biosolids Analysis**
 BA Sample ID: **CK03937** Project Number: **June Biosolids 2019**
 Sample ID: **June Biosolids Composite**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
Total Metal Analysis						
Total Antimony	5300	ug/Kg	300	SW846 6020A	LT	06/19/2019
Total Arsenic	6400	ug/Kg	100	SW846 6020A	LT	06/19/2019
Total Barium	320000	ug/Kg	1000	SW846 6020A	LT	06/19/2019
Total Beryllium	230	ug/Kg	200	SW846 6020A	LT	06/19/2019
Total Boron	120000	ug/Kg	8000	SW846 6010B	LT	06/20/2019
Total Cadmium	3200	ug/Kg	50	SW846 6020A	LT	06/19/2019
Total Chromium	41000	ug/Kg	500	SW846 6020A	LT	06/19/2019
Total Cobalt	27000	ug/Kg	500	SW846 6020A	LT	06/19/2019
Total Copper	280000	ug/Kg	1000	SW846 6020A	LT	06/19/2019
Total Lead	6800	ug/Kg	1000	SW846 6020A	LT	06/19/2019
Total Manganese	740000	ug/Kg	1000	SW846 6020A	LT	06/19/2019
Total Mercury	260	ug/Kg	50	SW846 7471A	LS	06/17/2019
Total Molybdenum	12000	ug/Kg	100	SW846 6020A	LT	06/19/2019
Total Nickel	40000	ug/Kg	1000	SW846 6020A	LT	06/19/2019
Total Selenium	12000	ug/Kg	200	SW846 6020A	LT	06/19/2019
Total Silver	2000	ug/Kg	100	SW846 6020A	LT	06/19/2019
Total Thallium	Not detected	ug/Kg	500	SW846 6020A	LT	06/19/2019
Total Zinc	1000000	ug/Kg	1000	SW846 6020A	LT	06/19/2019
Metal Soil (digestion)	Digested			3050	EB	06/19/2019
Mercury (digestion)	Digested			7470/7471	LS	06/17/2019
%Solid	21	%			EB	06/18/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

All soil results based on dry weight.

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Date

6/21/2019



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 Brighton, Michigan 48114
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 MDNRE Certified #9404
 NELAC Accredited #176507

Sample Date: 07/08/2019
 Submit Date: 07/10/2019
 Report Date: 07/17/2019

To: Ypsilanti Comm. Utilities Auth.
 2777 State Rd.
 Ypsilanti, MI 48198

BA Report Number: **59610** Project Name: **YCUA Biosolids Analysis**
 BA Sample ID: **CK05486** Project Number: **July Biosolids 2019**
 Sample ID: **July Biosolids Composite**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
Total Metal Analysis						
Total Arsenic	8100	ug/Kg	100	SW846 6020A	LT	07/16/2019
Total Beryllium	290	ug/Kg	200	SW846 6020A	LT	07/16/2019
Total Cadmium	3800	ug/Kg	50	SW846 6020A	LT	07/16/2019
Total Chromium	40000	ug/Kg	500	SW846 6020A	LT	07/16/2019
Total Lead	9100	ug/Kg	1000	SW846 6020A	LT	07/16/2019
Total Mercury	220	ug/Kg	50	SW846 7471A	LS	07/15/2019
Total Nickel	42000	ug/Kg	1000	SW846 6020A	LT	07/16/2019
Total Selenium	12000	ug/Kg	200	SW846 6020A	LT	07/16/2019
Metal Soil (digestion)	Digested			3050	EB	07/15/2019
Mercury (digestion)	Digested			7470/7471	LS	07/15/2019
%Solid	21	%			EB	07/16/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

All soil results based on dry weight.

Released by

Date

7/17/2019



Brighton Analytical LLC
 2105 Pless Drive
 Brighton, Michigan 48114
 Phone: (810)229-7575 (810)229-8650
 e-mail: bai-brighton@sbcglobal.net
 MDNRE Certified #9404
 NELAC Accredited #176507

Sample Date: 07/23/2019
 Submit Date: 07/24/2019
 Report Date: 08/01/2019


To: Ypsilanti Comm. Utilities Auth.
 2777 State Rd.
 Ypsilanti, MI 48198

BA Report Number: **59943** Project Name: **July YCUA Biosolids**
 BA Sample ID: **CK06335** Project Number:
 Sample ID: **YCUA Biosolids Comp**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
Total Metal Analysis						
Total Beryllium	440	ug/Kg	200	SW846.6020A	LT	07/31/2019
Metal Soil (digestion)	Digested			3050	EB	07/29/2019
%Solid	20	%			EB	07/29/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

All soil results based on dry weight.

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 Date 8/1/2019



Brighton Analytical LLC
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 NELAC Accredited #176507


Sample Date: 07/02/2019
 Submit Date: 07/08/2019
 Report Date: 07/12/2019

To: Ypsilanti Comm. Utilities Auth.
 2777 State Rd.
 Ypsilanti, MI 48198

BA Report Number: **59572** Project Name: **YCUA Plant Influent Testing**
 BA Sample ID: **CK05410** Project Number: **July Plant Influent**
 Sample ID: **Plant Influent Composite**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
Total Metal Analysis						
Total Beryllium	Not detected	ug/L	1	EPA 200.8 rev5.4	LT	07/09/2019
Total Selenium	Not detected	ug/L	1	EPA 200.8 rev5.4	LT	07/09/2019
Metal Water Total (digest)	Digested			3015	EB	07/09/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by 
 Date 7/12/2019



Brighton Analytical LLC
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 e-mail: bai-brighton@sbcglobal.net
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 NELAC Accredited #176507

Sample Date: 07/03/2019
 Submit Date: 07/08/2019
 Report Date: 07/12/2019


To: Ypsilanti Comm. Utilities Auth.
 2777 State Rd.
 Ypsilanti, MI 48198

BA Report Number:	59571	Project Name:	YCUA Plant Effluent Testing			
BA Sample ID:	CK05407	Project Number:	July Plant Effluent			
		Sample ID:	Plant Effluent Composite			
Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date

Total Metal Analysis

Total Beryllium	Not detected	ug/L	1	EPA 200.8 rev5.4	LT	07/09/2019
Total Selenium	Not detected	ug/L	1	EPA 200.8 rev5.4	LT	07/09/2019
Metal Water Total (digest)	Digested			3015	EB	07/09/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

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 Date 7/12/2019



Brighton Analytical LLC
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 e-mail: bai-brighton@sbcglobal.net
 MDNRE Certified #9404
 NELAC Accredited #176507

Sample Date: 07/23/2019
 Submit Date: 07/24/2019
 Report Date: 08/09/2019


To: Ypsilanti Comm. Utilities Auth.
 2777 State Rd.
 Ypsilanti, MI 48198

BA Report Number: **59943** Project Name: **July YCUA Biosolids**
 BA Sample ID: **CK06335** Project Number:
 Sample ID: **YCUA Biosolids Comp**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
Total Metal Analysis						
Total Beryllium	270	ug/Kg	200	SW846 6020A	DG	08/09/2019
Metal Soil (digestion)	Digested			3050	EB	07/29/2019
%Solid	20	%			EB	07/29/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

All soil results based on dry weight.

Released by 

 Date 8/9/2019



Brighton Analytical LLC
 2105 Pless Drive
 Brighton, Michigan 48114
 Phone: (810)229-7575 (810)229-8650
 e-mail: bai-brighton@sbcglobal.net
 MDNRE Certified #9404
 NELAC Accredited #176507

Sample Date: 07/25/2019
 Submit Date: 07/26/2019
 Report Date: 08/09/2019

To: Ypsilanti Comm. Utilities Auth.
 2777 State Rd.
 Ypsilanti, MI 48198

BA Report Number: **60021**

Project Name: **Biosolids July Composite II**

BA Sample ID: **CK06609**

Project Number:

Sample ID: **Biosolids July Comp II**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
Total Metal Analysis						
Total Beryllium	230	ug/Kg	200	SW846 6020A	DG	08/09/2019
Metal Soil (digestion)	Digested			3050	EB	07/31/2019
%Solid	21	%			EB	08/01/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

All soil results based on dry weight.

Released by

Date

8/9/2019



ANALYTICAL RESULTS

Workorder: 355800 YCUA-072919

Lab ID: 3558000001 Date Received: 7/29/2019 11:48 Matrix: Solid
 Sample ID: Biosolids July Composite 1 Date Collected: 7/23/2019 08:30
 Sample Desc: Composite PO:

Parameters	Qualifier	Result Units	Reporting Limit	Dilution Factor	Result Qualifier		Analyzed	By
					Min	Max		
Metals								
Analysis Desc: EPA 6020A								
Beryllium		<120 µg/Kg-	120	1			8/5/2019 14:24	DTM
Individual Parameters								
Analysis Desc: SM 2540 G								
Percent Total Solids		21 % m/m	0.10	1			7/30/2019 15:01	JPL

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ANALYTICAL RESULTS

Workorder: 355801 YCUA-072919 (2)

Lab ID: 3558010001 Date Received: 7/29/2019 11:48 Matrix: Solid
 Sample ID: Biosolids July Composite II Date Collected: 7/25/2019 16:45
 Sample Desc: Composite PO:

Parameters	Qualifier	Result Units	Reporting Limit	Dilution Factor	Result Qualifier		Analyzed	By
					Min	Max		
Metals								
Analysis Desc: EPA 6020A								
Beryllium		<110 µg/Kg-	110	1			8/5/2019 14:25	DTM
Individual Parameters								
Analysis Desc: SM 2540 G								
Percent Total Solids		22 % m/m	0.10	1			7/30/2019 15:01	JPL

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Brighton Analytical, L.L.C.
 2105 Pless Drive
 Brighton, Michigan 48116

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 e-mail: bai-brighton@sbcglobal.net

To: Ypsilanti Comm. Utilities Auth.
 2777 State Rd.
 Ypsilanti, MI 48198

Sample Date: 1/11/2018
 Submit Date: 1/12/2018
 Report Date: 1/18/2018

BA Report Number: 48861
 BA Sample ID: CG09031

Project Name: YCUA Biosolids January 2018
 Project Number: Biosolids-January 2018
 Sample ID: January 2018 Biosolids

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
Total Metal Analysis						
Total Arsenic	5700	ug/Kg	100	SW846 6020A	EB	1/16/2018
Total Beryllium	Not detected	ug/Kg	200	SW846 6020A	EB	1/16/2018
Total Cadmium	5300	ug/Kg	50	SW846 6020A	EB	1/16/2018
Total Chromium	43000	ug/Kg	500	SW846 6020A	EB	1/16/2018
Total Lead	6600	ug/Kg	1000	SW846 6020A	EB	1/16/2018
Total Mercury	200	ug/Kg	50	SW846 7471A	LS	1/15/2018
Total Nickel	26000	ug/Kg	1000	SW846 6020A	EB	1/16/2018
Total Selenium	9600	ug/Kg	200	SW846 6020A	EB	1/16/2018
Metal Soil (digestion)	Digested			3050	EB	1/15/2018
Mercury (digestion)	Digested			7470/7471	LS	1/15/2018
%Solid	18	%		ASTM D2216	EB	1/17/2018

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by: [Signature]
 Date: 1-18-18



Brighton Analytical LLC
 2105 Pless Drive
 Brighton, Michigan 48114
 Phone: (810)229-7575 (810)229-8650
 e-mail: bai-brighton@sbcglobal.net
 MDNRE Certified #9404
 NELAC Accredited #176507

Sample Date: 4/4/2018
 Submit Date: 4/5/2018
 Report Date: 4/17/2018

To: Ypsilanti Comm. Utilities Auth.
 2777 State Rd.
 Ypsilanti, MI 48198

BA Report Number: 49946

Project Name: YCUA Biosolids April 2018

BA Sample ID: CH02974

Project Number: Biosolids - April 2018

Sample ID: April Biosolids

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
Total Metal Analysis						
Total Antimony	5500	ug/Kg	300	SW846 6020A	LT	04/12/2018
Total Arsenic	5300	ug/Kg	100	SW846 6020A	LT	04/09/2018
Total Barium	300000	ug/Kg	1000	SW846 6020A	LT	04/09/2018
Total Beryllium	Not detected	ug/Kg	200	SW846 6020A	LT	04/09/2018
Total Boron	17000	ug/Kg	8000	SW846 6010B	LT	04/09/2018
Total Cadmium	8300	ug/Kg	50	SW846 6020A	LT	04/09/2018
Total Chromium	45000	ug/Kg	500	SW846 6020A	LT	04/09/2018
Total Cobalt	30000	ug/Kg	500	SW846 6020A	LT	04/09/2018
Total Copper	240000	ug/Kg	1000	SW846 6020A	LT	04/09/2018
Total Lead	7400	ug/Kg	1000	SW846 6020A	LT	04/09/2018
Total Manganese	580000	ug/Kg	1000	SW846 6020A	LT	04/09/2018
Total Mercury	120	ug/Kg	50	SW846 7471A	LS	04/06/2018
Total Molybdenum	11000	ug/Kg	100	SW846 6020A	LT	04/09/2018
Total Nickel	25000	ug/Kg	1000	SW846 6020A	LT	04/09/2018
Total Potassium	2700000	ug/Kg	2000	SW846 6020A	LT	04/09/2018
Total Selenium	8500	ug/Kg	200	SW846 6020A	LT	04/09/2018
Total Silver	2100	ug/Kg	100	SW846 6020A	LT	04/09/2018
Total Thallium	Not detected	ug/Kg	500	SW846 6020A	LT	04/09/2018
Total Zinc	760000	ug/Kg	1000	SW846 6020A	LT	04/09/2018
Metal Soil (digestion)	Digested			3050	EB	04/06/2018
Mercury (digestion)	Digested			7470/7471	LS	04/06/2018
Inorganic Analysis						
Ammonia	3300000	ug/Kg	1000	EPA 350.1	RM	04/17/2018
Nitrogen (Kjeldahl)	4.4E+07	ug/Kg	1000	EPA 351.2	RM	04/12/2018
Phosphorus (total)	3.3E+07	ug/Kg	200	EPA 365.2	MB	04/16/2018
%Solid	26	%		ASTM D2216	GW	04/06/2018



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 NELAC Accredited #176507

Sample Date: 3/16/2018
 Submit Date: 3/23/2018
 Report Date: 3/28/2018

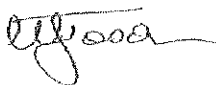
To: Ypsilanti Comm. Utilities Auth.
 2777 State Rd.
 Ypsilanti, MI 48198

BA Report Number: **49773**
 BA Sample ID: **CH02280**

Project Name: **YCUA Biosolids - March 2018**
 Project Number: **Biosolids-March 2018**
 Sample ID: **March Biosolids**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
Total Metal Analysis						
Total Arsenic	5700	ug/Kg	100	SW846 6020A	LT	03/27/2018
Total Beryllium	Not detected	ug/Kg	200	SW846 6020A	LT	03/27/2018
Total Cadmium	5600	ug/Kg	50	SW846 6020A	LT	03/27/2018
Total Chromium	43000	ug/Kg	500	SW846 6020A	LT	03/27/2018
Total Lead	10000	ug/Kg	1000	SW846 6020A	LT	03/27/2018
Total Mercury	240	ug/Kg	50	SW846 7471A	LS	03/27/2018
Total Nickel	28000	ug/Kg	1000	SW846 6020A	LT	03/27/2018
Total Selenium	9200	ug/Kg	200	SW846 6020A	LT	03/27/2018
Metal Soil (digestion)	Digested			3050	EB	03/26/2018
Mercury (digestion)	Digested			7470/7471	LS	03/27/2018
%Solid	21	%		ASTM D2216	EB	03/26/2018

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

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Sample Date: 5/3/2018 I:
 Submit Date: 5/4/2018 I:
 Report Date: 5/9/2018

To: Ypsilanti Comm. Utilities Auth.
 2777 State Rd.
 Ypsilanti, MI 48198

BA Report Number: **50462**

Project Name: **YCUA Biosolids - May 2018**

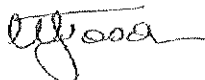
BA Sample ID: **CH04757**

Project Number: **Biosolids - May 2018**

Sample ID: **May 2018 Biosolids**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
Total Metal Analysis						
Total Arsenic	6900	ug/Kg	100	SW846 6020A	EB	05/08/2018
Total Beryllium	Not detected	ug/Kg	200	SW846 6020A	EB	05/08/2018
Total Cadmium	6700	ug/Kg	50	SW846 6020A	EB	05/08/2018
Total Chromium	55000	ug/Kg	500	SW846 6020A	EB	05/08/2018
Total Lead	7900	ug/Kg	1000	SW846 6020A	EB	05/08/2018
Total Mercury	Not detected	ug/Kg	50	SW846 7471A	LS	05/07/2018
Total Nickel	32000	ug/Kg	1000	SW846 6020A	EB	05/08/2018
Total Selenium	12000	ug/Kg	200	SW846 6020A	EB	05/08/2018
Metal Soil (digestion)	Digested			3050	LT	05/08/2018
Mercury (digestion)	Digested			7470/7471	LS	05/07/2018
%Solid	23	%		ASTM D2216	EB	05/08/2018

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

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 NELAC Accredited #176507

Sample Date: 06/06/2018
 Submit Date: 06/08/2018
 Report Date: 06/28/2018

To: Ypsilanti Comm. Utilities Auth.
 2777 State Rd.
 Ypsilanti, MI 48198

BA Report Number: **51099** Project Name: **YCUA Biosolids June 2018**
 BA Sample ID: **CH07026** Project Number: **Biosolids-June 2018**
 Sample ID: **June Biosolids**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
Total Metal Analysis						
Total Antimony	2100	ug/Kg	300	SW846 6020A	LT	06/14/2018
Total Arsenic	5900	ug/Kg	100	SW846 6020A	LT	06/14/2018
Total Barium	360000	ug/Kg	1000	SW846 6020A	LT	06/14/2018
Total Beryllium	Not detected	ug/Kg	200	SW846 6020A	LT	06/14/2018
Total Boron	24000	ug/Kg	8000	SW846 6010B	LT	06/14/2018
Total Cadmium	4200	ug/Kg	50	SW846 6020A	LT	06/14/2018
Total Chromium	56000	ug/Kg	500	SW846 6020A	LT	06/14/2018
Total Cobalt	31000	ug/Kg	500	SW846 6020A	LT	06/14/2018
Total Copper	300000	ug/Kg	1000	SW846 6020A	LT	06/14/2018
Total Lead	21000	ug/Kg	1000	SW846 6020A	LT	06/14/2018
Total Manganese	640000	ug/Kg	1000	SW846 6020A	LT	06/14/2018
Total Mercury	200	ug/Kg	50	SW846 7471A	LS	06/12/2018
Total Molybdenum	12000	ug/Kg	100	SW846 6020A	LT	06/14/2018
Total Nickel	34000	ug/Kg	1000	SW846 6020A	LT	06/14/2018
Total Potassium	2100000	ug/Kg	2000	SW846 6020A	LT	06/14/2018
Total Selenium	9600	ug/Kg	200	SW846 6020A	LT	06/14/2018
Total Silver	2500	ug/Kg	100	SW846 6020A	LT	06/14/2018
Total Thallium	Not detected	ug/Kg	500	SW846 6020A	LT	06/14/2018
Total Zinc	1000000	ug/Kg	1000	SW846 6020A	LT	06/14/2018
Metal Soil (digestion)	Digested			3050	LT	06/14/2018
Mercury (digestion)	Digested			7470/7471	LS	06/12/2018
Inorganic Analysis						
Ammonia	5400000	ug/Kg	1000	EPA 350.1	RM	06/27/2018
Nitrogen (Kjeldahl)	4.2E+07	ug/Kg	1000	EPA 351.2	RM	06/20/2018
Phosphorus (total)	2.6E+07	ug/Kg	200	EPA 365.2	MB	06/21/2018
%Solid	22	%		ASTM D2216	EB	06/13/2018



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Sample Date: 06/06/2018
 Submit Date: 06/08/2018
 Report Date: 06/28/2018

To: Ypsilanti Comm. Utilities Auth.
 2777 State Rd.
 Ypsilanti, MI 48198

BA Report Number: **51099** Project Name: **YCUA Biosolids June 2018**
 BA Sample ID: **CH07026** Project Number: **Biosolids-June 2018**
 Sample ID: **June Biosolids**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
Total Metal Analysis						
Total Antimony	2100	ug/Kg	300	SW846 6020A	LT	06/14/2018
Total Arsenic	5900	ug/Kg	100	SW846 6020A	LT	06/14/2018
Total Barium	360000	ug/Kg	1000	SW846 6020A	LT	06/14/2018
Total Beryllium	Not detected	ug/Kg	200	SW846 6020A	LT	06/14/2018
Total Boron	24000	ug/Kg	8000	SW846 6010B	LT	06/14/2018
Total Cadmium	4200	ug/Kg	50	SW846 6020A	LT	06/14/2018
Total Chromium	56000	ug/Kg	500	SW846 6020A	LT	06/14/2018
Total Cobalt	31000	ug/Kg	500	SW846 6020A	LT	06/14/2018
Total Copper	300000	ug/Kg	1000	SW846 6020A	LT	06/14/2018
Total Lead	21000	ug/Kg	1000	SW846 6020A	LT	06/14/2018
Total Manganese	640000	ug/Kg	1000	SW846 6020A	LT	06/14/2018
Total Mercury	200	ug/Kg	50	SW846 7471A	LS	06/12/2018
Total Molybdenum	12000	ug/Kg	100	SW846 6020A	LT	06/14/2018
Total Nickel	34000	ug/Kg	1000	SW846 6020A	LT	06/14/2018
Total Potassium	2100000	ug/Kg	2000	SW846 6020A	LT	06/14/2018
Total Selenium	9600	ug/Kg	200	SW846 6020A	LT	06/14/2018
Total Silver	2500	ug/Kg	100	SW846 6020A	LT	06/14/2018
Total Thallium	Not detected	ug/Kg	500	SW846 6020A	LT	06/14/2018
Total Zinc	1000000	ug/Kg	1000	SW846 6020A	LT	06/14/2018
Metal Soil (digestion)	Digested			3050	LT	06/14/2018
Mercury (digestion)	Digested			7470/7471	LS	06/12/2018
Inorganic Analysis						
Ammonia	5400000	ug/Kg	1000	EPA 350.1	RM	06/27/2018
Nitrogen (Kjeldahl)	4.2E+07	ug/Kg	1000	EPA 351.2	RM	06/20/2018
Phosphorus (total)	2.6E+07	ug/Kg	200	EPA 365.2	MB	06/21/2018
%Solid	22	%		ASTM D2216	EB	06/13/2018



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Sample Date: 06/22/2018
 Submit Date: 06/25/2018
 Report Date: 06/28/2018

To: Ypsilanti Comm. Utilities Auth.
 2777 State Rd.
 Ypsilanti, MI 48198

BA Report Number: **51373**
 BA Sample ID: **CH07789**

Project Name: **IPP Local Limit Re-evaluation**
 Project Number: **Biosolids 6/22/2018**
 Sample ID: **Biosolid**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
Total Metal Analysis						
Total Arsenic	6500	ug/Kg	100	SW846 6020A	LT	06/27/2018
Total Beryllium	260	ug/Kg	200	SW846 6020A	LT	06/27/2018
Total Cadmium	4800	ug/Kg	50	SW846 6020A	LT	06/27/2018
Total Chromium	48000	ug/Kg	500	SW846 6020A	LT	06/27/2018
Total Copper	300000	ug/Kg	1000	SW846 6020A	LT	06/27/2018
Total Lead	7900	ug/Kg	1000	SW846 6020A	LT	06/27/2018
Total Mercury	280	ug/Kg	50	SW846 7471A	LS	06/26/2018
Total Nickel	30000	ug/Kg	1000	SW846 6020A	LT	06/27/2018
Total Zinc	1200000	ug/Kg	1000	SW846 6020A	LT	06/27/2018
Metal Soil (digestion)	Digested			3050	EB	06/26/2018
Mercury (digestion)	Digested			7470/7471	LS	06/26/2018
%Solid	24	%		ASTM D2216	EB	06/26/2018

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

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6/28/2018



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Sample Date: 07/03/2018
 Submit Date: 07/09/2018
 Report Date: 07/13/2018

To: Ypsilanti Comm. Utilities Auth.
 2777 State Rd.
 Ypsilanti, MI 48198

BA Report Number: **51588**
 BA Sample ID: **CH08632**

Project Name: **IPP Local Limit Re-evaluation-Week 2**
 Project Number: **Biosolids 7/03/2018**
 Sample ID: **Biosolid**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
Total Metal Analysis						
Total Arsenic	8700	ug/Kg	100	SW846 6020A	LT	07/12/2018
Total Beryllium	Not detected	ug/Kg	200	SW846 6020A	LT	07/12/2018
Total Cadmium	7200	ug/Kg	50	SW846 6020A	LT	07/12/2018
Total Chromium	68000	ug/Kg	500	SW846 6020A	LT	07/12/2018
Total Copper	470000	ug/Kg	1000	SW846 6020A	LT	07/12/2018
Total Lead	16000	ug/Kg	1000	SW846 6020A	LT	07/12/2018
Total Mercury	230	ug/Kg	50	SW846 7471A	LS	07/11/2018
Total Nickel	50000	ug/Kg	1000	SW846 6020A	LT	07/12/2018
Total Selenium	15000	ug/Kg	200	SW846 6020A	LT	07/12/2018
Total Zinc	1800000	ug/Kg	1000	SW846 6020A	LT	07/12/2018
Metal Soil (digestion)	Digested			3050	EB	07/11/2018
Mercury (digestion)	Digested			7470/7471	LS	07/11/2018
%Solid	22	%		ASTM D2216	EB	07/10/2018

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

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7/13/2018



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Sample Date: 08/21/2018
 Submit Date: 08/24/2018
 Report Date: 09/05/2018

To: Ypsilanti Comm. Utilities Auth.
 2777 State Rd.
 Ypsilanti, MI 48198

BA Report Number: **52419** Project Name: **Biosolids August RATA Composite**
 BA Sample ID: **CI01408** Project Number: **YCUA Biosolids**
 Sample ID: **Biosolids August Comp**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
Total Metal Analysis						
Total Antimony	2300	ug/Kg	300	SW846 6020A	LT	08/28/2018
Total Arsenic	7600	ug/Kg	100	SW846 6020A	LT	08/28/2018
Total Barium	370000	ug/Kg	1000	SW846 6020A	LT	08/28/2018
Total Beryllium	Not detected	ug/Kg	200	SW846 6020A	LT	08/28/2018
Total Boron	18000	ug/Kg	8000	SW846 6010B	LT	08/29/2018
Total Cadmium	3200	ug/Kg	50	SW846 6020A	LT	08/28/2018
Total Chromium	35000	ug/Kg	500	SW846 6020A	LT	08/28/2018
Total Cobalt	32000	ug/Kg	500	SW846 6020A	LT	08/28/2018
Total Copper	310000	ug/Kg	1000	SW846 6020A	LT	08/28/2018
Total Lead	9300	ug/Kg	1000	SW846 6020A	LT	08/28/2018
Total Manganese	790000	ug/Kg	1000	SW846 6020A	LT	08/28/2018
Total Mercury	430	ug/Kg	50	SW846 7471A	LS	08/28/2018
Total Molybdenum	21000	ug/Kg	100	SW846 6020A	LT	08/28/2018
Total Nickel	34000	ug/Kg	1000	SW846 6020A	LT	08/28/2018
Metal Soil (digestion)	Digested		3050		EB	08/27/2018
Mercury (digestion)	Digested		7470/7471		LS	08/28/2018
Inorganic Analysis						
Phosphorus (total)	3.2E+07	ug/Kg	200	EPA 365.2	MB	09/05/2018
Total Cyanide	2700	ug/Kg	100	SW846 9012A	GW	08/31/2018
Organic Analysis						
Phenols 4AAP	16000	ug/Kg	500	EPA 420.1	RM	09/04/2018
PCB Analysis						
ARO 1016	Not detected	ug/Kg	330	SW846 8082A	BY	08/28/2018
ARO 1221	Not detected	ug/Kg	330	SW846 8082A	BY	08/28/2018
ARO 1232	Not detected	ug/Kg	330	SW846 8082A	BY	08/28/2018
ARO 1242	Not detected	ug/Kg	330	SW846 8082A	BY	08/28/2018
ARO 1248	Not detected	ug/Kg	330	SW846 8082A	BY	08/28/2018
ARO 1254	Not detected	ug/Kg	330	SW846 8082A	BY	08/28/2018
ARO 1260	Not detected	ug/Kg	330	SW846 8082A	BY	08/28/2018
ARO 1262	Not detected	ug/Kg	330	SW846 8082A	BY	08/28/2018
ARO 1268	Not detected	ug/Kg	330	SW846 8082A	BY	08/28/2018
Total PCB	Not detected	ug/Kg	330	SW846 8082A	BY	08/28/2018
PCB soil extraction	Extracted		3510C/3545		MB	08/27/2018
%Solid	21	%		ASTM D2216	EB	08/28/2018



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 NELAC Accredited #176307

Sample Date: 09/19/2018
 Submit Date: 09/21/2018
 Report Date: 09/27/2018

To: Ypsilanti Comm. Utilities Auth.
 2777 State Rd.
 Ypsilanti, MI 48198

BA Report Number: **52931**

Project Name: **YCUA Biosolids-September 2018**

BA Sample ID: **C103376**

Project Number: **Biosolids-September 2018**

Sample ID: **Biosolids Comp.**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
Total Metal Analysis						
Total Arsenic	6200	ug/Kg	100	SW846 6020A	LT	09/25/2018
Total Beryllium	Not detected	ug/Kg	200	SW846 6020A	LT	09/25/2018
Total Cadmium	2900	ug/Kg	50	SW846 6020A	LT	09/25/2018
Total Chromium	34000	ug/Kg	500	SW846 6020A	LT	09/25/2018
Total Lead	8400	ug/Kg	1000	SW846 6020A	LT	09/25/2018
Total Mercury	230	ug/Kg	50	SW846 7471A	LS	09/24/2018
Total Nickel	28000	ug/Kg	1000	SW846 6020A	LT	09/25/2018
Total Selenium	10000	ug/Kg	200	SW846 6020A	LT	09/25/2018
Metal Soil (digestion)	Digested			3050	EB	09/24/2018
Mercury (digestion)	Digested			7470/7471	LS	09/24/2018
%Solid	26	%		ASTM D2216	EB	09/24/2018

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

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9/27/2018



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 NELAC Accredited #176507

Sample Date: 10/04/2018
 Submit Date: 10/05/2018
 Report Date: 10/12/2018

To: Ypsilanti Comm. Utilities Auth.
 2777 State Rd.
 Ypsilanti, MI 48198

BA Report Number: **53228** Project Name: **YCUA Biosolids - Analysis**
 BA Sample ID: **C104472** Project Number: **Biosolids-October 2018**
 Sample ID: **October 2018 Biosolids**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
Total Metal Analysis						
Total Antimony	2000	ug/Kg	300	SW846 6020A	LT	10/10/2018
Total Arsenic	8300	ug/Kg	100	SW846 6020A	LT	10/10/2018
Total Barium	480000	ug/Kg	1000	SW846 6020A	LT	10/10/2018
Total Beryllium	Not detected	ug/Kg	200	SW846 6020A	LT	10/10/2018
Total Boron	30000	ug/Kg	8000	SW846 6010B	LT	10/11/2018
Total Cadmium	5800	ug/Kg	50	SW846 6020A	LT	10/10/2018
Total Chromium	47000	ug/Kg	500	SW846 6020A	LT	10/10/2018
Total Cobalt	39000	ug/Kg	500	SW846 6020A	LT	10/10/2018
Total Copper	370000	ug/Kg	1000	SW846 6020A	LT	10/10/2018
Total Lead	13000	ug/Kg	1000	SW846 6020A	LT	10/10/2018
Total Manganese	770000	ug/Kg	1000	SW846 6020A	LT	10/10/2018
Total Mercury	470	ug/Kg	50	SW846 7471A	LS	10/08/2018
Total Molybdenum	27000	ug/Kg	100	SW846 6020A	LT	10/10/2018
Total Nickel	42000	ug/Kg	1000	SW846 6020A	LT	10/10/2018
Total Selenium	15000	ug/Kg	200	SW846 6020A	LT	10/10/2018
Total Silver	2100	ug/Kg	100	SW846 6020A	LT	10/10/2018
Total Thallium	Not detected	ug/Kg	500	SW846 6020A	LT	10/10/2018
Total Zinc	1100000	ug/Kg	1000	SW846 6020A	LT	10/10/2018
Metal Soil (digestion)	Digested			3050	EB	10/09/2018
Mercury (digestion)	Digested			7470/7471	LS	10/08/2018
%Solid	22	%		ASTM D2216	EB	10/09/2018

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

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10/12/2018



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 MDNRE Certified #9404
 NELAC Accredited #176507

Sample Date: 12/07/2018
 Submit Date: 12/11/2018
 Report Date: 12/26/2018

To: Ypsilanti Comm. Utilities Auth.
 2777 State Rd.
 Ypsilanti, MI 48198

BA Report Number: **54578** Project Name: **YCUA Biosolids-Analysis**
 BA Sample ID: **CJ00448** Project Number: **2018 Dec. Emission Testing**
 Sample ID: **December 2018 Biosolids**

Parameters	Result	Units	DL	Method Reference	Analyst	Analysis Date
Total Metal Analysis						
Total Antimony	3000	ug/Kg	300	SW846 6020A	LT	12/18/2018
Total Arsenic	5000	ug/Kg	100	SW846 6020A	LT	12/18/2018
Total Barium	340000	ug/Kg	1000	SW846 6020A	LT	12/18/2018
Total Beryllium	Not detected	ug/Kg	200	SW846 6020A	LT	12/18/2018
Total Boron	27000	ug/Kg	8000	SW846 6010B	LT	12/21/2018
Total Cadmium	2400	ug/Kg	50	SW846 6020A	LT	12/18/2018
Total Chromium	29000	ug/Kg	500	SW846 6020A	LT	12/18/2018
Total Cobalt	20000	ug/Kg	500	SW846 6020A	LT	12/18/2018
Total Copper	210000	ug/Kg	1000	SW846 6020A	LT	12/18/2018
Total Lead	6300	ug/Kg	1000	SW846 6020A	LT	12/18/2018
Total Manganese	870000	ug/Kg	1000	SW846 6020A	LT	12/18/2018
Total Mercury	160	ug/Kg	50	SW846 7471A	LS	12/12/2018
Total Molybdenum	12000	ug/Kg	100	SW846 6020A	LT	12/18/2018
Total Nickel	25000	ug/Kg	1000	SW846 6020A	LT	12/18/2018
Total Selenium	7300	ug/Kg	200	SW846 6020A	LT	12/18/2018
Total Silver	1500	ug/Kg	100	SW846 6020A	LT	12/18/2018
Total Thallium	Not detected	ug/Kg	500	SW846 6020A	LT	12/18/2018
Total Zinc	620000	ug/Kg	1000	SW846 6020A	LT	12/18/2018
Metal Soil (digestion)	Digested			3050	LT	12/18/2018
Mercury (digestion)	Digested			7470/7471	LS	12/12/2018
Inorganic Analysis						
Total Cyanide	3200	ug/Kg	100	SW846 9012A	RM	12/12/2018
Organic Analysis						
Phenols 4AAP	17000	ug/Kg	500	EPA 420.1	DG	12/26/2018
PCB Analysis						
ARO 1016	Not detected	ug/Kg	330	SW846 8082A	BY	12/19/2018
ARO 1221	Not detected	ug/Kg	330	SW846 8082A	BY	12/19/2018
ARO 1232	Not detected	ug/Kg	330	SW846 8082A	BY	12/19/2018
ARO 1242	Not detected	ug/Kg	330	SW846 8082A	BY	12/19/2018
ARO 1248	Not detected	ug/Kg	330	SW846 8082A	BY	12/19/2018
ARO 1254	Not detected	ug/Kg	330	SW846 8082A	BY	12/19/2018
ARO 1260	Not detected	ug/Kg	330	SW846 8082A	BY	12/19/2018
ARO 1262	Not detected	ug/Kg	330	SW846 8082A	BY	12/19/2018
ARO 1268	Not detected	ug/Kg	330	SW846 8082A	BY	12/19/2018
Total PCB	Not detected	ug/Kg	330	SW846 8082A	BY	12/19/2018