PIMA COUNTY

ANNUAL BIOSOLIDS REPORT

Sustainable Resource
BIOSOLIDS

Volume 1 of 2

CALENDAR YEAR 2019

REGIONAL WATER RECLAMATION DEPARTMENT

TREATMENT DIVISION

PIMA COUNTY
TUCSON, ARIZONA

PIMA COUNTY
WASTEWATER RECLAMATION

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ANNUAL BIOSOLIDS REPORT 2019

REGIONAL WATER
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PIMA COUNTY
TUCSON, ARIZONA

PIMA COUNTY
WASTEWATER RECLAMATION

PIMA COUNTY
WASTEWATER RECLAMATION

Jackson Jenkins
Director

201 North Stone Avenue
Tucson, Arizona 85701-1207

Phone (520)724-6500
Fax (520) 724-9635

February 19, 2020

Ms. Sondra Francis
ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER QUALITY DIVISION, PERMITS: BIOSOLIDS (MO5415B-3)
1110 West Washington Street, 5415-B-3
Phoenix, Arizona 85007

Dear MS. Francis,

RE: BIOSOLIDS ANNUAL REPORT, CALENDAR YEAY 2019

As required by AAC R18-9-1014(F), and/or in accordance with the Arizona Pollutant Discharge Elimination System (AZPDES) Permits issued to the following facilities, we are transmitting herewith the Pima County Regional Wastewater Reclamation Department's Biosolids Annual Report for Calendar Year 2019.

- Tres Rios Wastewater Reclamation Facility, AZPDES Permit No. AZ0020001
- Agua Nueva Wastewater Reclamation Facility (WRF), AZPDES Permit No. AZ0026107
- Green Valley Biological Nutrient Removal Oxidation Ditch, AZPDES Permit No. AZ0024937
- Avra Valley WRF, AZPDES Permit No. AZ0024121

Pima County Tres Rios WRF produced 11,074 (eleven thousand and seventy four) metric dry tons of Class B Biosolids in 2019. Pima County utilized vector attraction reduction option 1in R18-9-1010-A and alternative 5 in R18-9-1006-E for pathogen reduction. Pima County land application contractor, Avra Gro Systems Inc. hauled total of 11,026 (eleven thousand and twenty six) metric dry tons to land application; Pima County hauled 48 metric dry tons to Waste Management Marana Regional Landfill.

Pima County Agua Nueva Wastewater Reclamation Facility (WRF), AZPDES Permit No. AZ0026107, pumped 4,396 (four thousand three hundred and ninety six) metric dry tons of its Waste Activated Sludge (WAS) sludge via the sludge pipeline to the Tres Rios WRF WAS Tank for thickening and digestion after mixing with the WAS sludge from Tres Rios WRF. The sludge mix is digested in the mesophilic anaerobic digesters and met the Class B pathogen reduction and the vector attraction reduction requirements as set in A.A.C. R18-9-10. Agua Nueva WRF directed 5,266 (five thousand two hundred and sixty six) metric dry tons of its primary sludge from the Dissolved Air Flotation unit process into the sewer interconnect between Agua Nueva WRF and Tres Rios WRF, where they became part of the influent to Tres Rios WRF.

The Avra Valley WRF, AZPDES Permit No. AZ0024121, the Corona de Tucson WRF, APP Permit No. P-100644, the Green Valley WRF, AZPDES NO. AZ0024937 and the Mt. Lemmon WRF, AZPDES Permit No. AZ0022250 trucked their solids to the Pima County Wastewater Collection System.

Pima County Regional Water Reclamation Department
Pima County, Arizona

2019 Annual Sludge and Biosolids Production and Disposal

	Metric Dry Tons		
	WAS	**Primary Sludge**	**Disposal**
Agua Nueva WRF	4,396	Not Applicable	Tres Rios WRF WAS Receiving Facility
Agua Nueva WRF	Not Applicable	5,266	Pima County Wastewater Collection System
Avra Valley WRF	524	Not Applicable	Pima County Wastewater Collection System
Corona de Tucson WRF	145	Not Applicable	Pima County Wastewater Collection System
Green Valley WRF	413	Not Applicable	Pima County Wastewater Collection System
Mt. Lemmon WRF	1.7	Not Applicable	Pima County Wastewater Collection System
Tres Rios WRF	11,074	Not Applicable	Land Application: 11,026 metric dry ton Landfill: 48 metric dry ton

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for known violations.

As you review this report, if you have any questions, please contact Houssam Eljerdi, Technical Services Manager, at (520)724-6077.

Sincerely,

PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT

Jeff F. Prevatt, Deputy Director
Treatment Division

JFP: hbe
Attachment – Annual Biosolids Report 2019
Electronic copy:
Charles Wesselhoft, Deputy County Attorney, Civil Division
Steve Richey, Wastewater Treatment Plant Manager, Tres Rios WRF
Arturo Norzagaray, Wastewater Treatment Plant Manager, Sub-Regional Facilities
David Garrett, Operations Supervisor, Agua Nueva WRF

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Cover Letter

1. **Preparer Forms, Tres Rios WRF AZPDES No. AZ0020001; Corona de Tucson WRF, APP No. AZ100644; Mt. Lemmon WRF, AZPDES No. AZ0022250; and Summary Land Application**
2. **Biosolids Preparation, Tres Rios WRF; Vector Attraction Reduction, Pathogen Reduction and Pollutant Concentration**
3. **Tres Rios WRF Sampling and Analysis Priority Pollutants, TCLP and Hazardousness**
4. **Land Application Events, Land Application Contractor**
5. **Agua Nueva WRF Preparer Form and Sampling and Analyses Results Priority Pollutants, TCLP and Hazardousness; AZPDES NO. AZ0026107**
6. **Avra Valley WRF Preparer Form and Sampling and Analyses Results Priority Pollutants, TCLP and Hazardousness; AZPDES NO. AZ0024121**
7. **Green Valley BNROD Preparer Form and Sampling and Analyses Results Priority Pollutants, TCLP, Hazardousness and Dioxin; AZPDES No. AZ0024937**

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SECTION 1

PREPARER FORMS

TRES RIOS WRF AZPDES NO. AZ0020001

CORONA DE TUCSON WRF, APP NO. P - 100644

MT. LEMMON WRF, AZPDES NO. AZ0022250

SUMMARY LAND APPLICATION

BIOSOLIDS ANNUAL REPORT 2019

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PIMA COUNTY
TUCSON, ARIZONA

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WASTEWATER RECLAMATION

ARIZONA
DEPARTMENT OF ENVIRONMENTAL QUALITY
AZPDES Individual Permits Unit
1110 W Washington Street
Phoenix, Arizona 85007
(602) 771-4689 (voicemail) (602) 771-4505 (fax)
Email to: biosolids@azdeq.gov

BIOSOLIDS OR SEWAGE SLUDGE ANNUAL REPORT FORM

1. Program Information: All preparers (Generators) and Land Applicators Must complete the following.

Reporting Start Date:1/1/2019	**Reporting End Date: 12/31/2019**
Date:2/18/2020	**AZPDES Permit # (if applicable):AZ00020001** **Pima County Tres Rios WRF** **7101 N. Casa Grande Hwy., Tucson AZ 85743**
Company name (Preparer / Applicator): Preparer - Pima Regional Water Reclamation Department; Pima County, Arizona	
Contact Name: Houssam Eljerdi	**Title: Technical Services Manager**
Address: 7101 N. Casa Grande Highway **Phone:** (520) 724 - 6100	Tucson, AZ 85743 - 8618 **E-mail: Houssam.eljerdi@pima.gov**

Please select one of the following options pertaining to your obligation to submit a Biosolids Annual Report. My facility is a:

☒ POTW with a design flow equal to or greater than 1 MGD Per Day

☐ POTW that serves 10,000 people or more

☒ Class I Sludge Management Facility as defined by 40 CFR 503.9

☐ Biosolids Applicator (Complete Section 5 only)

☐Other Click here to enter text.

What is the estimated total of volume of biosolids or sewage sludge generated at your facility (in dry metric tons)?

11,074 (Eleven Thousand and Seventy Four) metric dry tons

Were all biosolids removed from your facility sent to a landfill for disposal? No

If yes, provide the name and address of the landfill(s). Not Applicable

If all biosolids or sewage sludge was sent to a landfill for disposal, you do not need to complete the remainder of this form, as it is only applicable to facilities preparing Biosolids or sewage sludge for land application.

Certification: I certify, under penalty of law, that the information and descriptions, have been made under my direction and supervision and under a system designed to ensure that qualified personnel properly gather and evaluate the information used to determine whether the applicable biosolids requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

Signature: Title: Jeff P. Prevatt; Deputy Director - Treatment	Date: February 18, 2020

2. Generator/Preparers – Biosolids Storage and Treatment Processes

2.1 Please check the box next to the following biosolids or sewage sludge storage practices and treatment processes used on the sewage sludge or biosolids generated or produced at your facility during the reporting period.

Storage Practices

☐ Biosolids are stored in lined lagoons or impoundments

☐ Biosolids stored directly on the ground

Physical Treatment Processes

☒ Preliminary Operations (e.g. sludge grinding, degritting, blending

☒ Thickening (e.g. gravity floatation, centrifugation, belt filter press, vacuum filter)

☐ Sludge lagoon

Pathogen Reduction Operations (PSRP)

☐ Aerobic Digestion

☐ Air Drying (or "sludge drying beds")

☒ Anaerobic Digestion Volatile Solids Reduction R18-9-1010-A.1; Pathogen reduction R18-9-1006-E Alternative 5.

☐ Lower Temperature Composting

☐ Lime Stabilization

Process to Further Reduce Pathogens (PFRP)

☐ Higher Temperature Composting

☐ Heat Drying (e.g. flash dryer, spray dryer, rotary dryer)

☐ Heat Treatment (Liquid sewage sludge is heated to temp of 356 °F (180 °C) or higher for 30 minutes

☐ Thermophilic Aerobic Digestion

☐ Beta Ray Irradiation

☐ Gamma Ray Irradiation

☐ Pasteurization

BIOSOLIDS SEWAGE SLUDGE ANNUAL REPORT

3. Generators/Preparers: Disposition of Biosolids or Sewage Treatment Sludge:

3.1 At the beginning of the year, did you have any biosolids or sewage sludge stored on site or remaining from previous years? Include any amount that is being stored anywhere. No

If yes provide the following information:

	CLASS A Biosolids	Class B Biosolids
Dry Ton Weight, Metric	None	2,103 metric dry ton
Pathogen Testing	Not Applicable	Not Applicable
Pathogen Reduction Method	Not Applicable	R18-9-1006-E.5
Vector Attraction Reduction Method	Not Applicable	R18-9-1010-A.1
Storage Locations	Not Applicable	Registered Land Application Farms JK-9 and JK-42

3.2 At the end of the year, are any biosolids or sewage sludge stored on site? No

If yes, provide the following information:

	CLASS A Biosolids	Class B Biosolids
Dry Ton Weight, Metric	None	1,410 metric dry tons
Pathogen Testing	Not Applicable	Not Applicable
Pathogen Reduction Method	Not Applicable	R18-9-1006-E.5
Vector Attraction Reduction Method	Not Applicable	R18-9-1010-A.1
Storage Locations	Not Applicable	Registered Land Application Farms JK-9, JK-7 and Pima Farm. As of date, these Biosolids had been land applied and incorporated during January and February 2020.

3.3 Were biosolids or sewage sludge received from another facility during the year, such as another wastewater treatment plant or another APP permitted facility for further processing? Yes

If yes provide the following information for each facility. Click the plus sign to create as many tables as needed.

Name of Facility	**Pima County Agua Nueva WRF**			
Location:	**2947 W. Calle Agua Nueva, Tucson, AZ 85745** **AZPDES: AZ0026107; APP: P-100655**			
	Untreated Sludge		CLASS A Biosolids	Class B Biosolids
Dry Ton Weight Metric Dry Tons	**Primary Sludge**	**Waste Activated Sludge**	Not applicable	Not applicable
	5,266	**4,396**		
Pathogen Testing	**Not Applicable**		Not applicable	Not applicable
Pathogen Reduction Method	**Not Applicable**		Not Applicable	Not Applicable

BIOSOLIDS SEWAGE SLUDGE ANNUAL REPORT

Name of Facility	**Pima County Agua Nueva WRF**		
Vector Attraction Reduction Method	**Not Applicable**	Not Applicable	Not Applicable
Storage Locations Storage Locations (Continued)	**No Storage** **Pima County Agua Nueva WRF Pumps the Primary Sludge into Pima County Wastewater Collection System where it becomes part of the Influent to Pima County Tres Rios WRF.** **Pima County Agua Nueva WRF Pumps the WAS via Dedicated Pipeline into Pima County Tres Rios WRF WAS Tank where it becomes part of the Process.**	Not Applicable	Not Applicable

Name of Facility	**Pima County Green Valley WRF**		
Location:	**19600 S. Old Nogales Hwy., Tucson AZ 85614** **AZPDES: AZ0024937; APP P-100629**		
	Untreated Waste Activated Sludge	CLASS A Biosolids	Class B Biosolids
Dry Ton Weight Metric Dry Tons	**413** **Four Hundred and Thirteen**	Not applicable	Not applicable
Pathogen Testing	**Not Applicable**	Not Applicable	Not applicable
Pathogen Reduction Method	**Not Applicable**	Not applicable	Not applicable
Vector Attraction Reduction Method	**Not Applicable**	Not Applicable	Not Applicable
Storage Locations	**No Storage;** **Pima County Transports Green Valley WRF Waste Activated Sludge by Truck to Tres Rios WRF Wastewater Collection System, where it Becomes Part of the Influent.**	Not Applicable	Not Applicable

Name of Facility	**Pima County Mt. Lemmon WRF**		
Location:	**12633 N Sabino Canyon Park, Tucson, AZ 85619** **AZPDES: AZ0022250, Type I - General Permit**		
	Untreated Waste Activated Sludge	CLASS A Biosolids	Class B Biosolids
Dry Ton Weight Metric Dry Tons	**1.7** **One and Seven Tenths**	Not applicable	Not applicable
Pathogen Testing	**Not Applicable**	Not Applicable	Not applicable
Pathogen Reduction Method	**Not Applicable**	Not applicable	Not applicable
Vector Attraction Reduction Method	**Not Applicable**	Not Applicable	Not Applicable
Storage Locations	**No Storage;**	Not Applicable	Not Applicable

	Pima County Transports Mt. Lemmon WRF Waste Activated Sludge by Truck to Tres Rios WRF Wastewater Collection System, where it Becomes Part of the Influent.		

3.4. Were biosolids removed from your facility for land application? Include all recipients, including haulers, name, phone number, land applicators, composters, drying facilities, EQB bagging facilities, bulk composting, etc.

Name of Facility	Avra Gro Systems, Inc. PO Box 91708; Tucson, AZ 85752 Tel (520) 271-7736	
Management Practice Type:	Land Application	
Handler or Preparer Type:	Land Applier	
Management Practice Detail:	Transport, Land Apply, Manage Field and Records	
Bag or Bulk Container:	Bulk Container	
	CLASS A Biosolids	Class B Biosolids
Dry Ton Weight	Not applicable	**11,026 metric dry tons** **10,847 metric dry tons Dewatered Cake Biosolids at average annual percent solids content of 14.9%.** **179 metric dry tons Thickened Biosolids at average annual percent solids content of 5.4%.**
Pathogen Testing	Not applicable	Not applicable
Pathogen Reduction Method	Not applicable	Alternative 5 - anaerobic digestion; R18-9-1006-E.5
Vector Attraction Reduction Method	Not applicable	Option 1 - mass reduction; R18-9-1010-A.1
Storage Locations Thickened Biosolids, 5.5% Solids Content are immediately injected using sub-surface injectors. Cake Biosolids, 14.5% solids content, are staged in the field and subsequently incorporated.	Not Applicable	As of date, Avra Gro Systems Inc. schedule was to complete the land application and incorporation of Pima County Biosolids on or before February 22, 2020.

4. Generators/Preparers : Biosolids or Sewage Sludge Analytical Methods

Arizona regulations specify that representative samples of sewage sludge that is land applied, placed on a surface disposal site, or fired in s sewage sludge incinerator, must be collected and analyzed. These regulations specify the analytical methods that must be used to analyzed samples of sewage sludge.

Parameter	*Method Number or Author*	*Results (if tested)*	*Comments (required if other)*
Pathogens			
Ascaris ova.	Not applicable	Not applicable	Not applicable
Fecal Coliform	Not Applicable	Not Applicable	Not Applicable
Helminth ova.	Not Applicable	Not Applicable	Not Applicable
Salmonella sp. Bacteria	Not Applicable	Not Applicable	Not Applicable
Total Cultural Viruses	Not Applicable	Not Applicable	Not Applicable
Metals, mg/Kg			
Arsenic	EPA Method 6010 - Arsenic (ICP-OES)	< 11.7 / < 25.8 / 8.0	Mean / Maximum / Minimum
Beryllium	Choose an item.	< 1.8 / < 2.1 / < 1.6	Mean / Maximum / Minimum
Cadmium	EPA Method 6010 - Cadmium (ICP-OES)	< 4.3 / < 10.3 / < 3.2	Mean / Maximum / Minimum
Chromium	EPA Method 6010 - Chromium (ICP-OES)	31.8 / 35.1 / 29.1	Mean / Maximum / Minimum
Copper	EPA Method 6010 - Copper (ICP-OES)	377 / 430 / 314	Mean / Maximum / Minimum
Lead	EPA Method 6010 - Lead (ICP-OES)	< 13.3 / < 25.8 / < 8.5	Mean / Maximum / Minimum
Mercury	EPA Method 7471 - Mercury (CVAA)	0.7 / 1.0 / 0.5	Mean / Maximum / Minimum
Molybdenum	EPA Method 6010 - Molybdenum (ICP-OES)	14.9 / 19.5 / 12.3	Mean / Maximum / Minimum
Nickel	EPA Method 6010 - Nickel (ICP-OES)	< 23.6 / 31.8 / 19.9	Mean / Maximum / Minimum
Selenium	EPA Method 6010 - Selenium (ICP-OES)	< 21.6 / < 51.6 / < 15.8	Mean / Maximum / Minimum
Silver	EPA Method 6010 - Silver (ICP-OES)	3.2 / 6.8 / 2.2	Mean / Maximum / Minimum
Thallium	EPA Method 6010 - Thallium (ICP-OES)	< 9.1 / < 10.5 / < 7.9	Mean / Maximum / Minimum

BIOSOLIDS SEWAGE SLUDGE ANNUAL REPORT

Parameter	*Method Number or Author*	*Results (if tested)*	*Comments (required if other)*
Nitrogen Compounds, mg/Kg			
Ammonia Nitrogen	EPA Method 350.1 - Ammonia Nitrogen	9,569 / 25,200 / 6,510	Mean / Maximum / Minimum
Nitrite Nitrogen	EPA353.2; SM4500-NO2	3.6 / 9.14 / 1.9	Mean / Maximum / Minimum
Nitrogen	Calculated	71,721 / 82,941 / 64,245	Mean / Maximum / Minimum
Organic Nitrogen	Calculated EPA Method 350.1, 350.2	62,146 / 74,967 / 55,128	Mean / Maximum / Minimum
Total Kjeldahl Nitrogen	Calculated EPA Method 350.2	71,715 / 82,937 / 64,241	Mean / Maximum / Minimum
Other Analytes			
Fixed Solids	Not applicable	Not applicable	Not applicable
Paint Filter Test	Not Applicable	Not applicable	Not applicable
pH	Not Applicable	Not applicable	Not applicable
Specific Oxygen Uptake Rate	Not applicable	Not applicable	Not applicable
TCLP, mg/L **TCLP** Arsenic EPA 6010D Barium EPA 6010D Cadmium EPA 6010D Chromium EPA 6010D Lead EPA 6010D Mercury EPA 7470A Selenium EPA 6010D Silver EPA 6010D		Arsenic < 0.03 Barium < 0.03 Cadmium < 0.01 Chromium < 0.03 Lead < 0.03 Mercury < 0.0002 Selenium < 0.06 Silver < 0.0029	Click here to enter text.
Temperature	Not applicable	Not applicable	Not applicable
Total Solids	Standard Method 2540 - Total Solids	Cake Biosolids, % Solids Content **14.9 / 18.3 / 10.7** Thickened Biosolids, % Solids Content **5.4 / 8.0 / 4.6**	Mean / Maximum / Minimum
Volatile Solids	Not applicable	Not applicable	Not applicable
No Analytical Methods Used	Sample Analysis Results Included in this Report	Sample Analysis Results Included in this Report	Sample Analysis Results Included in this Report

Active Production of Biosolids and Hauling of Sludge, Pima County Wastewater Reclamation Facilities
Class B Biosolids[a] R18-9-1006-E ALTERNATIVE 5
Mt. Lemmon WRF
Hauled Sludge to Collection System of Tres Rios WRF
TRES RIOS WRF
Agua Nueva WRF
Randolph Park WRF
Hauled Sludge to Collection System of Agua Nueva WRF
Avra Valley WRF
DAF and WAS Sludge to Tres Rios WRF
Corona de Tucson WRF
Biosolids to Land Application
Green Valley WRF
Tucson
Sahuarita
Three Points
Oro Valley
Arivaca Junction
1 Agua Nueva WRF
2 Tres Rios WRF
3 Green Valley WRF
4 Fairgrounds WRF
9 Mt. Lemmon WRF
5 Avra Valley WRF
6 Corona de Tucson WRF
7 Arivaca WRF
8 Randolph Park WRF
Temporary Cease-Operation, December 2014

Pima County Biosolids Land application Activities by Avra Gro Systems, Inc.; 2019

Application Site / Location	Field ID	Amount of Biosolids Applied (in dry tons)	Preparer	Pathogen Treatment Method	Vector Attraction Reduction Method	Loading Rate	Nitrogen Conc. (Organic+NH_4)	Crop Grown After Application	Agronomic Rate of Crop Grown	The Cumulative Concentration of Pollutants (kilograms per hectare) in Soil				
1 C Lawrence	Lawrence 1N	103.03	Pima County RWRD	Class B, Alt 5	Option 1	2.94	118.63	Alfalfa	480	As=.0405	Cd=.0144	Cr=.1560	Cu=2.1383	Pb=.0636
										Hg=.0054	Mo=.0751	Ni=.1214	Se=.0578	Zn=3.871
2 C Lawrence	Lawrence 2N	109.81	Pima County RWRD	Class B, Alt 5	Option 1	2.88	116.45	Alfalfa	480	As=.4569	Cd=.1706	Cr=2.7544	Cu=31.0335	Pb=2.3393
										Hg=.1028	Mo=.7841	Ni=.1.4355	Se=.3633	Zn=61.592
3. C Lawrence	Chapman 2	131.61	Pima County RWRD	Class B, Alt 5	Option 1	2.92	117.86	Cotton	360	As=.0409	Cd=..0146	Cr=0.1579	Cu=2.1642	Pb=.0643
										Hg=..0055	Mo=.0760	Ni=.1228	Se=.0585	Zn=3.9190
4. C Lawrence	Chapman 1 A	91.12	Pima County RWRD	Class B, Alt 5	Option 1	3.03	122.40	Cotton	360	As=.0425	Cd=.0152	Cr=.1640	Cu=2.2476	Pb=.0668
										Hg=.0057	Mo=.0790	Ni=.1276	Se=.0607	Zn=4.0700
5. Kai Farms Marana, AZ	JK7	468.70	Pima County RWRD	Class B, Alt 5	Option 1	2.45	98.89			As=.7043	Cd=.3100	Cr=4.2644	Cu=56.44	Pb=4.1266
										Hg=.1651	Mo=1.4254	Ni=2.5607	Se=.5899	Zn=112.7053
6. Kai Farms Marana, AZ	JK9	231.11	Pima County RWRD	Class B, Alt 5	Option 1	1.23	49.81			As=.6872	Cd=.3039	Cr=4.1986	Cu=55.5404	Pb=4.0998
										Hg=.1628	Mo=1.3937	Ni=2.5095	Se=.5655	Zn=111.1
7. T Hum	TH11N	100.63	Pima County RWRD	Class B, Alt 5	Option 1	1.32	41.18	Corn	350	As=.7139	Cd=.3002	Cr=4.9223	Cu=52.4306	Pb=3.3124
										Hg=.1469	Mo=1.7036	Ni=3.0137	Se=.6543	Zn=98.369
8. T Glover	GL-1	355.35	Pima County RWRD	Class B, Alt 5	Option 1	3.06	95.27	Cotton	360	As=.8439	Cd=.3361	Cr=4.3431	Cu=55.5154	Pb=3.761
										Hg=.1456	Mo=1.5153	Ni=2.6112	Se=.6025	Zn=92.4753
9. C Lawrence	Chapman 1 B	68.03	Pima County RWRD	Class B, Alt 5	Option 1	0.27	8.35	Cotton	360	As=.4403	Cd=.22	Cr=3.342	Cu=37.0259	Pb=3.1905
										Hg=.1122	Mo=.9069	Ni=1.7896	Se=.3571	Zn=60.7655
10. C Lawrence	Chapman 1 A	8.05	Pima County RWRD	Class B, Alt 5	Option 1	1.28	42.30	Cotton	360	As=1.245	Cd=.444	Cr=6.5586	Cu=73.3013	Pb=4.674
										Hg=.2501	Mo=2.6623	Ni=3.7622	Se=.9042	Zn=132.1364

Pima County Biosolids Land application Activities by Avra Gro Systems, Inc.; 2019

Application Site / Location	Field ID	Amount of Biosolids Applied (in dry tons)	Preparer	Pathogen Treatment Method	Vector Attraction Reduction Method	Loading Rate	Nitrogen Conc. (Organic+NH_4)	Crop Grown After Application	Agronomic Rate of Crop Grown	The Cumulative Concentration of Pollutants (kilograms per hectare) in Soil
11. Kai Farms Marana, AZ	JK7	503.03	Pima County RWRD	Class B, Alt 5	Option 1	2.63	81.91			As=.0369 Cd=.0158 Cr=.1475 Cu=1.9489 Pb=.0521 Hg=.0037 Mo=.0790 Ni=.1211 Se=.0527 Zn=3.4765
12. Kai Farms Marana, AZ	JK9	54.02	Pima County RWRD	Class B, Alt 5	Option 1	0.29	8.98			As=.0040 Cd=.0017 Cr=.0162 Cu=.2138 Pb=.0057 Hg=.0004 Mo=.0087 Ni=.0133 Se=.0058 Zn=.3813
13 Kai Farms Marana, AZ	JK7	704.81	Pima County RWRD	Class B, Alt 5	Option 1	3.69	53.43			As=.0152 Cd=.0054 Cr=.0582 Cu=.6894 Pb=.0259 Hg=.0015 Mo=.0280 Ni=.0431 Se=.0215 Zn=1.4434
14. Kai Farms Marana, AZ	JK9	619.62	Pima County RWRD	Class B, Alt 5	Option 1	3.31	84.56			As=.0302 Cd=.0108 Cr=.1166 Cu=1.3821 Pb=.0518 Hg=.0030 Mo=.0561 Ni=.0864 Se=.0432 Zn=2.8937
15. T hum	Th11N	162.19	Pima County RWRD	Class B, Alt 5	Option 1	2.13	77.25	Corn	350	As=.5798 Cd=.1701 Cr=2.5114 Cu=33.6192 Pb=1.7760 Hg=.1024 Mo=1.3441 Ni=1.6256 Se=.4829 Zn=63.1550
16. Kai Farms Marana, AZ	JK27	246.18	Pima County RWRD	Class B, Alt 5	Option 1	1.33	48.17	Cotton	360	As=.8718 Cd=.3442 Cr=4.4462 Cu=56.3487 Pb=3.7928 Hg=.1482 Mo=1.5542 Ni=2.7197 Se=.6272 Zn=94.3327
17. Kai Farms Marana, AZ	JK9	966.08	Pima County RWRD	Class B, Alt 5	Option 1	5.16	29.85			As=.0009 Cd=.0003 Cr=.00034 Cu=.0403 Pb=.0014 Hg=.0001 Mo=.0016 Ni=.0025 Se=.0013 Zn=.0845
18. Pima County Farm	Pima	247.14	Pima County RWRD	Class B, Alt 5	Option 1	3.63	128.66	Pasture Grass	400	As=.1.3100 Cd=.4303 Cr=6.4910 Cu=86.7924 Pb=5.0305 Hg=.2765 Mo=3.1466 Ni=4.2182 Se=1.1409 Zn=165.4728

Pima County Biosolids Land application Activities by Avra Gro Systems, Inc.; 2019

Application Site / Location	Field ID	Amount of Biosolids Applied (in dry tons)	Preparer	Pathogen Treatment Method	Vector Attraction Reduction Method	Loading Rate	Nitrogen Conc. (Organic+NH_4)	Crop Grown After Application	Agronomic Rate of Crop Grown	The Cumulative Concentration of Pollutants (kilograms per hectare) in Soil				
19. T Hum	TH4	642.41	Pima County RWRD	Class B, Alt 5	Option 1	4.52	160.15	Barley	300	As=.1830	Cd=.0629	Cr=.8268	Cu=14.9920	Pb=1.2540
										Hg=.0277	Mo=.4332	Ni=.8111	Se=.1863	Zn=23.6020
20. T Hum	TH3	84.29	Pima County RWRD	Class B, Alt 5	Option 1	0.58	20.58	Barley	300	As=.3020	Cd=.1110	Cr=1.4687	Cu=20.8539	Pb=1.5145
										Hg=.0773	Mo=.7664	Ni=1.1231	Se=.2275	Zn=42.0394
21. Pima County Farm	Pima	2362.10	Pima County RWRD	Class B, Alt 5	Option 1	2.07	70.66	Pasture Grass	400	As=1.2591	Cd=.4158	Cr=6.2947	Cu=84.4663	Pb=4.9505
										Hg=.2714	Mo=3.0521	Ni=4.0728	Se=1.0682	Zn=160.6026
22. T Hum	TH5	469.02	Pima County RWRD	Class B, Alt 5	Option 1	2.07	70.66	Barley	300	As=.3343	Cd=.1091	Cr=1.4401	Cu=25.9409	Pb=2.1058
										Hg=.0598	Mo=.7261	Ni=1.0736	Se=.2766	Zn=47.3899
23. T Hum	TH3	528.48	Pima County RWRD	Class B, Alt 5	Option 1	3.64	124.65	Barley	300	As=.3449	Cd=.1233	Cr=1.6341	Cu=22.8145	Pb=1.5965
										Hg=.0816	Mo=.8461	Ni=1.2456	Se=.2888	Zn=46.1444
24. T Hum	TH5	562.99	Pima County RWRD	Class B, Alt 5	Option 1	2.03	78.45	Barley	300	As=.3298	Cd=.1110	Cr=1.4383	Cu=25.9193	Pb=2.0927
										Hg=.0607	Mo=.7252	Ni=1.8893	Se=.2719	Zn=47.3437
25. C Lawrence	Lawrence 1S	125.05	Pima County RWRD	Class B, Alt 5	Option 1	3.47	134.08	Corn	350	As=.0415	Cd=.0174	Cr=.1876	Cu=2.2231	Pb=.0695
										Hg=.0065	Mo=.0903	Ni=1.5354	Se=.0625	Zn=4.6547
26. C Lawrence	Lawrence 2S	128.87	Pima County RWRD	Class B, Alt 5	Option 1	3.39	130.90	Corn	350	As=.0407	Cd=.0170	Cr=.1831	Cu=2.1704	Pb=.0678
										Hg=.0064	Mo=.0882	Ni=1.4989	Se=.0610	Zn=4.5442
27. C Lawrence	Lawrence 5	90.75	Pima County RWRD	Class B, Alt 5	Option 1	2.93	113.00	Corn	350	As=.0351	Cd=.0145	Cr=.1581	Cu=1.8736	Pb=.0585
										Hg=.0055	Mo=.0761	Ni=1.2939	Se=.0527	Zn=3.9228
					Option 1	4.13	28.94	Corn	350	As=.0075	Cd=.0031	Cr=.0339	Cu=.4024	Pb=.0126

Pima County Biosolids Land application Activities by Avra Gro Systems, Inc.; 2019

Application Site / Location	Field ID	Amount of Biosolids Applied (in dry tons)	Preparer	Pathogen Treatment Method	Vector Attraction Reduction Method	Loading Rate	Nitrogen Conc. (Organic+NH_4)	Crop Grown After Application	Agronomic Rate of Crop Grown	The Cumulative Concentration of Pollutants (kilograms per hectare) in Soil				
28. C Lawrence	Grave yard2	1264.42	Pima County RWRD	Class B, Alt 5						Hg=.0012	Mo=.0163	Ni=.2779	Se=.0113	Zn=.8425
29. C Lawrence	Lawrence 7	158.25	Pima County RWRD	Class B, Alt 5	Option 1	3.96	20.97	Corn	350	As=.0351 Hg=.0012	Cd=.0145 Mo=.0163	Cr=.1581 Ni=.2779	Cu=1.8736 Se=.0113	Pb=.0585 Zn=.8425
30. C Lawrence	Keelin g	621.20	Pima County RWRD	Class B, Alt 5	Option 1	4.08	21.67	Corn	350	As=.0075 Hg=.0012	Cd=.0031 Mo=.0163	Cr=.0339 Ni=.2779	Cu=.4024 Se=.0113	Pb=.0126 Zn=.8425
31. C Lawrence	Lawrence 8	156.61	Pima County RWRD	Class B, Alt 5	Option 1	4.12	21.85	Corn	350	As=.0075 Hg=.0012	Cd=.0031 Mo=.0163	Cr=.0339 Ni=.2779	Cu=.4024 Se=.0113	Pb=.0126 Zn=.8425
32. C Lawrence	Lawrence 6	140.19	Pima County RWRD	Class B, Alt 5	Option 1	4.38	23.22	Corn	350	As=.0075 Hg=.0012	Cd=.0031 Mo=.0163	Cr=.0339 Ni=.2779	Cu=.4024 Se=.0113	Pb=.0126 Zn=.8425
33. C Lawrence	CL12	154.13	Pima County RWRD	Class B, Alt 5	Option 1	4.40	23.24	Corn	350	As=.0075 Hg=.0012	Cd=.0031 Mo=.0163	Cr=.0339 Ni=.2779	Cu=.4024 Se=.0113	Pb=.0126 Zn=.8425
34. Kai Farms Marana, AZ	JK42	59.93	Pima County RWRD	Class B, Alt 5	Option 1	0.39	2.25	Wheat	300	As=.5670 Hg=.1003	Cd=.1756 Mo=1.0688	Cr=3.0272 Ni=1.4713	Cu=31.5588 Se=.4533	Pb=2.0748 Zn=57.7782
35. C Lawrence	V1	66.09	Pima County RWRD	Class B, Alt 5	Option 1	3.67	21.37	Wheat	300	As=.0220 Hg=.0012	Cd=.0037 Mo=.0206	Cr=.0389 Ni=.0264	Cu=.5214 Se=.0367	Pb=.0147 Zn=.9547
36. C Lawrence	V2	70.85	Pima County RWRD	Class B, Alt 5	Option 1	3.94	22.91	Wheat	300	As=.0236 Hg=.0031	Cd=.0039 Mo=.0220	Cr=.0417 Ni=.0283	Cu=.5589 Se=.0394	Pb=.0157 Zn=1.0234

Pima County Biosolids Land application Activities by Avra Gro Systems, Inc.; 2019

Application Site / Location	Field ID	Amount of Biosolids Applied (in dry tons)	Preparer	Pathogen Treatment Method	Vector Attraction Reduction Method	Loading Rate	Nitrogen Conc. (Organic+NH_4)	Crop Grown After Application	Agronomic Rate of Crop Grown	The Cumulative Concentration of Pollutants (kilograms per hectare) in Soil				
37. C Lawrence	V3	50.37	Pima County RWRD	Class B, Alt 5	Option 1	3.87	22.55	Wheat	300	As=.0232	Cd=.0039	Cr=.0411	Cu=.5502	Pb=.0155
										Hg=.0012	Mo=.0217	Ni=.0279	Se=.0387	Zn=1.0074
38. C Lawrence	NV1	129.86	Pima County RWRD	Class B, Alt 5	Option 1	3.61	20.99	Wheat	300	As=.0216	Cd=.0036	Cr=.0382	Cu=.5122	Pb=.0144
										Hg=.0012	Mo=.0202	Ni=.0260	Se=.0361	Zn=.9379
39. C Lawrence	TS5	125.81	Pima County RWRD	Class B, Alt 5	Option 1	3.59	20.92	Wheat	300	As=.0216	Cd=.0038	Cr=.0381	Cu=.5104	Pb=.0144
										Hg=.0012	Mo=.0202	Ni=.0259	Se=.0359	Zn=.9346
40. C Lawrence	TS3	114.69	Pima County RWRD	Class B, Alt 5	Option 1	3.19	18.54	Wheat	300	As=.0191	Cd=.0032	Cr=.0338	Cu=.4524	Pb=.0127
										Hg=.0010	Mo=.0178	Ni=.0229	Se=.0319	Zn=.8283
41. C Lawrence	TS6	133.70	Pima County RWRD	Class B, Alt 5	Option 1	3.43	19.95	Wheat	300	As=.0206	Cd=.0034.	Cr=.0363	Cu=.4868	Pb=.0137
										Hg=.0011	Mo=.0192	Ni=.0247	Se=.0343	Zn=.8913
42. C Lawrence	TS1	244.52	Pima County RWRD	Class B, Alt 5	Option 1	3.82	20.87	Wheat	300	As=.0014	Cd=.0002	Cr=.0026	Cu=.0342	Pb=.0010
										Hg=.0001	Mo=.0013	Ni=.0017	Se=.0024	Zn=.0626
43. C Lawrence	Hillside	170.83	Pima County RWRD	Class B, Alt 5	Option 1	3.29	17.87	Wheat	300	As=.0014	Cd=.0002	Cr=.0026	Cu=.0342	Pb=.0010
										Hg=.0001	Mo=.0013	Ni=.0017	Se=.0024	Zn=.0626
44. C Lawrence	Hacienda	455.97	Pima County RWRD	Class B, Alt 5	Option 1	3.59	19.53	Corn	350	As=.0014	Cd=.0002	Cr=.0026	Cu=.0342	Pb=.0010
										Hg=.0001	Mo=.0013	Ni=.0017	Se=.0024	Zn=.0626
45. C Lawrence	TS4S	71.00	Pima County RWRD	Class B, Alt 5	Option 1	3.55	19.31	Corn	350	As=.0014	Cd=.0002	Cr=.0026	Cu=.0342	Pb=.0010
										Hg=.0001	Mo=.0013	Ni=.0017	Se=.0024	Zn=.0626

Pima County Biosolids Land application Activities by Avra Gro Systems, Inc.; 2019										
Application Site / Location	Field ID	Amount of Biosolids Applied (in dry tons)	Preparer	Pathogen Treatment Method	Vector Attraction Reduction Method	Loading Rate	Nitrogen Conc. (Organic+NH_4)	Crop Grown After Application	Agronomic Rate of Crop Grown	The Cumulative Concentration of Pollutants (kilograms per hectare) in Soil
46. C Lawrence	BenrossN	539.39	Pima County RWRD	Class B, Alt 5	Option 1	3.67	19.98	Corn	350	As=.0014 Cd=.0002 Cr=.0026 Cu=.0342 Pb=.0010 Hg=.0001 Mo=.0013 Ni=.0017 Se=.0024 Zn=.0626
47. C Lawrence	BenrossS	200.09	Pima County RWRD	Class B, Alt 5	Option 1	1.61	8.73	Corn	350	As=.2699 Cd=.2823 Cr=3.6643 Cu=39.8872 Pb=3.6818 Hg=.1365 Mo=1.0794. Ni=1.7527 Se=.3559 Zn=66.0320
48. Kai Farms Marana, AZ	JK3	207.85	Pima County RWRD	Class B, Alt 5	Option 1	1.28	0.00	Wheat	300	As=.2699 Cd=.2823 Cr=3.6643 Cu=39.8872 Pb=3.6818 Hg=.1365 Mo=1.0794 Ni=1.7527 Se=.3559 Zn=66.0320
49. C Lawrence	Selma 1	104.85	Pima County RWRD	Class B, Alt 5	Option 1	1.40	7.75	Corn	350	As=.0081 Cd=.0014 Cr=.0131 Cu=.1734 Pb=.0053 Hg=.0003 Mo=.0070 Ni=.0087 Se=.0137 Zn=.3076

ARIZONA
DEPARTMENT OF ENVIRONMENTAL QUALITY
AZPDES Individual Permits Unit
1110 W Washington Street
Phoenix, Arizona 85007
(602) 771-4689 (voicemail) (602) 771-4505 (fax)
Email to: biosolids@azdeq.gov

BIOSOLIDS OR SEWAGE SLUDGE ANNUAL REPORT FORM

1. Program Information: All preparers (Generators) and Land Applicators Must complete the following.

Reporting Start Date:1/1/2019	**Reporting End Date: 12/31/2019**
Date:2/18/2020	**AZPDES Permit # (if applicable):APP # 100644**

Company name (Preparer / Applicator): Preparer, Pima County Regional Water Reclamation Department

Facility Name and Address: Pima County Corona de Tucson WRF; 1100 W. Sahuarita Road, Corona de Tucson AZ 85711

Contact Name: Houssam Eljerdi	**Title: Technical Services Manager**
Address: 7101 N. Casa Grande Highway **Phone:** (520) 724 - 6100	Tucson, AZ 85743 - 8618 **E-mail: Houssam.eljerdi@pima.gov**

Please select one of the following options pertaining to your obligation to submit a Biosolids Annual Report. My facility is a:

☒ POTW with a design flow equal to or greater than 1 MGD Per Day

☐ POTW that serves 10,000 people or more

☐ Class I Sludge Management Facility as defined by 40 CFR 503.9

☐ Biosolids Applicator (Complete Section 5 only)

☒Other APP Permit # 100644

What is the estimated total of volume of biosolids or sewage sludge generated at your facility (in dry metric tons)?

145 (One Hundred and Forty Five) metric dry tons

Pima County Transports the Corona de Tucson WRF Waste Activated Sludge by tanker truck to Pima County Wastewater Collection System where it becomes part of the Influent to Pima County Agua Nueva WRF

Were all biosolids removed from your facility sent to a landfill for disposal? No

If yes, provide the name and address of the landfill(s). Not Applicable

If all biosolids or sewage sludge was sent to a landfill for disposal, you do not need to complete the remainder of this form, as it is only applicable to facilities preparing Biosolids or sewage sludge for land application.

Certification: I certify, under penalty of law, that the information and descriptions, have been made under my direction and supervision and under a system designed to ensure that qualified personnel properly gather and evaluate the information used to determine whether the applicable biosolids requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

Signature: Title: Jeff P. Prevatt; Deputy Director - Treatment	Date: February 18, 2020

2. Generator/Preparers - Biosolids Storage and Treatment Processes

2.1 Please check the box next to the following biosolids or sewage sludge storage practices and treatment processes used on the sewage sludge or biosolids generated or produced at your facility during the reporting period.

Storage Practices

☐ Biosolids are stored in lined lagoons or impoundments

☐ Biosolids stored directly on the ground

Physical Treatment Processes

☒ Preliminary Operations (e.g. sludge grinding, degritting, blending

☒ Thickening (e.g. gravity floatation, centrifugation, belt filter press, vacuum filter)

☐ Sludge lagoon

Pathogen Reduction Operations (PSRP)

☐ Aerobic Digestion

☐ Air Drying (or "sludge drying beds")

☐ Anaerobic Digestion

☐ Lower Temperature Composting

☐ Lime Stabilization

Process to Further Reduce Pathogens (PFRP)

☐ Higher Temperature Composting

☐ Heat Drying (e.g. flash dryer, spray dryer, rotary dryer)

☐ Heat Treatment (Liquid sewage sludge is heated to temp of 356 °F (180 °C) or higher for 30 minutes

☐ Thermophilic Aerobic Digestion

☐ Beta Ray Irradiation

☐ Gamma Ray Irradiation

☐ Pasteurization

3. Generators/Preparers: Disposition of Biosolids or Sewage Treatment Sludge:

3.1 At the beginning of the year, did you have any biosolids or sewage sludge stored on site or remaining from previous years? Include any amount that is being stored anywhere. No

If yes provide the following information:

	CLASS A Biosolids	Class B Biosolids
Dry Ton Weight	None	None
Pathogen Testing	Not applicable	Not applicable
Pathogen Reduction Method	Not applicable	Not applicable
Vector Attraction Reduction Method	Not applicable	Not applicable
Storage Locations	**No Storage** **Pima County Transports the Sludge from Corona de Tucson WRF by Tanker Truck to Pima County Wastewater Collection System where it becomes part of the Influent to Pima County Agua Nueva WRF**	Not applicable

3.2 At the end of the year, are any biosolids or sewage sludge stored on site? No

If yes, provide the following information:

	CLASS A Biosolids	Class B Biosolids
Dry Ton Weight	None	None
Pathogen Testing	Not applicable	Not applicable
Pathogen Reduction Method	Not applicable	Not applicable
Vector Attraction Reduction Method	Not applicable	Not applicable
Storage Locations	**No Storage** **Pima County Transports the Sludge from Corona de Tucson WRF by Tanker Truck to Pima County Wastewater Collection System where it becomes part of the Influent to Pima County Agua Nueva WRF**	Not applicable

3.3 Were biosolids or sewage sludge received from another facility during the year, such as another wastewater treatment plant or another APP permitted facility for further processing? No

If yes provide the following information for each facility. Click the plus sign to create as many tables as needed.

BIOSOLIDS SEWAGE SLUDGE ANNUAL REPORT

Name of Facility	Not Applicable	
Location:	Not Applicable	
	CLASS A Biosolids	Class B Biosolids
Dry Ton Weight	Not Applicable	Not applicable
Pathogen Testing	Not applicable	Not applicable
Pathogen Reduction Method	Not applicable	Not applicable
Vector Attraction Reduction Method	Not applicable	Not applicable
Storage Locations	Not applicable	Not applicable

Enter any content that you want to repeat, including other content controls. You can also insert this control around table rows in order to repeat parts of a table.

3.4. Were biosolids removed from your facility for land application? Include all recipients, including haulers, name, phone number, land applicators, composters, drying facilities, EQB bagging facilities, bulk composting, etc.

Name of Facility	**None; Biosolids are not prepared at Corona de Tucson WRF. Pima County Transports the Sludge from Corona de Tucson WRF by Tanker Truck to Pima County Wastewater Collection System where it becomes part of the Influent to Pima County Agua Nueva WRF**	
Management Practice Type:	Not Applicable	
Handler or Preparer Type:	Not Applicable	
Management Practice Detail:	Not Applicable	
Bag or Bulk Container:	Not Applicable	
	CLASS A Biosolids	Class B Biosolids
Dry Ton Weight	None	None
Pathogen Testing	Not Applicable	Not applicable
Pathogen Reduction Method	Not Applicable	Not Applicable
Vector Attraction Reduction Method	Not Applicable	Not Applicable
Storage Locations	Not Applicable	Not Applicable

4. Generators/Preparers : Biosolids or Sewage Sludge Analytical Methods

Arizona regulations specify that representative samples of sewage sludge that is land applied, placed on a surface disposal site, or fired in s sewage sludge incinerator, must be collected and analyzed.

These regulations specify the analytical methods that must be used to analyzed samples of sewage sludge.

Parameter	*Method Number or Author*	*Results (if tested)*	*Comments (required if other)*
Pathogens			
Ascaris ova.	Not applicable	Not applicable	Not applicable
Fecal Coliform	Not Applicable	Not Applicable	Not Applicable
Helminth ova.	Not Applicable	Not Applicable	Not Applicable
Salmonella sp. Bacteria	Not Applicable	Not Applicable	Not Applicable
Total Cultural Viruses	Not Applicable	Not Applicable	Not Applicable
Metals			
Arsenic	EPA Method 6010 - Arsenic (ICP-OES)	Not Applicable	Mean / Maximum / Minimum
Beryllium	Choose an item.		Mean / Maximum / Minimum
Cadmium	EPA Method 6010 - Cadmium (ICP-OES)	Not Applicable	Mean / Maximum / Minimum
Chromium	EPA Method 6010 - Chromium (ICP-OES)	Not Applicable	Mean / Maximum / Minimum
Copper	EPA Method 6010 - Copper (ICP-OES)	Not Applicable	Mean / Maximum / Minimum
Lead	EPA Method 6010 - Lead (ICP-OES)	Not Applicable	Mean / Maximum / Minimum
Mercury	EPA Method 7471 - Mercury (CVAA)	Not Applicable	Mean / Maximum / Minimum
Molybdenum	EPA Method 6010 - Molybdenum (ICP-OES)	Not Applicable	Mean / Maximum / Minimum
Nickel	EPA Method 6010 - Nickel (ICP-OES)	Not Applicable	Mean / Maximum / Minimum
Selenium	EPA Method 6010 - Selenium (ICP-OES)	Not Applicable	Mean / Maximum / Minimum
Zinc	EPA Method 6010 - Zinc (ICP-OES)	Not Applicable	Mean / Maximum / Minimum
Nitrogen Compounds			
Ammonia Nitrogen	EPA Method 350.1 - Ammonia Nitrogen	Not Applicable	Click here to enter text.
Nitrate Nitrogen	EPA353.2; SM4500-NO2	Not Applicable	Click here to enter text.
Nitrogen	Calculated	Not Applicable	Click here to enter text.

Organic Nitrogen	Calculated EPA Method 350.1, 350.2	Not Applicable	Click here to enter text.
Total Kjeldahl Nitrogen	Calculated EPA Method 350.2	Not Applicable	Click here to enter text.
Other Analytes			
Fixed Solids	Not applicable	Not applicable	Not applicable
Paint Filter Test	Not Applicable	Not applicable	Not applicable
pH	9045D	Not Applicable	Mean / Maximum / Minimum
Specific Oxygen Uptake Rate	Not Applicable	Not applicable	Not applicable
TCLP	Other TCLP Analytical Method	Sample Analysis Results Included in this Report	Click here to enter text.
Temperature	Not applicable	Not applicable	Not applicable
Total Solids	Standard Method 2540 - Total Solids	Thickened WAS, % Solids Content **1.3 / 2.3 / 0.77**	Mean / Maximum / Minimum
Volatile Solids	Standard Method 2540 - Total Solids	**83 / 86 / 77**	Not applicable
No Analytical Methods Used	Not applicable	Not applicable	Not applicable

BIOSOLIDS OR SEWAGE SLUDGE ANNUAL REPORT FORM

1. Program Information: All preparers (Generators) and Land Applicators Must complete the following.

Reporting Start Date:1/1/2019	**Reporting End Date: 12/31/2019**
Date:2/18/2020	**AZPDES Permit # (if applicable):AZ00022250** **Pima County Mt. Lemmon WRF** **12633 N. Sabino Canyon Park; Summerhaven, AZ 85619**
Company name (Preparer / Applicator): Preparer, Pima County Regional Water Reclamation Department	
Contact Name: Houssam Eljerdi	**Title: Technical Services Manager**
Address: 7101 N. Casa Grande Highway **Phone:** (520) 724 - 6100	Tucson, AZ 85743 - 8618 **E-mail: Houssam.eljerdi@pima.gov**

Please select one of the following options pertaining to your obligation to submit a Biosolids Annual Report. My facility is a:

☐ POTW with a design flow equal to or greater than 1 MGD Per Day

☐ POTW that serves 10,000 people or more

☐ Class I Sludge Management Facility as defined by 40 CFR 503.9

☐ Biosolids Applicator (Complete Section 5 only)

☒ Other AZPDES Permit # 22250; APP Permit # 100345

What is the estimated total of volume of biosolids or sewage sludge generated at your facility (in dry metric tons)?

1.7 (One and Seven Tenths) metric dry tons

No Storage; Pima County Transports the Mt. Lemmon WRF sludge by tanker truck to Pima County Wastewater Collection System where it becomes part of the Influent to Pima County Agua Nueva WRF

Were all biosolids removed from your facility sent to a landfill for disposal? No

If yes, provide the name and address of the landfill(s). Not Applicable

If all biosolids or sewage sludge was sent to a landfill for disposal, you do not need to complete the remainder of this form, as it is only applicable to facilities preparing Biosolids or sewage sludge for land application.

Certification: I certify, under penalty of law, that the information and descriptions, have been made under my direction and supervision and under a system designed to ensure that qualified personnel properly gather and evaluate the information used to determine whether the applicable biosolids requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

Signature: Title: Jeff P. Prevatt; Deputy Director - Treatment	Date: February 18, 2020

2. Generator/Preparers - Biosolids Storage and Treatment Processes

2.1 Please check the box next to the following biosolids or sewage sludge storage practices and treatment processes used on the sewage sludge or biosolids generated or produced at your facility during the reporting period.

Storage Practices

☐ Biosolids are stored in lined lagoons or impoundments

☐ Biosolids stored directly on the ground

Physical Treatment Processes

☒ Preliminary Operations (e.g. sludge grinding, degritting, blending

☒ Thickening (e.g. gravity floatation, centrifugation, belt filter press, vacuum filter)

☐ Sludge lagoon

Pathogen Reduction Operations (PSRP)

☐ Aerobic Digestion

☐ Air Drying (or "sludge drying beds")

☐ Anaerobic Digestion

☐ Lower Temperature Composting

☐ Lime Stabilization

Process to Further Reduce Pathogens (PFRP)

☐ Higher Temperature Composting

☐ Heat Drying (e.g. flash dryer, spray dryer, rotary dryer)

☐ Heat Treatment (Liquid sewage sludge is heated to temp of 356 °F (180 °C) or higher for 30 minutes

☐ Thermophilic Aerobic Digestion

☐ Beta Ray Irradiation

☐ Gamma Ray Irradiation

☐ Pasteurization

3. Generators/Preparers: Disposition of Biosolids or Sewage Treatment Sludge:

BIOSOLIDS SEWAGE SLUDGE ANNUAL REPORT

3.1 At the beginning of the year, did you have any biosolids or sewage sludge stored on site or remaining from previous years? Include any amount that is being stored anywhere. No

If yes provide the following information:

	CLASS A Biosolids	Class B Biosolids
Dry Ton Weight	None	None
Pathogen Testing	Not applicable	Not applicable
Pathogen Reduction Method	Not applicable	Not applicable
Vector Attraction Reduction Method	Not applicable	Not applicable
Storage Locations	**No Storage** **Pima County Transports the Sludge from Mt. Lemmon WRF by Tanker Truck to Pima County Wastewater Collection System where it becomes part of the Influent to Pima County Tres Rios WRF**	Not applicable

3.2 At the end of the year, are any biosolids or sewage sludge stored on site? No

If yes, provide the following information:

	CLASS A Biosolids	Class B Biosolids
Dry Ton Weight	None	None
Pathogen Testing	Not applicable	Not applicable
Pathogen Reduction Method	Not applicable	Not applicable
Vector Attraction Reduction Method	Not applicable	Not applicable
Storage Locations	**No Storage** **Pima County Transports the Sludge from Mt. Lemmon WRF by Tanker Truck to Pima County Wastewater Collection System where it becomes part of the Influent to Pima County Tres Rios WRF**	Not applicable

3.3 Were biosolids or sewage sludge received from another facility during the year, such as another wastewater treatment plant or another APP permitted facility for further processing? No

If yes provide the following information for each facility. Click the plus sign to create as many tables as needed.

Name of Facility	Not Applicable	
Location:	Not Applicable	
	CLASS A Biosolids	Class B Biosolids

BIOSOLIDS SEWAGE SLUDGE ANNUAL REPORT

Name of Facility	Not Applicable	
Location:	Not Applicable	
Dry Ton Weight	Not Applicable	Not applicable
Pathogen Testing	Not applicable	Not applicable
Pathogen Reduction Method	Not applicable	Not applicable
Vector Attraction Reduction Method	Not applicable	Not applicable
Storage Locations	Not applicable	Not applicable

Enter any content that you want to repeat, including other content controls. You can also insert this control around table rows in order to repeat parts of a table.

3.4. Were biosolids removed from your facility for land application? Include all recipients, including haulers, name, phone number, land applicators, composters, drying facilities, EQB bagging facilities, bulk composting, etc.

Name of Facility	**None; Biosolids are not prepared at Mt. Lemmon WRF. Pima County Transports the Sludge from Mt. Lemmon WRF by Tanker Truck to Pima County Wastewater Collection System where it becomes part of the Influent to Pima County Agua Nueva WRF**	
Management Practice Type:	Not Applicable	
Handler or Preparer Type:	Not Applicable	
Management Practice Detail:	Not Applicable	
Bag or Bulk Container:	Not Applicable	
	CLASS A Biosolids	Class B Biosolids
Dry Ton Weight	None	None
Pathogen Testing	Not Applicable	Not applicable
Pathogen Reduction Method	Not Applicable	Not Applicable
Vector Attraction Reduction Method	Not Applicable	Not Applicable
Storage Locations	Not Applicable	Not Applicable

4. Generators/Preparers : Biosolids or Sewage Sludge Analytical Methods

Arizona regulations specify that representative samples of sewage sludge that is land applied, placed on a surface disposal site, or fired in s sewage sludge incinerator, must be collected and analyzed. These regulations specify the analytical methods that must be used to analyzed samples of sewage sludge.

BIOSOLIDS SEWAGE SLUDGE ANNUAL REPORT

Parameter	*Method Number or Author*	*Results (if tested)*	*Comments (required if other)*
Pathogens			
Ascaris ova.	Not applicable	Not applicable	Not applicable
Fecal Coliform	Not Applicable	Not Applicable	Not Applicable
Helminth ova.	Not Applicable	Not Applicable	Not Applicable
Salmonella sp. Bacteria	Not Applicable	Not Applicable	Not Applicable
Total Cultural Viruses	Not Applicable	Not Applicable	Not Applicable
Metals			
Arsenic	EPA Method 6010 - Arsenic (ICP-OES)	Not Applicable	Mean / Maximum / Minimum
Beryllium	Choose an item.	Not Applicable	Mean / Maximum / Minimum
Cadmium	EPA Method 6010 - Cadmium (ICP-OES)	Not Applicable	Mean / Maximum / Minimum
Chromium	EPA Method 6010 - Chromium (ICP-OES)	Not Applicable	Mean / Maximum / Minimum
Copper	EPA Method 6010 - Copper (ICP-OES)	Not Applicable	Mean / Maximum / Minimum
Lead	EPA Method 6010 - Lead (ICP-OES)	Not Applicable	Mean / Maximum / Minimum
Mercury	EPA Method 7471 - Mercury (CVAA)	Not Applicable	Mean / Maximum / Minimum
Molybdenum	EPA Method 6010 - Molybdenum (ICP-OES)	Not Applicable	Mean / Maximum / Minimum
Nickel	EPA Method 6010 - Nickel (ICP-OES)	Not Applicable	Mean / Maximum / Minimum
Selenium	EPA Method 6010 - Selenium (ICP-OES)	Not Applicable	Mean / Maximum / Minimum
Zinc	EPA Method 6010 - Zinc (ICP-OES)	Not Applicable	Mean / Maximum / Minimum
Nitrogen Compounds			
Ammonia Nitrogen	EPA Method 350.1 - Ammonia Nitrogen	Not Applicable	Click here to enter text.
Nitrate Nitrogen	EPA353.2; SM4500-NO2	Not Applicable	Click here to enter text.
Nitrogen	Calculated	Not Applicable	Click here to enter text.
Organic Nitrogen	Calculated EPA Method 350.1, 350.2	Not Applicable	Click here to enter text.

Total Kjeldahl Nitrogen	Calculated EPA Method 350.2	Not Applicable	Click here to enter text.
Other Analytes			
Fixed Solids	Not applicable	Not applicable	Not applicable
Paint Filter Test	Not Applicable	Not Applicable	Not applicable
pH	9045D	Not Applicable	Mean / Maximum / Minimum
Specific Oxygen Uptake Rate	Not Applicable	Not Applicable	Not applicable
TCLP	Other TCLP Analytical Method	Sample Analysis Results Included in this Report	Click here to enter text.
Temperature	Not applicable	Not applicable	Not applicable
Total Solids	Standard Method 2540 - Total Solids	Thickened WAS, % Solids Content **0.59 / 0.71 / 0.48**	Mean / Maximum / Minimum
Volatile Solids	Standard Method 2540 - Total Solids	Thickened WAS, % Total Volatile Solids Content **83 / 96 / 77**	Mean / Maximum / Minimum
No Analytical Methods Used	Not applicable	Not applicable	Not applicable

SECTION 2

PREPARATION OF BIOSOLIDS

TRES RIOS WRF AZPDES NO. AZ0020001

VECTOR ATTRACTION REDUCTION

A.A.C. RULE 18.9.1010.A.1

PATHOGEN REDUCTION

A.A.C. RULE 18.9.1006.E ALTERNATIVE 5

POLLUTANT CONCENTRATION

A.A.C. RULE 18.9.1005 METALS

ANNUAL BIOSOLIDS REPORT 2019

CALENDAR YEAR 2019

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ANNUAL BIOSOLIDS REPORT 2019

REGIONAL WATER
RECLAMATION DEPARTMENT

TREATMENT DIVISION

PIMA COUNTY
TUCSON, ARIZONA

PIMA COUNTY
WASTEWATER RECLAMATION

VECTOR ATTRACTION REDUCTION - LAND APPLICATION
ALTERNATIVE 1 IN 40 CFR 503.33(b)(1)
R18-9-1010-A.1

Facility Name: Pima County Regional Biosolids Management Facility
Address: 7101 North Casa Grande Highway
Tucson, Arizona 85743

Facility Owner's Name: Pima County Regional Wastewater Reclamation Department
Address: 201 North Stone Avenue
Tucson, Arizona 85701

Monitoring Period: From 01/01/2019 Through 12/31/2019

Reporting Period: From 01/01/2019 Through 12/31/2019

AZPDES Permit Number: AZ0020001 Sludge Permit Number: N/A

Facility Latitude: 32° 20' 06" N Facility Longitude: 111°04' 16" W

Site Map Attached? ☐ Yes ☒ No

Tres Rios WRF receives and treats the sludge from both Agua Nueva WRF and Tres Rios WRF. The floated sludge from the DAF clarifier and the waste activated sludge (WAS) at Agua Nueva WRF, and the WAS from Tres Rios WRF are mixed in a WAS tank at Tres Rios WRF. The mixed sludge from the WAS tank at Tres Rios WRF is thickened in the Gravity Belt Thickeners (GBT) complex. The primary sludge from Tres Rios WRF is thickened in the Gravity Thickeners (GT) complex at Tres Rios WRF. The thickened sludge is pumped from both the GBT complex and the GT complex into heated mesophilic digesters, part of the Regional Biosolids Management Facility (RBMF) located at Tres Rios WRF. The vector attraction reduction is achieved in the digesters at the RBMF located at Tres Rios WRF. The WAS from Avra Valley WRF, Green Valley WRF, Corona de Tucson WRF and Mt. Lemmon WRF are sometimes combined into the WAS mixing tank at Tres Rios WRF. The digested sludge is pumped to the Centrifuge Building at the RBMF for either thickening or dewatering. After moisture reduction, the biosolids are pumped into the temporary Biosolids Transfer Bladder. From the Biosolids Transfer Bladder, the land application contractor removes the biosolids for application as soil amendment and fertilizer on local area farms.

The vector attraction reduction is achieved in the digesters at the RBMF located at Tres Rios RBMF using Alternative 1 [40 CFR 503.33(b)(1)] Method, equivalently R18-9-1010-A.1; the latter states: "Reducing the mass of volatile solids by a minimum of 38% using the calculation procedures established in "Environmental Regulations and Technology—Control of Pathogens and Vector Attraction in Sewage Sludge," EPA/625/R-92-013, published by the U.S. Environmental Protection Agency, Cincinnati, Ohio 45268, 1999 Edition." To demonstrate the achievement of this requirement, biosolids data from Tres Rios WRF is provided. Table 1 reports Volatile Solids Reduction (%) at the Tres Rios WRF.

TABLE 1 - MONTHLY AVERAGE VOLATILE SOLIDS REDUCTION (%) AT TRES RIOS WRF

TRES RIOS WRF YEAR 2019	Volatile Solids Reduction (%)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Digester #1	50	53	53	53	53	48	44	47	49	49	50	53
Digester #2	50	53	50	50	53	48	44	47	50	48	55	51
Digester #3	50	50	47	47	53	48	44	47	49	47	50	52
Digester #4	60	55	53	50	53	48	47	50	49	50	50	51
Digester #5	53	53	53	50	50	48	41	44	49	47	52	49
Digester #6	53	53	53	47	50	46	44	47	49	49	51	51

The mass of volatile solids of the Tres Rios WRF biosolids was reduced by at least 38 percent.

The volatile solids reduction is greater than 38% for the plant. No further treatment is provided at the Regional Biosolids Management Facility, and the biosolids are routinely applied to the land within 48 hours of discharge from the digester. Therefore, the combined solids will meet Alternative 1 [40 CFR 503.33(b)(1)] Method, equivalently R18-9-1010-A.1.

The volatile solids reduction is measured at least two times per week at each digester.

CERTIFICATION [503.17 (a)(4)(i)(B)], equivalently R18-9-1013

rtify, under penalty of law, that the information that will be used to determine compliance with the vector attraction reduction requirement in § 503.33(b)(1), equivalently R18-9-1010-A.1, was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

Name and Official Title (type or print)	Area Code and Phone
F. Jeff Prevatt, Deputy Director Treatment Division Regional Wastewater Reclamation Department	(520) 724-6060
Signature	Date Signed 02/18/2020

PATHOGEN REDUCTION - CLASS B
ALTERNATIVE 2 IN 40 CFR 503.32(b)(3)
R18-9-1006-E ALTERNATIVE 5

Facility Name: Pima County Regional Biosolids Management Facility
Address: 7101 North Casa Grande Highway
Tucson, Arizona 85743

Facility Owner's Name: Pima County Regional Wastewater Reclamation Department
Address: 201 North Stone Avenue
Tucson, Arizona 85701

Monitoring Period: From 01/01/2019 Through 12/31/2019

Reporting Period: From 01/01/2019 Through 12/31/2019

AZDES Permit Number: AZ0020001 Sludge Permit Number: N/A

Facility Latitude: 32° 20' 06" N Facility Longitude: 111° 04' 16" W

Site Map Attached? ☐ Yes ☒ No

Tres Rios WRF receives and treats the sludge from both Agua Nueva WRF and Tres Rios WRF. The floated sludge from the DAF clarifier and the waste activated sludge (WAS) at Agua Nueva WRF, and the WAS from Tres Rios WRF are mixed in a WAS tank at Tres Rios WRF. The mixed sludge from the WAS tank at Tres Rios WRF is thickened in the Gravity Belt Thickeners (GBT) complex. The primary sludge from Tres Rios WRF is thickened in the Gravity Thickeners (GT) complex at Tres Rios WRF. The thickened sludge is pumped from both the GBT complex and the GT complex into heated mesophilic digesters, part of the Regional Biosolids Management Facility (RBMF) located at Tres Rios WRF. The pathogen reduction is achieved in the digesters at the RBMF located at Tres Rios WRF. The WAS from Avra Valley WRF, Green Valley WRF, Corona de Tucson WRF and Mt. Lemmon WRF are sometimes combined into the WAS mixing tank at Tres Rios WRF. The digested sludge is pumped to the Centrifuge Building at the RBMF for either thickening or dewatering. After moisture reduction, the biosolids are pumped into the temporary Biosolids Transfer Bladder. From the Biosolids Transfer Bladder, the land application contractor removes the biosolids for application as soil amendment and fertilizer on local area farms.

Pathogen reduction is achieved at the Tres Rios treatment plant prior to transfer to the Regional Biosolids Management Facility through the use of Class B, Alternative 2 [40 CFR 503.32(b)(3) Appendix B, No. 3] Methods, equivalently R18-9-1006-E Alternative 5. Pathogen reduction is accomplished by the anaerobic digestion process to achieve a residence time of greater than 15 days at a minimum temperature of 35°C. To demonstrate the achievement of the requirements under this alternative, biosolids data from Tres Rios WRF is provided in Tables 2 and 3.

The temperature in each digester was greater than or equal to 35°C and the detention time always exceeded 15 days, at Tres Rios WRF. The biosolids are treated in the absence of air for a specific mean cell residence time at a specific temperature between 15 days at 35°C to 55°C and 60 days at 20°C. The operating temperature of the digester is measured at a frequency of at least two (2) times per day. For this reporting period, the average detention time and digester operating temperature are as follows:

TABLE 2 - AVERAGE DIGESTER DETENTION TIME AT TRES RIOS WRF

TRES RIOS WRF YEAR 2019	AVERAGE DETENTION TIME (Days)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Digester #1	26.9	25.2	24.1	27.0	27.7	25.7	29.3	29.7	30.2	27.8	28.3	29.8
Digester #2	26.9	25.2	25.0	25.4	28.0	27.5	28.7	28.3	32.9	27.7	28.6	31.5
Digester #3	27.5	22.2	24.5	26.4	26.8	25.9	29.8	28.3	32.9	29.2	28.2	29.0
Digester #4	27.3	22.6	23.7	26.2	27.1	27.4	26.3	28.7	30.7	27.9	27.4	28.0
Digester #5	26.8	28.7	33.1	35.9	35.7	34.5	38.4	38.6	43.1	39.2	37.5	37.7
Digester #6	23.5	26.2	25.3	28.2	28.9	28.7	30.9	26.9	27.8	32.6	31.1	31.0

TABLE 3 - AVERAGE DIGESTER OPERATING TEMPERATURE AT TRES RIOS WRF

TRES RIOS WRF YEAR 2019	AVERAGE TEMPERATURE (°C)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Digester #1	35.11	35.39	36.11	36.67	36.67	36.61	36.89	37.06	37.11	36.17	36.06	35.67
Digester #2	35.22	35.56	36.39	36.61	36.89	37.11	37.17	37.11	37.11	36.33	36.56	35.44
Digester #3	35.39	36.11	36.39	36.89	36.44	36.83	37.00	36.94	37.33	36.67	36.44	35.61
Digester #4	35.50	35.83	36.33	36.56	36.94	37.06	37.00	37.06	37.17	36.56	36.39	35.94
Digester #5	36.89	36.94	37.11	36.89	36.50	36.44	36.56	36.44	36.28	36.56	36.78	36.94
Digester #6	36.44	36.33	36.61	36.56	36.61	36.61	36.67	36.61	36.67	36.67	36.67	36.94

O/S = Out of Service

CERTIFICATION [503.17 (a)(4)(i)(B)] , equivalently R18-9-1013

I certify, under penalty of law, that the information that will be used to determine compliance with the Class B pathogen requirements in § 503.32(b)(3), equivalently R18-9-1006-E Alternative 5, was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

Name and Official Title (type or print)	Area Code and Phone
F. Jeff Prevatt, Deputy Director Treatment Division Regional Wastewater Reclamation Department	(520) 724-6060
Signature	Date Signed 02/18/2020

NITROGEN IN BIOSOLIDS

Combined biosolids generated from the Tres Rios is analyzed for Total Nitrogen. Table 4 displays the analyses results of samples collected from the combined biosolids generated from both reclamation facilities.

TABLE 4 - 2019 Summary Nitrogen Concentration, Units mg/Kg

Rule 18 Chapter 9 Article 10 Section 1007

	Ammonia Nitrogen	Nitrite	Total Nitrogen	Organic Nitrogen	Total Kjeldahl Nitrogen
Analysis Method	EPA 350.1	SM4500-NO2	Calculated	Calculated	EPA 351.2
Mean	9,569	3.6	71,721	62,146	71,715
Max	25,200	9.1	82,941	74,967	82,937
Min	6,510	1.9	64,245	55,128	64,241

TABLE 5 – MONTHLY NITROGEN CONCENTRATION IN THE BIOSOLIDS, mg/Kg; 2019

YEAR 2019	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec
Ammonia Nitrogen	7,970	9,310	10,900	84,40	25,200	7,140	10700	7,480	6,510	6,510	6,850	7,820
Organic Nitrogen	74,967	62,314	59,859	65,168	55,325	61,472	55,128	62,703	59,522	61,284	71,587	56,421
Nitrite	4.31	4.83	2.35	2.76	2.32	9.14	4.47	2.02	3.07	3.95	1.9	1.99
Total Kjeldahl Nitrogen	82,937	71,624	70,759	73,608	80,525	68,612	65,828	70,183	66,032	67,794	78,437	64,241
Nitrogen, Total	82,941	71,626	70,762	73,621	80,528	68,614	65,831	70,187	66,045	67,806	78,440	64,245

TABLE 6 - 2017 BIOSOLIDS METALS CONCENTRATION, UNITS mg/Kg

METALS IN BIOSOLIDS PRODUCED AT PIMA COUNTY RBMF, 2019

	As	Cd	Cr	Cu	Pb	Hg	Mo	Ni	Se	Zn
Regulatory Requirement, [mg/kg]										
40 CFR, 503.13 Table 1	75	85	3000	4300	840	57	75	420	100	7500
40 CFR, 503.13 Table 3	41	39	N/A *(a)*	1500	300	17	N/A	420	100	2800
R18-9-1005, Table 1	75	85	3000	4300	840	57	75	420	100	7500
R18-9-1005, Table 2	41	39	N/A	1500	300	17	N/A	420	100	2800
Compilation Code *(b)*	12 / 0 / 0	12 / 0 / 0	12 / 0 / 0	12 / 0 / 0	12 / 0 / 0	12 / 0 / 0	12 / 0 / 0	12 / 0 / 0	12 / 0 / 0	12 / 0 / 0
Measured Concentration, [mg/kg]										
	As	**Cd**	**Cr**	**Cu**	**Pb**	**Hg**	**Mo**	**Ni**	**Se**	**Zn**
January-2019	10.8	< 4.3	30	365	13.2	0.76	13.2	21.2	< 21.6	3.46
February-2019	< 11.4	< 4.3	31.6	351	< 12.5	0.75	13.3	26.6	< 21.3	5.1
March-2019	< 8.5	< 3.4	30	314	< 8.50	0.52	12.7	19.9	< 18.8	3.06
April-2019	< 9.5	< 3.8	30.1	351	13	0.72	13.2	21.4	< 35.4	3
May-2019	< 25.8	< 10.3	31.6	358	< 25.80	0.81	13.8	< 25.8	< 23.4	3.09
June-2019	< 11.7	< 4.7	32.4	377	< 11.70	0.79	15.3	21	< 18.9	3.19
July-2019	< 10.8	< 3.6	32.5	406	< 9.8	0.87	16.3	26.1	< 16.2	3.7
August-2019	7.99	< 3.2	33.1	412	13	0.68	19.5	25.9	< 16.3	2.43
September-2019	15.4	< 3.3	35.1	410	14.2	0.81	16	22.1	< 23.9	2.48
October-2019	< 10.3	< 4.0	32.3	412	14.5	0.64	16	22.2	< 16.8	2.6
November-2019	11.3	< 3.6	32.6	374	18	0.68	15.4	20.3	< 18.6	1.06
December-2019	< 9.3	< 3.7	30.4	360	< 9.30	0.59	14.4	20.9	< 17.1	2.25
ANNUAL AVERAGE	**< 12.1**	**< 4.3**	**31.8**	**374**	**< 13.6**	**0.7**	**14.9**	**22.8**	**< 20.7**	**2.9**
ANNUAL MAXIMUM	**< 25.8**	**< 10.3**	**35.1**	**412**	**< 25.8**	**0.9**	**19.5**	**26.6**	**< 35.4**	**5.1**
	As	**Cd**	**Cr**	**Cu**	**Pb**	**Hg**	**Mo**	**Ni**	**Se**	**Zn**

TABLE 7 - DIGESTER OPERATING PARAMETERS, 2019

OPERATING PARAMETERS (c) OF DIGESTERS AT TRES RIOS WRF, 2019

	VOLATILE SOLIDS REDUCTION (%)			DETENTION TIME (Days)			TEMPERATURE (°C)		
Regulatory Requirements	**38%, (d)**			**15 Days, (e)**			**35 - 55 (°C), (e)**		
Measured Parameters	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min
Digester #1	53	50	44	30	28	24	37.1	36.3	35.1
Digester #2	55	50	44	33	28	25	37.2	36.5	35.2
Digester #3	53	49	44	33	28	22	37.3	36.6	35.4
Digester #4	60	51	47	31	27	23	37.2	36.6	35.5
Digester #5	53	49	41	43	36	27	37.1	36.7	36.3
Digester #6	53	49	44	33	28	24	36.7	36.6	36.3

(a) N/A means Not Applicable

(b) The data compilation code represents: Number of samples / number of samples above R18-9-1005, Table 1 / number of samples above R18-9-1005, Table 2

The data compilation code represents: Number of samples / number of samples above 40 CFR, 503.13 Table 1 / number of samples above 40 CFR, 503.13 Table 3

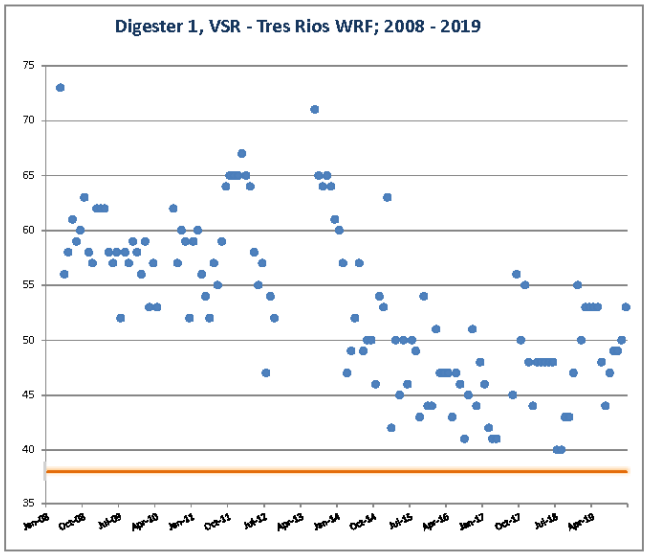
(c) Summary statistics derived from the monthly average results presented in this report

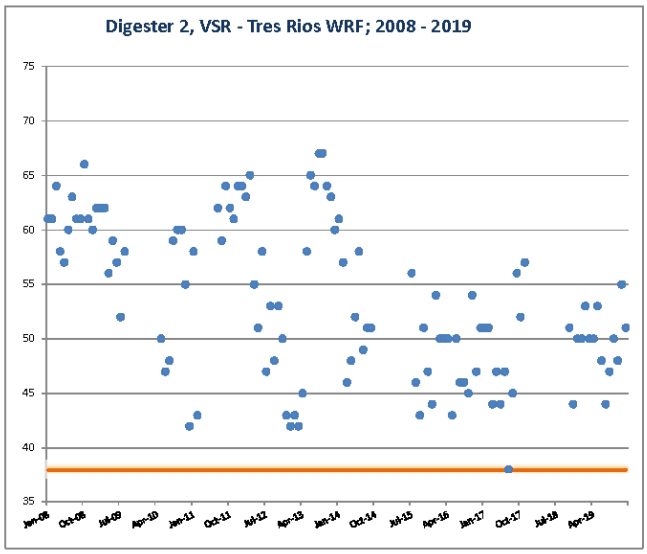
(d) R18-9-1010-A.1; 40 CFR 503.33(b)(1)

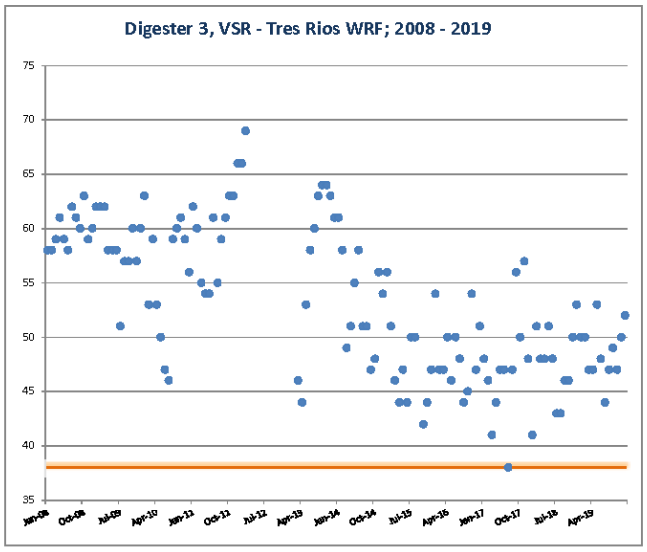
(e) R18-9-1006-E Alternative 5; 40 CFR 503.32(b)(3) Appendix B, No. 3

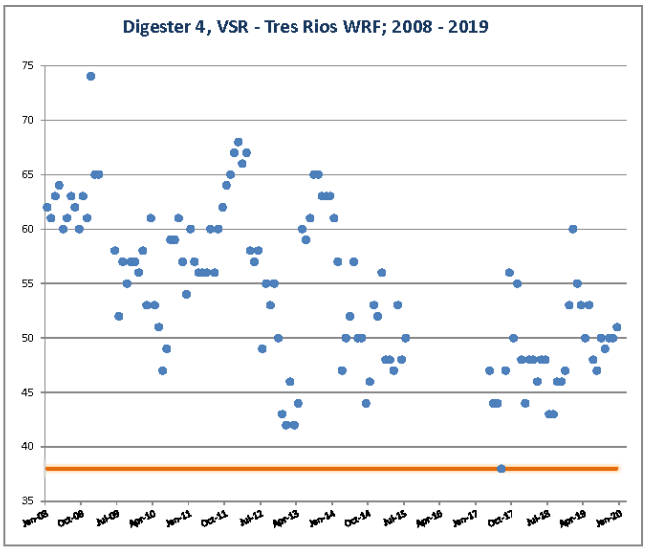
(f) O/S – Out of Service, Cleaning and Repair

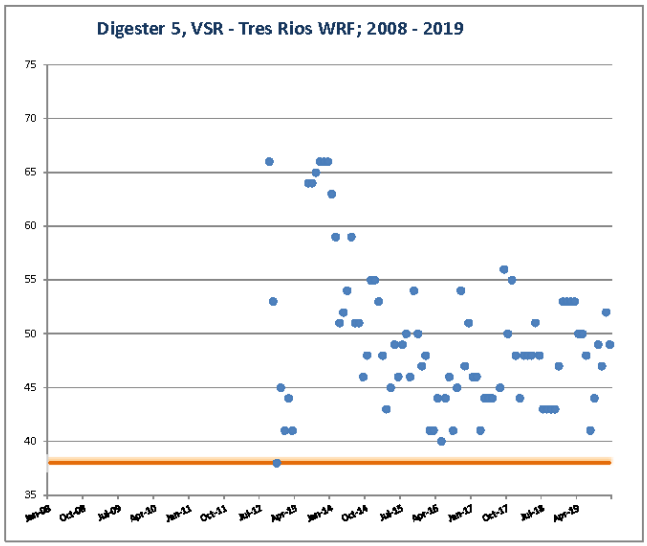
VOLATILE SOLIDS REDUCTION, DIGESTERS
TRES RIOS WRF; 2008 - 2019

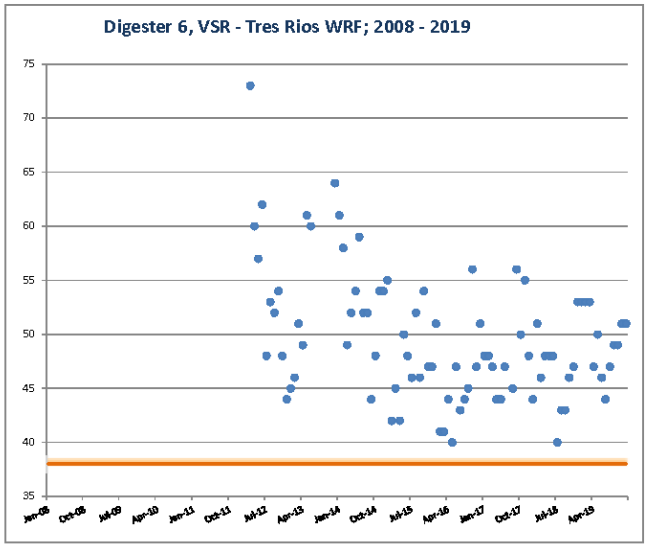




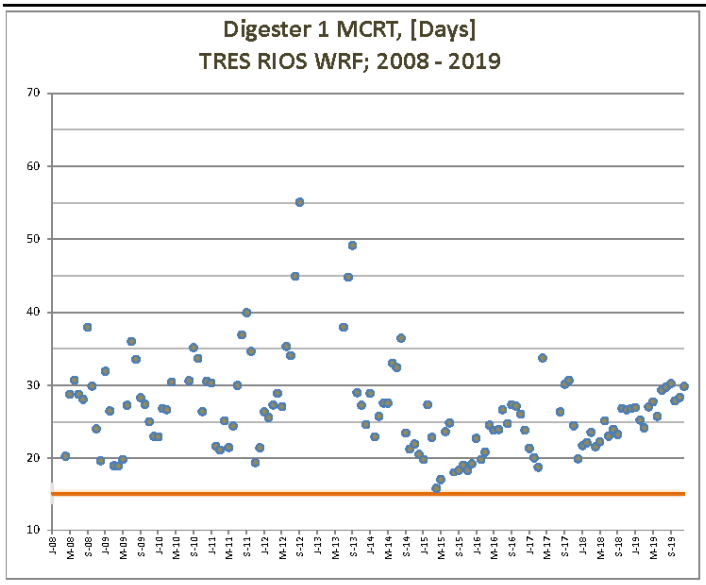


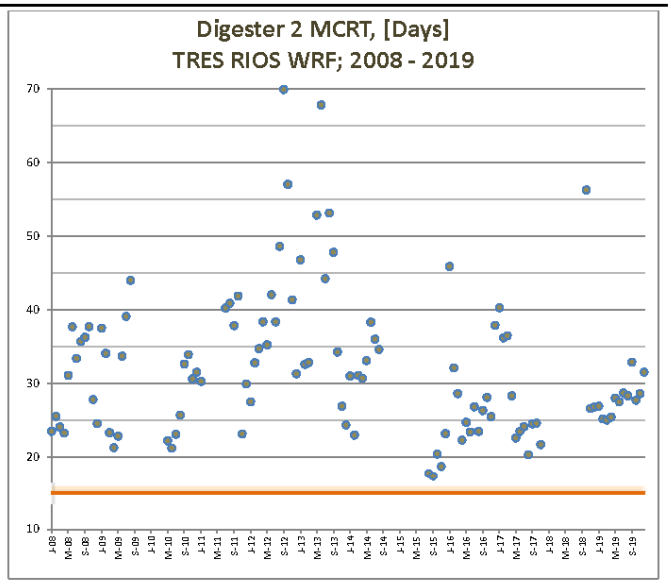


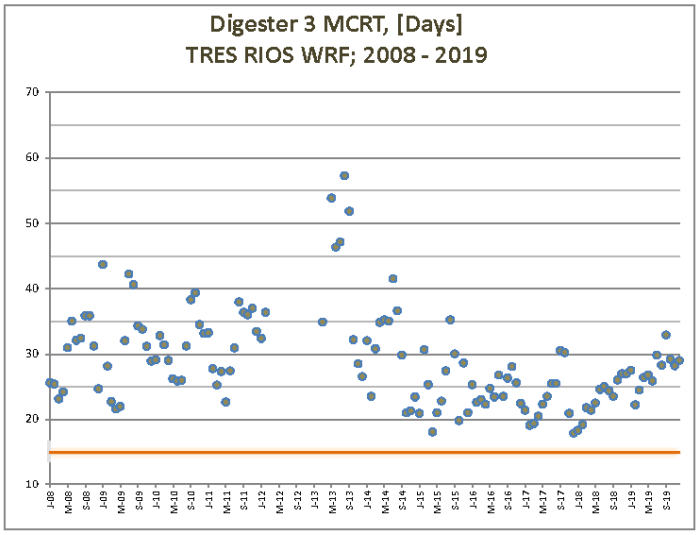


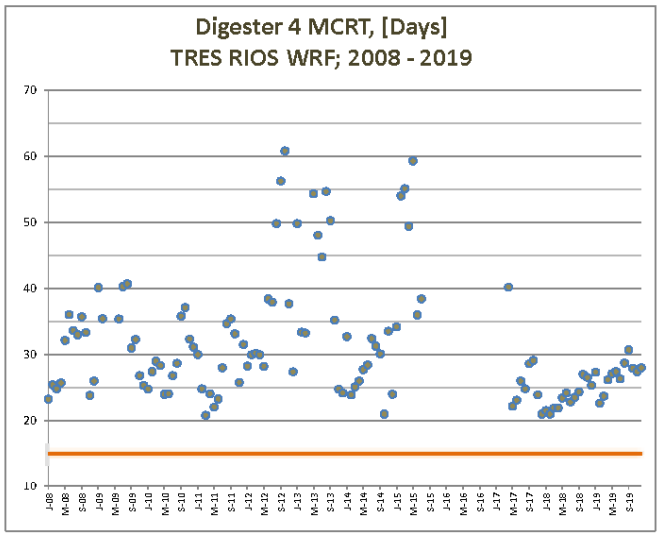


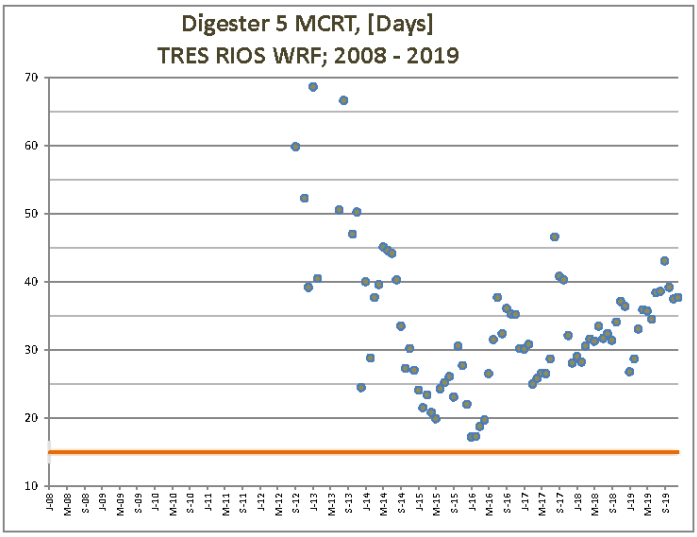
SLUDGE RETENTION [DAYS], DIGESTERS
TRES RIOS WRF; 2008 - 2019

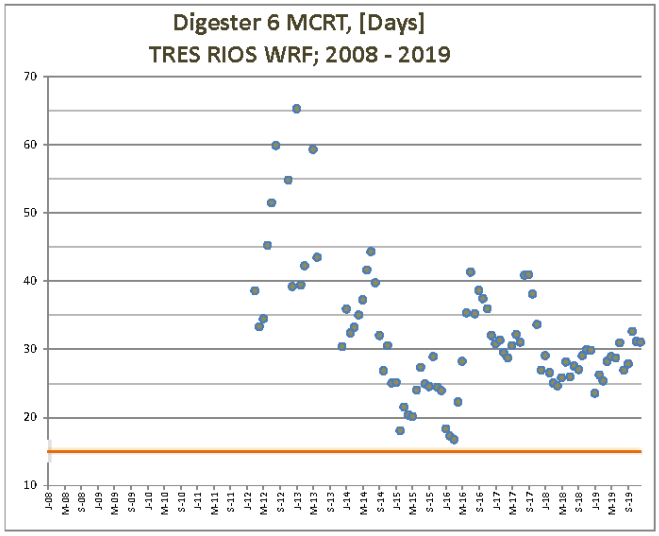




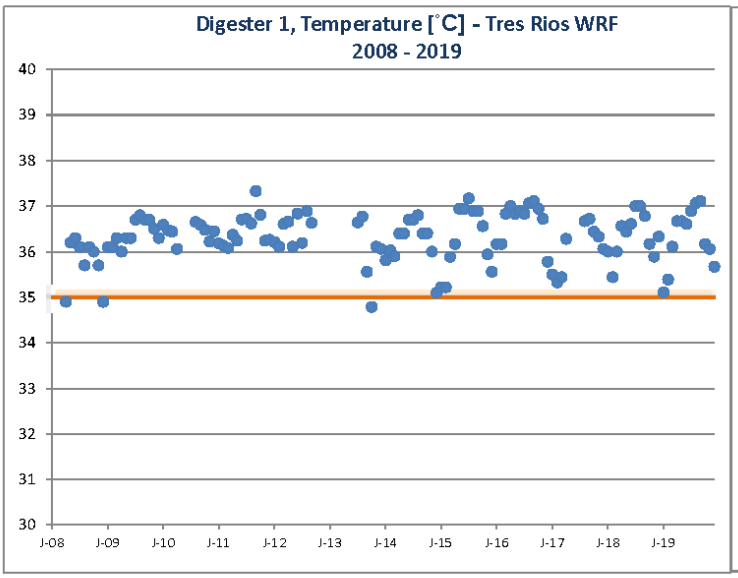


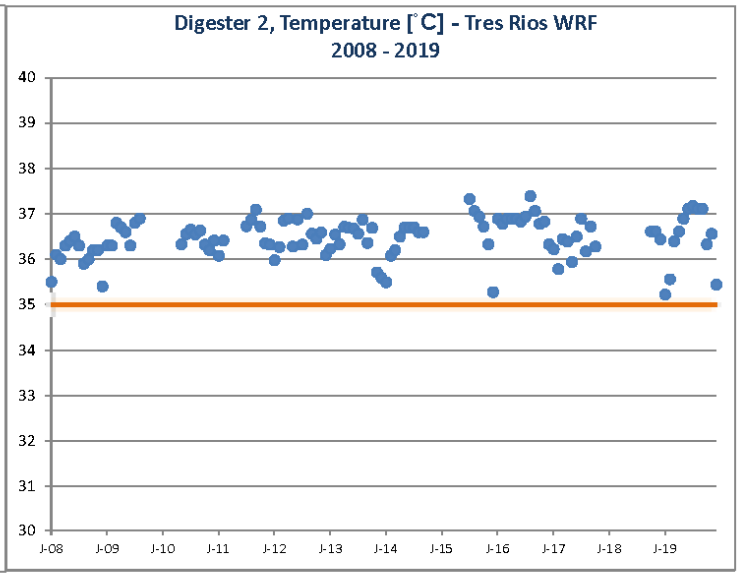


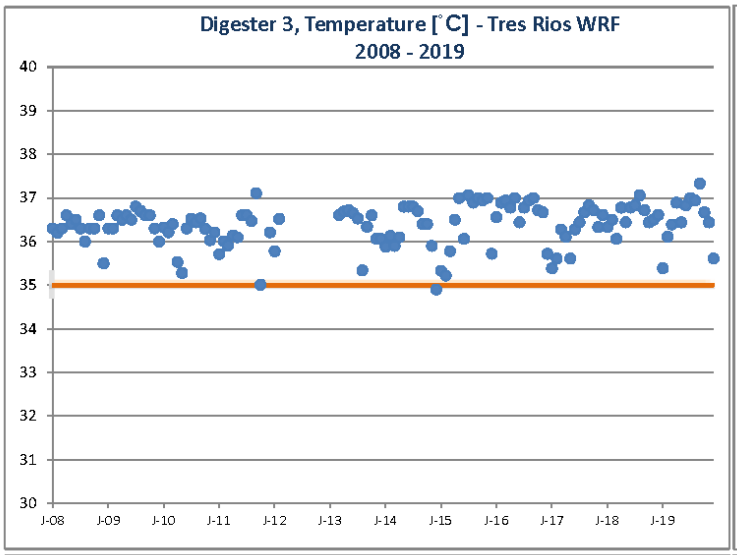


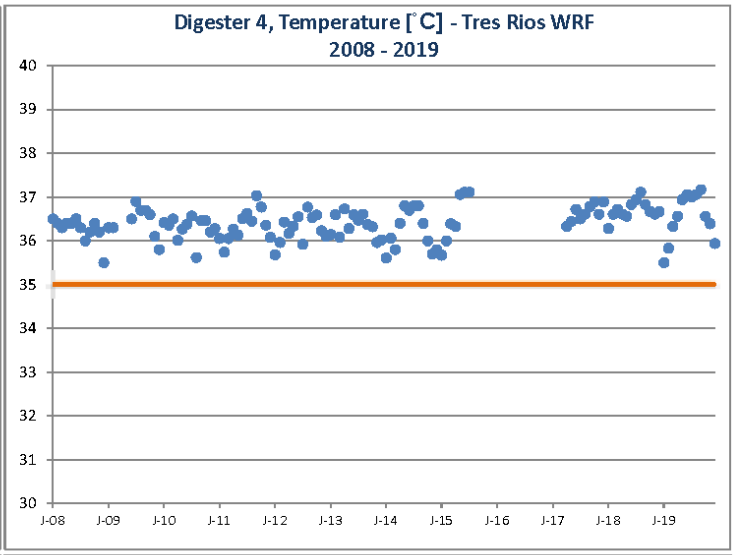


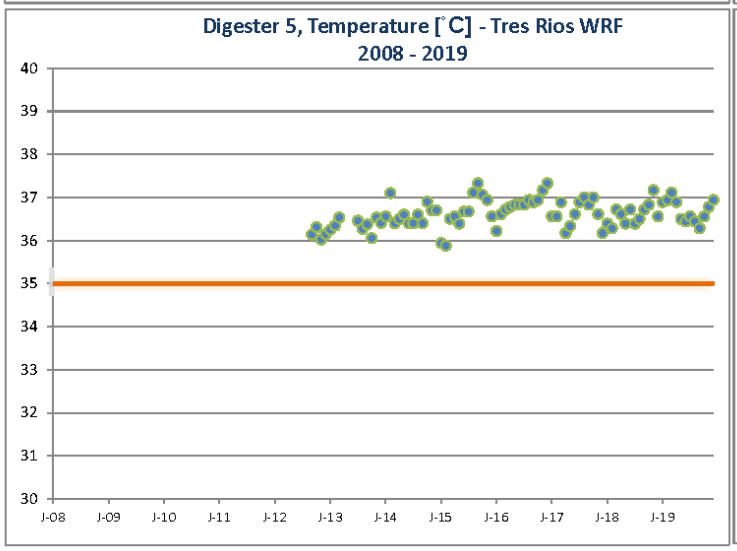
TEMPERATURE [°C], DIGESTERS; 2008 - 2019
TRES RIOS WRF; PIMA COUNTY RWRD - PIMA COUNTY, ARIZONA

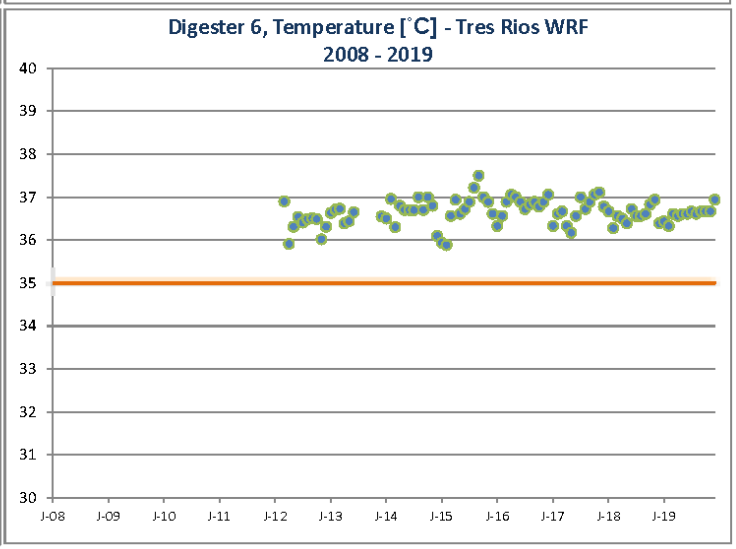


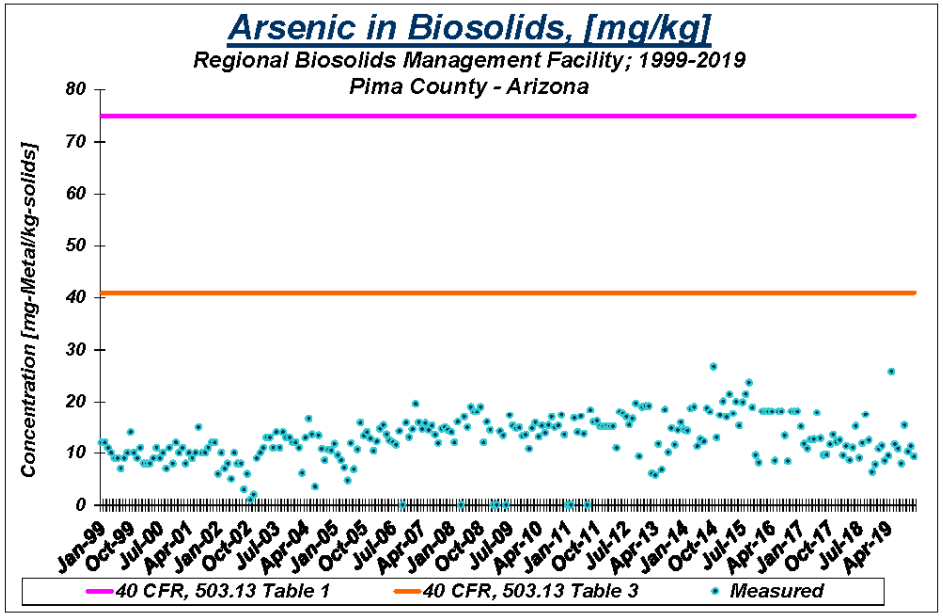


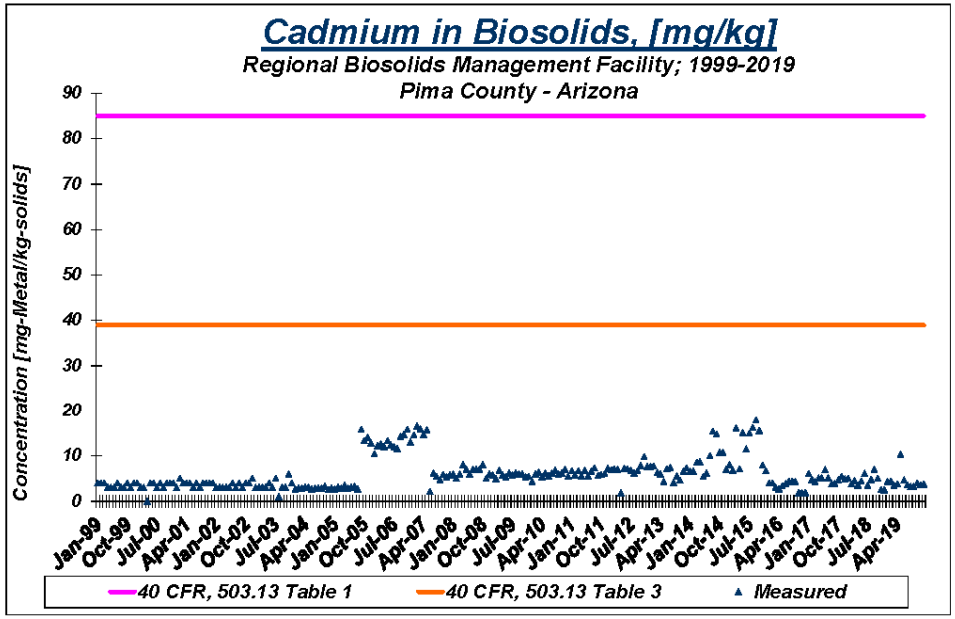


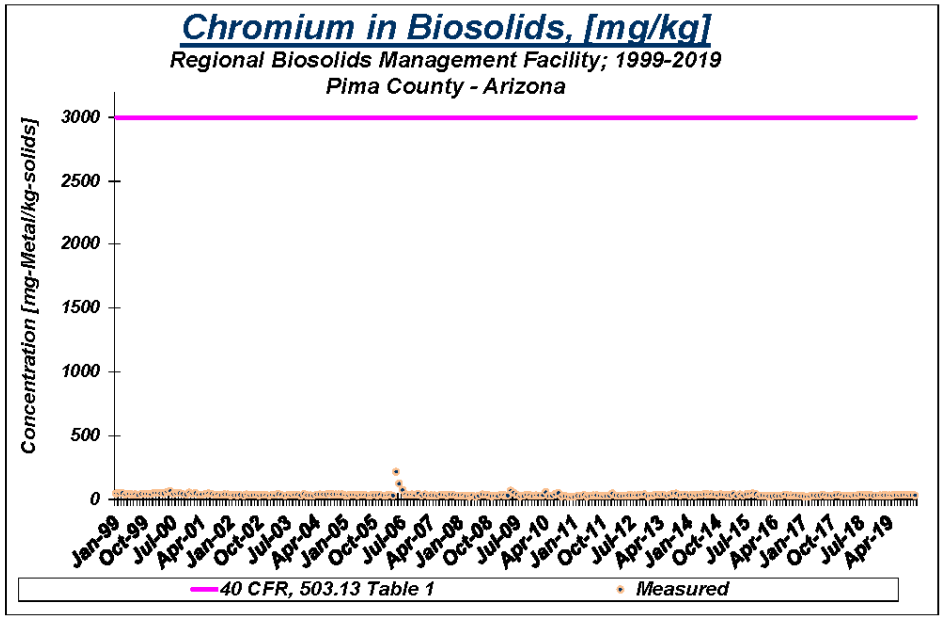


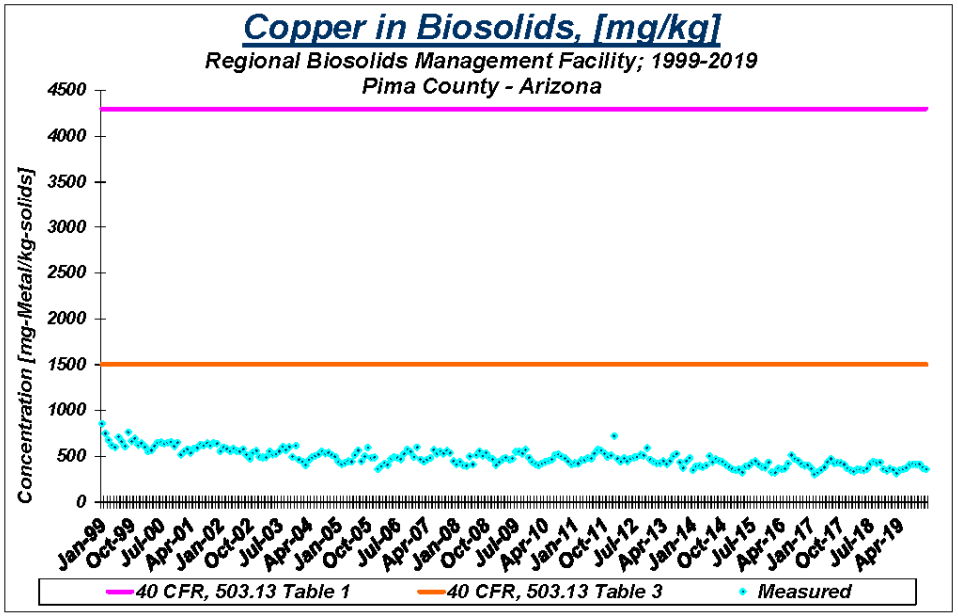


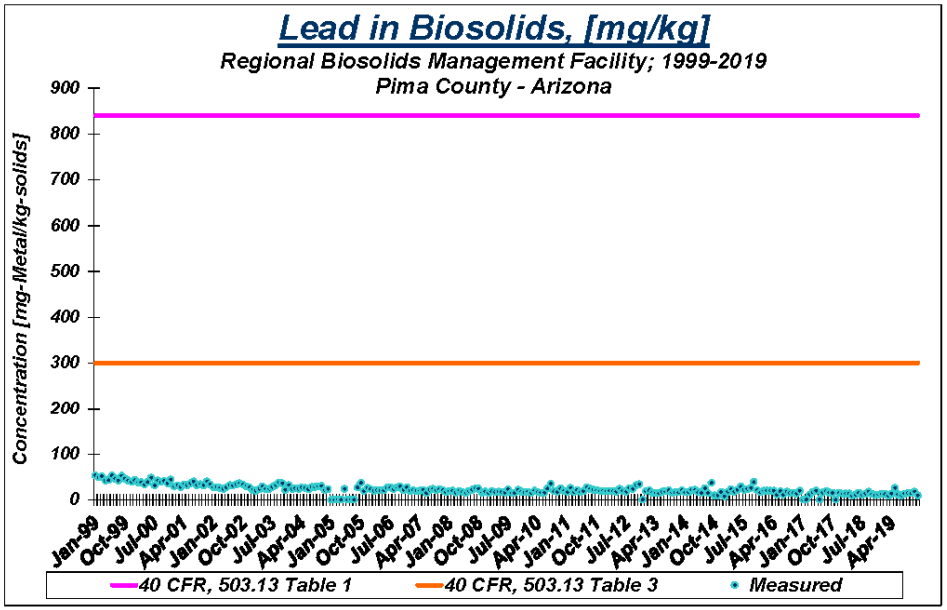


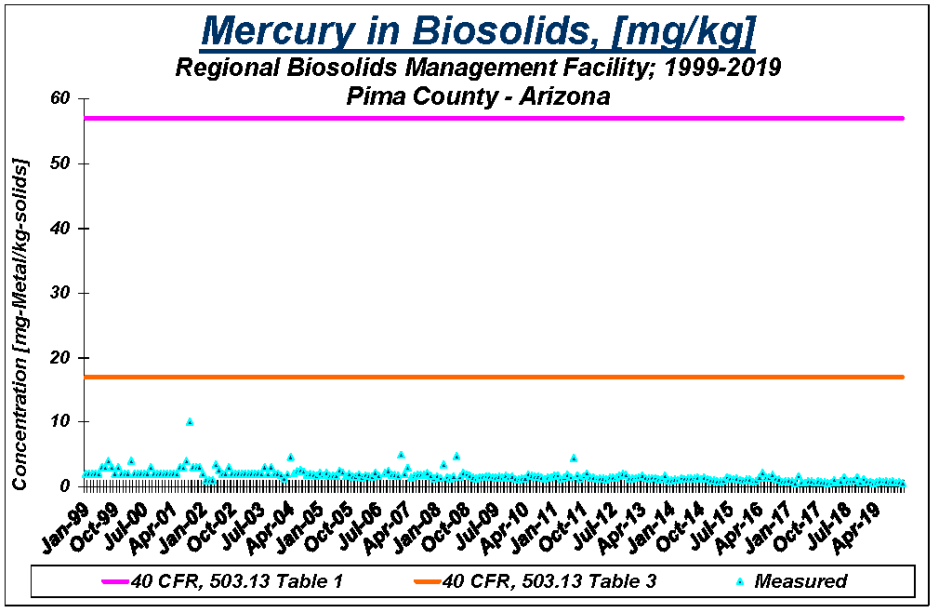

Arsenic in Biosolids, [mg/kg]
Regional Biosolids Management Facility; 1999-2019
Pima County - Arizona
Concentration [mg-Metal/kg-solids]
40 CFR, 503.13 Table 1
40 CFR, 503.13 Table 3
Measured

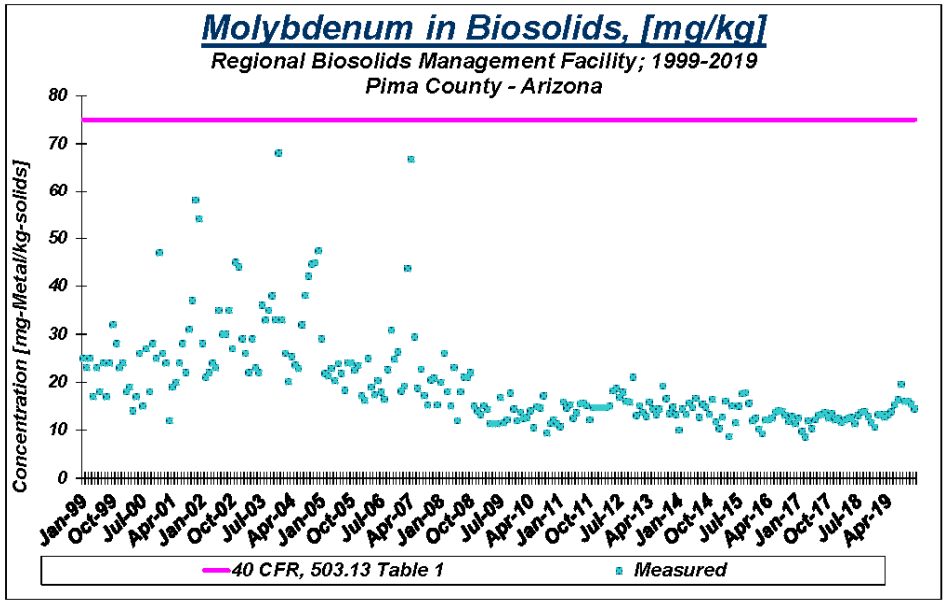

Cadmium in Biosolids, [mg/kg]
Regional Biosolids Management Facility; 1999-2019
Pima County - Arizona
Concentration [mg-Metal/kg-solids]
40 CFR, 503.13 Table 1
40 CFR, 503.13 Table 3
Measured

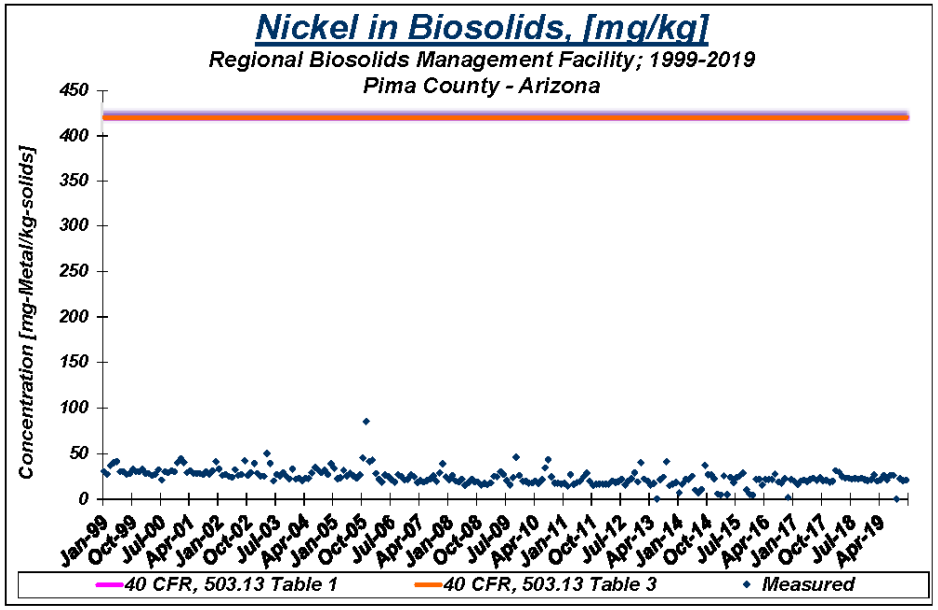

Chromium in Biosolids, [mg/kg]
Regional Biosolids Management Facility; 1999-2019
Pima County - Arizona
Concentration [mg-Metal/kg-solids]
40 CFR, 503.13 Table 1
Measured

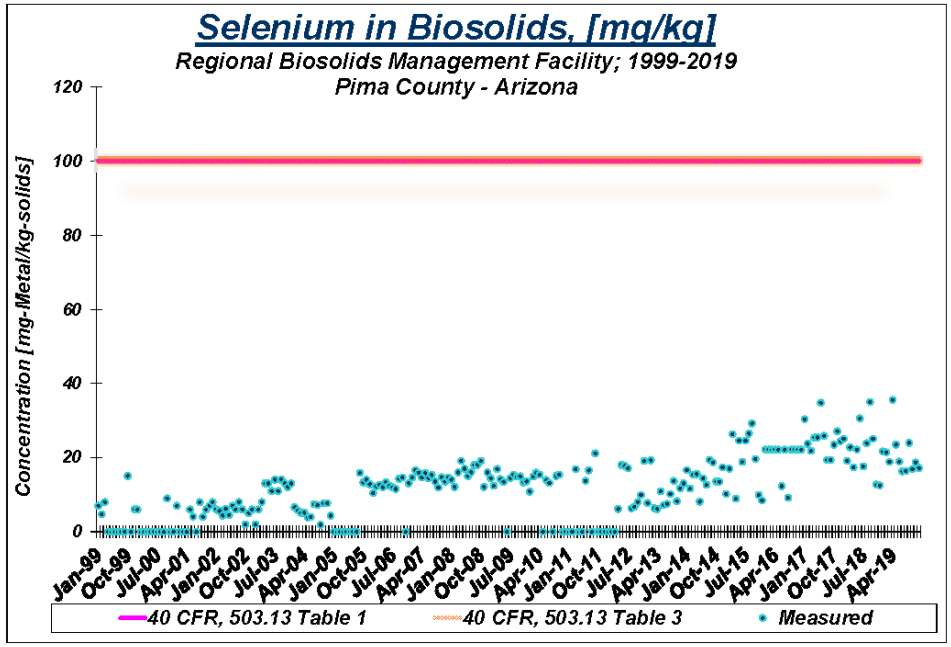

Copper in Biosolids, [mg/kg]
Regional Biosolids Management Facility; 1999-2019
Pima County - Arizona
Concentration [mg-Metal/kg-solids]
40 CFR, 503.13 Table 1
40 CFR, 503.13 Table 3
Measured


Lead in Biosolids, [mg/kg]
Regional Biosolids Management Facility; 1999-2019
Pima County - Arizona
Concentration [mg-Metal/kg-solids]
40 CFR, 503.13 Table 1
40 CFR, 503.13 Table 3
Measured


Mercury in Biosolids, [mg/kg]
Regional Biosolids Management Facility; 1999-2019
Pima County - Arizona
Concentration [mg-Metal/kg-solids]
40 CFR, 503.13 Table 1
40 CFR, 503.13 Table 3
Measured


Molybdenum in Biosolids, [mg/kg]
Regional Biosolids Management Facility; 1999-2019
Pima County - Arizona
Concentration [mg-Metal/kg-solids]
40 CFR, 503.13 Table 1
Measured


Nickel in Biosolids, [mg/kg]
Regional Biosolids Management Facility; 1999-2019
Pima County - Arizona
Concentration [mg-Metal/kg-solids]
40 CFR, 503.13 Table 1
40 CFR, 503.13 Table 3
Measured


Selenium in Biosolids, [mg/kg]
Regional Biosolids Management Facility; 1999-2019
Pima County - Arizona
Concentration [mg-Metal/kg-solids]
120
100
80
60
40
20
0
Jan-99
Oct-99
Jul-00
Apr-01
Jan-02
Oct-02
Jul-03
Apr-04
Jan-05
Oct-05
Jul-06
Apr-07
Jan-08
Oct-08
Jul-09
Apr-10
Jan-11
Oct-11
Jul-12
Apr-13
Jan-14
Oct-14
Jul-15
Apr-16
Jan-17
Oct-17
Jul-18
Apr-19
40 CFR, 503.13 Table 1
40 CFR, 503.13 Table 3
Measured

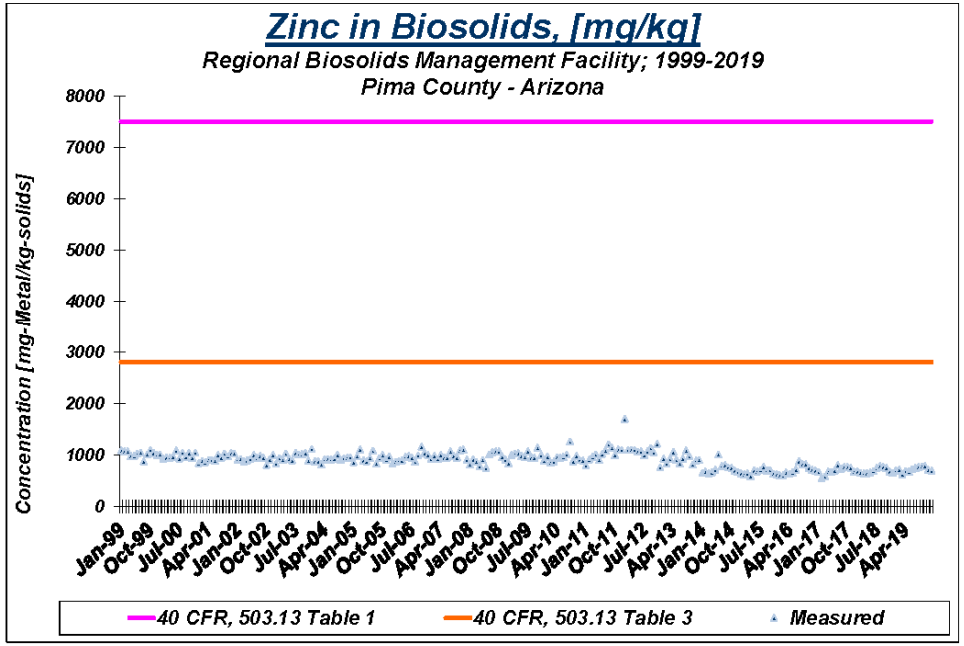

Zinc in Biosolids, [mg/kg]
Regional Biosolids Management Facility; 1999-2019
Pima County - Arizona
Concentration [mg-Metal/kg-solids]
8000
7000
6000
5000
4000
3000
2000
1000
0
Jan-99
Oct-99
Jul-00
Apr-01
Jan-02
Oct-02
Jul-03
Apr-04
Jan-05
Oct-05
Jul-06
Apr-07
Jan-08
Oct-08
Jul-09
Apr-10
Jan-11
Oct-11
Jul-12
Apr-13
Jan-14
Oct-14
Jul-15
Apr-16
Jan-17
Oct-17
Jul-18
Apr-19
40 CFR, 503.13 Table 1
40 CFR, 503.13 Table 3
Measured

TABLE 8 - LAND APPLICATION POLLUTANT LIMITS

1. Name and Address of Facility:
Regional Biosolids Management Facility
7101 North Casa Grande Highway, Tucson, Arizona 85743-9577

2. Name and Address of Facility Owner:
Pima County Regional Wastewater Reclamation Department
201 North Stone, Tucson, Arizona 85701

3. Monitoring Period: January 1, 2019 through January 31, 2019
Facility Contact: F. Jeff Prevatt, Deputy Director
Phone: (520) 724-6060

4. AZPDES Permit Number: AZ0020001
5. Sludge Permit Number: N/A

Parameter	Regulatory Requirement		Pollutant Concentration (dry weight) Average		Units	Frequency of	Sample Type (Discrete or	Analytical Method
Arsenic	R18-9-1005	Sample	<10.80		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	75	41	mg/kg	1/60 days		
Cadmium	R18-9-1005	Sample	<4.32		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	85	39	mg/kg	1/60 days		
Chromium	R18-9-1005	Sample	30.0		mg/kg	1/31 days	Composite	EPA 6010D
		Table 1	3000		mg/kg	1/60 days		
Copper	R18-9-1005	Sample	365		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	4300	1500	mg/kg	1/60 days		
Lead	R18-9-1005	Sample	13.2		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	840	300	mg/kg	1/60 days		
Mercury	R18-9-1005	Sample	0.76		mg/kg	1/31 days	Composite	EPA 7471B
	40 CFR 503.13	Table / Table 2	57	17	mg/kg	1/60 days		
Molybdenum	R18-9-1005	Sample	13.2		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1	75		mg/kg	1/60 days		
Nickel	R18-9-1005	Sample	21.2		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	420	420	mg/kg	1/60 days		
Selenium	R18-9-1005	Sample	<21.60		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	100	100	mg/kg	1/60 days		
Zinc	R18-9-1005	Sample	705		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	7500	3000	mg/kg	1/60 days		

R18-9-1005 Table 2 is equivalent to 40 CFR 503.13 Table 3

6. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information submitted, it is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Name and Official Title (type or print) F. Jeff Prevatt, Deputy Director	Area Code and Phone (520) 724-6100
Signature	Date Signed 02/18/2020

TABLE 9 - LAND APPLICATION POLLUTANT LIMITS

1. Name and Address of Facility:
Regional Biosolids Management Facility
7101 North Casa Grande Highway, Tucson, Arizona 85743-9577

2. Name and Address of Facility Owner:
Pima County Regional Wastewater Reclamation Department
201 North Stone, Tucson, Arizona 85701

3. Monitoring Period: February 1, 2019 through February 28, 2019
Facility Contact: F. Jeff Prevatt, Deputy Director
Phone: (520) 724-6060

4. AZPDES Permit Number: AZ0020001
5. Sludge Permit Number: N/A

Parameter	Regulatory Requirement		Pollutant Concentration (dry weight) Average		Units	Frequency of	Sample Type (Discrete or	Analytical Method
Arsenic	R18-9-1005	Sample	12.3		mg/kg	1/28 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	75	41	mg/kg	1/60 days		
Cadmium	R18-9-1005	Sample	<4.29		mg/kg	1/28 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	85	39	mg/kg	1/60 days		
Chromium	R18-9-1005	Sample	33.3		mg/kg	1/28 days	Composite	EPA 6010D
		Table 1	3000		mg/kg	1/60 days		
Copper	R18-9-1005	Sample	371		mg/kg	1/28 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	4300	1500	mg/kg	1/60 days		
Lead	R18-9-1005	Sample	14.5		mg/kg	1/28 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	840	300	mg/kg	1/60 days		
Mercury	R18-9-1005	Sample	0.85		mg/kg	1/28 days	Composite	EPA 7471B
	40 CFR 503.13	Table 1 / Table 2	57	17	mg/kg	1/60 days		
Molybdenum	R18-9-1005	Sample	14.3		mg/kg	1/28 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1	75		mg/kg	1/60 days		
Nickel	R18-9-1005	Sample	31.8		mg/kg	1/28 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	420	420	mg/kg	1/60 days		
Selenium	R18-9-1005	Sample	<21.47		mg/kg	1/28 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	100	100	mg/kg	1/60 days		
Zinc	R18-9-1005	Sample	759		mg/kg	1/28 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	7500	3000	mg/kg	1/60 days		

R18-9-1005 Table 2 is equivalent to 40 CFR 503.13 Table 3

6. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information submitted, it is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Name and Official Title (type or print) F. Jeff Prevatt, Deputy Director	Area Code and Phone (520) 724-6100
Signature	Date Signed 02/18/2020

TABLE 10 - LAND APPLI[illegible]ION POLLUTANT LIMITS

1. Name and Address of Facility:
Regional Biosolids Management Facility
7101 North Casa Grande Highway, Tucson, Arizona 85743-9577

2. Name and Address of Facility Owner:
Pima County Regional Wastewater Reclamation Department
201 North Stone, Tucson, Arizona 85701

3. Monitoring Period: March 1, 2019 through March 31, 2019
Facility Contact: F. Jeff Prevatt, Deputy Director
Phone: (520) 724-6060

4. AZPDES Permit Number: AZ0020001
5. Sludge Permit Number: N/A

Parameter	Regulatory Requireme		Pollutant Concentration (dry weight) Average		Units	Frequency of	Sample Type (Discrete or	Analytical Method
Arsenic	R18-9-1005	Sample	<8.52		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	75	41	mg/kg	1/60 days		
Cadmium	R18-9-1005	Sample	<3.41		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	85	39	mg/kg	1/60 days		
Chromium	R18-9-1005	Sample	30.0		mg/kg	1/31 days	Composite	EPA 6010D
		Table 1	3000		mg/kg	1/60 days		
Copper	R18-9-1005	Sample	314		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	4300	1500	mg/kg	1/60 days		
Lead	R18-9-1005	Sample	<8.52		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	840	300	mg/kg	1/60 days		
Mercury	R18-9-1005	Sample	0.52		mg/kg	1/31 days	Composite	EPA 7471B
	40 CFR 503.13	Table / Table 2	57	17	mg/kg	1/60 days		
Molybdenum	R18-9-1005	Sample	12.7		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1	75		mg/kg	1/60 days		
Nickel	R18-9-1005	Sample	19.9		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	420	420	mg/kg	1/60 days		
Selenium	R18-9-1005	Sample	<17.05		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	100	100	mg/kg	1/60 days		
Zinc	R18-9-1005	Sample	630		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	7500	3000	mg/kg	1/60 days		

R18-9-1005 Table 2 is equivalent to 40 CFR 503.13 Table 3

6. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information submitted, it is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Name and Official Title (type or print) F. Jeff Prevatt, Deputy Director	Area Code and Phone (520) 724-6060
Signature	Date Signed 02/18/2020

TABLE 11 - LAND APPLI[illegible]ION POLLUTANT LIMITS

1. Name and Address of Facility:
Regional Biosolids Management Facility
7101 North Casa Grande Highway, Tucson, Arizona 85743-9577

2. Name and Address of Facility Owner:
Pima County Regional Wastewater Reclamation Department
201 North Stone, Tucson, Arizona 85701

3. Monitoring Period: April 1, 2019 through April 30, 2019
Facility Contact: F. Jeff Prevatt, Deputy Director
Phone: (520) 724-6060

4. AZPDES Permit Number: AZ0020001
5. Sludge Permit Number: N/A

Parameter	Regulatory Requireme		Pollutant Concentration (dry weight) Average		Units	Frequency of	Sample Type (Discrete or	Analytical Method
Arsenic	R18-9-1005 40 CFR 503.13	Sample	<9.38		mg/kg	1/30 days	Composite	EPA 6010D
		Table	Table 2	75 / 41	mg/kg	1/60 days		
Cadmium	R18-9-1005 40 CFR 503.13	Sample	<3.75		mg/kg	1/30 days	Composite	EPA 6010D
		Table 1	Table 2	85 / 39	mg/kg	1/60 days		
Chromium	R18-9-1005	Sample	31.1		mg/kg	1/30 days	Composite	EPA 6010D
		Table 1		3000	mg/kg	1/60 days		
Copper	R18-9-1005 40 CFR 503.13	Sample	354		mg/kg	1/30 days	Composite	EPA 6010D
		Table	Table 2	4300 / 1500	mg/kg	1/60 days		
Lead	R18-9-1005 40 CFR 503.13	Sample	14.7		mg/kg	1/30 days	Composite	EPA 6010D
		Table	Table 2	840 / 300	mg/kg	1/60 days		
Mercury	R18-9-1005 40 CFR 503.13	Sample	0.60		mg/kg	1/30 days	Composite	EPA 7471B
		Table	Table 2	57 / 17	mg/kg	1/60 days		
Molybdenum	R18-9-1005 40 CFR 503.13	Sample	13.3		mg/kg	1/30 days	Composite	EPA 6010D
		Table 1		75	mg/kg	1/60 days		
Nickel	R18-9-1005 40 CFR 503.13	Sample	22.3		mg/kg	1/30 days	Composite	EPA 6010D
		Table	Table 2	420 / 420	mg/kg	1/60 days		
Selenium	R18-9-1005 40 CFR 503.13	Sample	<18.75		mg/kg	1/30 days	Composite	EPA 6010D
		Table	Table 2	100 / 100	mg/kg	1/60 days		
Zinc	R18-9-1005 40 CFR 503.13	Sample	693		mg/kg	1/30 days	Composite	EPA 6010D
		Table 1	Table 2	7500 / 3000	mg/kg	1/60 days		

R18-9-1005 Table 2 is equivalent to 40 CFR 503.13 Table 3

6. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information submitted, it is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Name and Official Title (type or print) F. Jeff Prevatt, Deputy Director	Area Code and Phone (520) 724-6060
Signature	Date Signed 02/18/2020

TABLE 12 - LAND APPLI[illegible]TION POLLUTANT LIMITS

1. Name and Address of Facility:
Regional Biosolids Management Facility
7101 North Casa Grande Highway, Tucson, Arizona 85743-9577

2. Name and Address of Facility Owner:
Pima County Regional Wastewater Reclamation Department
201 North Stone, Tucson, Arizona 85701

3. Monitoring Period: May 1, 2019 through May 31, 2019
Facility Contact: F. Jeff Prevatt, Deputy Director
Phone: (520) 724-6060

4. AZPDES Permit Number: AZ0020001
5. Sludge Permit Number: N/A

Parameter	Regulatory Requireme		Pollutant Concentration (dry weight) Average		Units	Frequency of	Sample Type (Discrete or	Analytical Method
Arsenic	R18-9-1005	Sample	<25.8		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	75	41	mg/kg	1/60 days		
Cadmium	R18-9-1005	Sample	<10.3		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	85	39	mg/kg	1/60 days		
Chromium	R18-9-1005	Sample	31.6		mg/kg	1/31 days	Composite	EPA 6010D
		Table 1	3000		mg/kg	1/60 days		
Copper	R18-9-1005	Sample	358		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	4300	1500	mg/kg	1/60 days		
Lead	R18-9-1005	Sample	<25.78		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	840	300	mg/kg	1/60 days		
Mercury	R18-9-1005	Sample	0.81		mg/kg	1/31 days	Composite	EPA 7471B
	40 CFR 503.13	Table / Table 2	57	17	mg/kg	1/60 days		
Molybdenum	R18-9-1005	Sample	13.8		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1	75		mg/kg	1/60 days		
Nickel	R18-9-1005	Sample	<25.8		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	420	420	mg/kg	1/60 days		
Selenium	R18-9-1005	Sample	<51.6		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	100	100	mg/kg	1/60 days		
Zinc	R18-9-1005	Sample	680		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	7500	3000	mg/kg	1/60 days		

R18-9-1005 Table 2 is equivalent to 40 CFR 503.13 Table 3

6. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information submitted, it is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Name and Official Title (type or print) F. Jeff Prevatt, Deputy Director	Area Code and Phone (520) 724-6060
Signature	Date Signed 02/18/2020

TABLE 13 - LAND APPLI[illegible]ION POLLUTANT LIMITS

1. Name and Address of Facility:
Regional Biosolids Management Facility
7101 North Casa Grande Highway, Tucson, Arizona 85743-9577

2. Name and Address of Facility Owner:
Pima County Regional Wastewater Reclamation Department
201 North Stone, Tucson, Arizona 85701

3. Monitoring Period: June 1, 2019 through June 30, 2019
Facility Contact: F. Jeff Prevatt, Deputy Director
Phone: (520) 724-6060

4. AZPDES Permit Number: AZ0020001
5. Sludge Permit Number: N/A

Parameter	Regulatory Requireme		Pollutant Concentration (dry weight) Average		Units	Frequency of	Sample Type (Discrete or	Analytical Method
Arsenic	R18-9-1005	Sample	<11.68		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	75	41	mg/kg	1/60 days		
Cadmium	R18-9-1005	Sample	<4.67		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	85	39	mg/kg	1/60 days		
Chromium	R18-9-1005	Sample	32.4		mg/kg	1/30 days	Composite	EPA 6010D
		Table 1	3000		mg/kg	1/60 days		
Copper	R18-9-1005	Sample	377		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	4300	1500	mg/kg	1/60 days		
Lead	R18-9-1005	Sample	<11.68		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	840	300	mg/kg	1/60 days		
Mercury	R18-9-1005	Sample	0.79		mg/kg	1/30 days	Composite	EPA 7471B
	40 CFR 503.13	Table 1 / Table 2	57	17	mg/kg	1/60 days		
Molybdenum	R18-9-1005	Sample	15.3		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1	75		mg/kg	1/60 days		
Nickel	R18-9-1005	Sample	21.0		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	420	420	mg/kg	1/60 days		
Selenium	R18-9-1005	Sample	<23.36		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	100	100	mg/kg	1/60 days		
Zinc	R18-9-1005	Sample	727		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	7500	3000	mg/kg	1/60 days		

R18-9-1005 Table 2 is equivalent to 40 CFR 503.13 Table 3

6. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information submitted, it is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Name and Official Title (type or print) F. Jeff Prevatt, Deputy Director	Area Code and Phone (520) 724-6060
Signature	Date Signed 02/18/2020

TABLE 14 - LAND APPLICATION POLLUTANT LIMITS

1. Name and Address of Facility:
Regional Biosolids Management Facility
7101 North Casa Grande Highway, Tucson, Arizona 85743-9577

2. Name and Address of Facility Owner:
Pima County Regional Wastewater Reclamation Department
201 North Stone, Tucson, Arizona 85701

3. Monitoring Period: July 1, 2019 through July 31, 2019
Facility Contact: F. Jeff Prevatt, Deputy Director
Phone: (520) 724-6060

4. AZPDES Permit Number: AZ0020001
5. Sludge Permit Number: N/A

Parameter	Regulatory Requirement		Pollutant Concentration (dry weight) Average		Units	Frequency of	Sample Type (Discrete or	Analytical Method
Arsenic	R18-9-1005	Sample	10.6		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	75	41	mg/kg	1/60 days		
Cadmium	R18-9-1005	Sample	<3.78		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	85	39	mg/kg	1/60 days		
Chromium	R18-9-1005	Sample	33.0		mg/kg	1/31 days	Composite	EPA 6010D
		Table 1	3000		mg/kg	1/60 days		
Copper	R18-9-1005	Sample	409		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	4300	1500	mg/kg	1/60 days		
Lead	R18-9-1005	Sample	<9.44		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	840	300	mg/kg	1/60 days		
Mercury	R18-9-1005	Sample	0.74		mg/kg	1/31 days	Composite	EPA 7471B
	40 CFR 503.13	Table / Table 2	57	17	mg/kg	1/60 days		
Molybdenum	R18-9-1005	Sample	16.1		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1	75		mg/kg	1/60 days		
Nickel	R18-9-1005	Sample	26.2		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	420	420	mg/kg	1/60 days		
Selenium	R18-9-1005	Sample	<18.88		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	100	100	mg/kg	1/60 days		
Zinc	R18-9-1005	Sample	764		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	7500	3000	mg/kg	1/60 days		

R18-9-1005 Table 2 is equivalent to 40 CFR 503.13 Table 3

6. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information submitted, it is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Name and Official Title (type or print) F. Jeff Prevatt, Deputy Director	Area Code and Phone (520) 724-6060
Signature	Date Signed 02/18/2020

TABLE 15 - LAND APPLICATION POLLUTANT LIMITS

1. Name and Address of Facility:
Regional Biosolids Management Facility
7101 North Casa Grande Highway, Tucson, Arizona 85743-9577

2. Name and Address of Facility Owner:
Pima County Regional Wastewater Reclamation Department
201 North Stone, Tucson, Arizona 85701

3. Monitoring Period: August 1, 2019 through August 31, 2019
Facility Contact: F. Jeff Prevatt, Deputy Director
Phone: (520) 724-6060

4. AZPDES Permit Number: AZ0020001
5. Sludge Permit Number: N/A

Parameter	Regulatory Requirement		Pollutant Concentration (dry weight) Average		Units	Frequency of	Sample Type (Discrete or	Analytical Method
Arsenic	R18-9-1005	Sample	7.99		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	75	41	mg/kg	1/60 days		
Cadmium	R18-9-1005	Sample	<3.15		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	85	39	mg/kg	1/60 days		
Chromium	R18-9-1005	Sample	33.1		mg/kg	1/31 days	Composite	EPA 6010D
		Table 1	3000		mg/kg	1/60 days		
Copper	R18-9-1005	Sample	412		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	4300	1500	mg/kg	1/60 days		
Lead	R18-9-1005	Sample	13.0		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	840	300	mg/kg	1/60 days		
Mercury	R18-9-1005	Sample	0.68		mg/kg	1/31 days	Composite	EPA 7471B
	40 CFR 503.13	Table / Table 2	57	17	mg/kg	1/60 days		
Molybdenum	R18-9-1005	Sample	19.5		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1	75		mg/kg	1/60 days		
Nickel	R18-9-1005	Sample	25.9		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	420	420	mg/kg	1/60 days		
Selenium	R18-9-1005	Sample	<15.75		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	100	100	mg/kg	1/60 days		
Zinc	R18-9-1005	Sample	767		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	7500	3000	mg/kg	1/60 days		

R18-9-1005 Table 2 is equivalent to 40 CFR 503.13 Table 3

6. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information submitted, it is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Name and Official Title (type or print) F. Jeff Prevatt, Deputy Director	Area Code and Phone (520) 724-6060
Signature	Date Signed 02/18/2020

TABLE 16 - LAND APPLI[illegible]ION POLLUTANT LIMITS

1. Name and Address of Facility:
Regional Biosolids Management Facility
7101 North Casa Grande Highway, Tucson, Arizona 85743-9577

2. Name and Address of Facility Owner:
Pima County Regional Wastewater Reclamation Department
201 North Stone, Tucson, Arizona 85701

3. Monitoring Period: September 1, 2019 through September 30, 2019
Facility Contact: F. Jeff Prevatt, Deputy Director
Phone: (520) 724-6060

4. AZPDES Permit Number: AZ0020001
5. Sludge Permit Number: N/A

Parameter	Regulatory Requireme		Pollutant Concentration (dry weight) Average		Units	Frequency of	Sample Type (Discrete or	Analytical Method
Arsenic	R18-9-1005	Sample	15.4		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	75	41	mg/kg	1/60 days		
Cadmium	R18-9-1005	Sample	<3.26		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	85	39	mg/kg	1/60 days		
Chromium	R18-9-1005	Sample	35.1		mg/kg	1/30 days	Composite	EPA 6010D
		Table 1	3000		mg/kg	1/60 days		
Copper	R18-9-1005	Sample	410		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	4300	1500	mg/kg	1/60 days		
Lead	R18-9-1005	Sample	14.2		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	840	300	mg/kg	1/60 days		
Mercury	R18-9-1005	Sample	0.81		mg/kg	1/30 days	Composite	EPA 7471B
	40 CFR 503.13	Table / Table 2	57	17	mg/kg	1/60 days		
Molybdenum	R18-9-1005	Sample	16.0		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1	75		mg/kg	1/60 days		
Nickel	R18-9-1005	Sample	22.1		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	420	420	mg/kg	1/60 days		
Selenium	R18-9-1005	Sample	<16.29		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	100	100	mg/kg	1/60 days		
Zinc	R18-9-1005	Sample	782		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	7500	3000	mg/kg	1/60 days		

R18-9-1005 Table 2 is equivalent to 40 CFR 503.13 Table 3

6. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information submitted, it is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Name and Official Title (type or print) F. Jeff Prevatt, Deputy Director	Area Code and Phone (520) 724-6060
Signature	Date Signed 02/18/2020

TABLE 17 - LAND APPLICATION POLLUTANT LIMITS

1. Name and Address of Facility:
Regional Biosolids Management Facility
7101 North Casa Grande Highway, Tucson, Arizona 85743-9577

2. Name and Address of Facility Owner:
Pima County Regional Wastewater Reclamation Department
201 North Stone, Tucson, Arizona 85701

3. Monitoring Period: October 1, 2019 through October 31, 2019
Facility Contact: F. Jeff Prevatt, Deputy Director
Phone: (520) 724-6060

4. AZPDES Permit Number: AZ0020001
5. Sludge Permit Number: N/A

Parameter	Regulatory Requirement		Pollutant Concentration (dry weight) Average		Units	Frequency of	Sample Type (Discrete or	Analytical Method
Arsenic	R18-9-1005	Sample	<11.97		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	75	41	mg/kg	1/60 days		
Cadmium	R18-9-1005	Sample	<4.79		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	85	39	mg/kg	1/60 days		
Chromium	R18-9-1005	Sample	33.8		mg/kg	1/31 days	Composite	EPA 6010D
		Table 1	3000		mg/kg	1/60 days		
Copper	R18-9-1005	Sample	430		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	4300	1500	mg/kg	1/60 days		
Lead	R18-9-1005	Sample	16.5		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	840	300	mg/kg	1/60 days		
Mercury	R18-9-1005	Sample	0.68		mg/kg	1/31 days	Composite	EPA 7471B
	40 CFR 503.13	Table / Table 2	57	17	mg/kg	1/60 days		
Molybdenum	R18-9-1005	Sample	16.1		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1	75		mg/kg	1/60 days		
Nickel	R18-9-1005	Sample	23.3		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	420	420	mg/kg	1/60 days		
Selenium	R18-9-1005	Sample	<23.94		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	100	100	mg/kg	1/60 days		
Zinc	R18-9-1005	Sample	823		mg/kg	1/31 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	7500	3000	mg/kg	1/60 days		

R18-9-1005 Table 2 is equivalent to 40 CFR 503.13 Table 3

6. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information submitted, it is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Name and Official Title (type or print) F. Jeff Prevatt, Deputy Director	Area Code and Phone (520) 724-6060
Signature	Date Signed 02/18/2020

TABLE 18 - LAND APPLI[illegible]ION POLLUTANT LIMITS

1. Name and Address of Facility:
Regional Biosolids Management Facility
7101 North Casa Grande Highway, Tucson, Arizona 85743-9577

2. Name and Address of Facility Owner:
Pima County Regional Wastewater Reclamation Department
201 North Stone, Tucson, Arizona 85701

3. Monitoring Period: November 1, 2019 through November 30, 2019
Facility Contact: F. Jeff Prevatt, Deputy Director
Phone: (520) 724-6060

4. AZPDES Permit Number: AZ0020001
5. Sludge Permit Number: N/A

Parameter	Regulatory Requireme		Pollutant Concentration (dry weight) Average		Units	Frequency of	Sample Type (Discrete or	Analytical Method
Arsenic	R18-9-1005	Sample	11.3		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	75	41	mg/kg	1/60 days		
Cadmium	R18-9-1005	Sample	<3.56		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	85	39	mg/kg	1/60 days		
Chromium	R18-9-1005	Sample	32.6		mg/kg	1/30 days	Composite	EPA 6010D
		Table 1	3000		mg/kg	1/60 days		
Copper	R18-9-1005	Sample	374		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	4300	1500	mg/kg	1/60 days		
Lead	R18-9-1005	Sample	18.0		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	840	300	mg/kg	1/60 days		
Mercury	R18-9-1005	Sample	0.68		mg/kg	1/30 days	Composite	EPA 7471B
	40 CFR 503.13	Table / Table 2	57	17	mg/kg	1/60 days		
Molybdenum	R18-9-1005	Sample	15.4		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1	75		mg/kg	1/60 days		
Nickel	R18-9-1005	Sample	20.3		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	420	420	mg/kg	1/60 days		
Selenium	R18-9-1005	Sample	<17.78		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table / Table 2	100	100	mg/kg	1/60 days		
Zinc	R18-9-1005	Sample	718		mg/kg	1/30 days	Composite	EPA 6010D
	40 CFR 503.13	Table 1 / Table 2	7500	3000	mg/kg	1/60 days		

R18-9-1005 Table 2 is equivalent to 40 CFR 503.13 Table 3

6. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information submitted, it is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Name and Official Title (type or print) F. Jeff Prevatt, Deputy Director	Area Code and Phone (520) 724-6060
Signature	Date Signed 02/18/2020

TABLE 19 - LAND APPLICATION POLLUTANT LIMITS

1. Name and Address of Facility:
Regional Biosolids Management Facility
7101 North Casa Grande Highway, Tucson, Arizona 85743-9577

2. Name and Address of Facility Owner:
Pima County Regional Wastewater Reclamation Department
201 North Stone, Tucson, Arizona 85701

3. Monitoring Period: December 1, 2019 through December 31, 2019
Facility Contact: F. Jeff Prevatt, Deputy Director
Phone: (520) 724-6060

4. AZPDES Permit Number: AZ0020001
5. Sludge Permit Number: N/A

Parameter	Regulatory Requirement		Pollutant Concentration (dry weight) Average		Units	Frequency of	Sample Type (Discrete or	Analytical Method
Arsenic	R18-9-1005 40 CFR 503.13	Sample Table Table 2	<9.30 75	41	mg/kg mg/kg	1/31days 1/60 days	Composite	EPA 6010D
Cadmium	R18-9-1005 40 CFR 503.13	Sample Table 1 Table 2	<3.72 85	39	mg/kg mg/kg	1/31 days 1/60 days	Composite	EPA 6010D
Chromium	R18-9-1005	Sample Table 1	30.4 3000		mg/kg mg/kg	1/31 days 1/60 days	Composite	EPA 6010D
Copper	R18-9-1005 40 CFR 503.13	Sample Table Table 2	360 4300	1500	mg/kg mg/kg	1/31 days 1/60 days	Composite	EPA 6010D
Lead	R18-9-1005 40 CFR 503.13	Sample Table Table 2	<9.30 840	300	mg/kg mg/kg	1/31 days 1/60 days	Composite	EPA 6010D
Mercury	R18-9-1005 40 CFR 503.13	Sample Table Table 2	0.59 57	17	mg/kg mg/kg	1/31 days 1/60 days	Composite	EPA 7471B
Molybdenum	R18-9-1005 40 CFR 503.13	Sample Table 1	14.4 75		mg/kg mg/kg	1/31 days 1/60 days	Composite	EPA 6010D
Nickel	R18-9-1005 40 CFR 503.13	Sample Table Table 2	20.9 420	420	mg/kg mg/kg	1/31 days 1/60 days	Composite	EPA 6010D
Selenium	R18-9-1005 40 CFR 503.13	Sample Table Table 2	<18.60 100	100	mg/kg mg/kg	1/31 days 1/60 days	Composite	EPA 6010D
Zinc	R18-9-1005 40 CFR 503.13	Sample Table 1 Table 2	695 7500	3000	mg/kg mg/kg	1/31 days 1/60 days	Composite	EPA 6010D

R18-9-1005 Table 2 is equivalent to 40 CFR 503.13 Table 3

6. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information submitted, it is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Name and Official Title (type or print) F. Jeff Prevatt, Deputy Director	Area Code and Phone (520) 724-6060
Signature	Date Signed 02/18/2020

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ANNUAL BIOSOLIDS REPORT 2019

REGIONAL WATER
RECLAMATION DEPARTMENT

TREATMENT DIVISION

PIMA COUNTY
TUCSON, ARIZONA

PIMA COUNTY
WASTEWATER RECLAMATION

SECTION 3

TRES RIOS WRF
AZPDES NO. AZ0020001

SAMPLING AND ANALYSIS

PRIORITY POLLUTANTS

TCLP

HAZARDOUSNESS

ANNUAL BIOSOLIDS REPORT 2019

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ANNUAL BIOSOLIDS REPORT 2019

PIMA COUNTY
w•mw•TE••EcuM•TioN
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office (CRAO) Laboratory
2955 W. Calle Agua Nueva, Tucson Arizona 85745-9750, Phone (520) 724-6200

Report Date: **05/15/2019**
Laboratory License: **AZO159**

Sample Analysis Report

Tres Rios WRF

February 2019

Sample Integrity

SAMPLE RECEIPT: Samples were received intact at the required temperature, unless otherwise noted with a data qualifier below. Please refer to the Chain of Custody for sample receipt details.

HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the Pima County CRAO Laboratory Quality Manual.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS:

Notes and Definitions:

See attached

Case Narratives:

See attached

All results on this report intended for compliance submission must have the associated chain(s) of custody attached for the results to meet reporting requirements as per ADHS Laboratory licensure rules. If you have received this report for compliance purposes and it is not complete, please contact the Compliance and Regulatory Affairs Office for a final report in its entirety.

Reviewed By:

Jenelle Chratt

Laboratory Director or Designee
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office Laboratory

6·!?:J
Date

Laboratory License: AZO159

Sample Qualifiers

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Sample Qualifiers
Final Effluent #3	1902113-03	Water	2/15/2019 6:00:00	2/15/2019 8:16:00	Q6
Final Effluent #3	1902148-01	Water	2/20/2019 11:25:00	2/20/2019 12:36:00	Q6

Laboratory License # AZO 159

Lab ID:	Sample Type	Parameter	Sample Date/fime	Analysis Method	Analysis Date/fime	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
1902113-01	C	Di-n-butyl phthalate	02/1 S/19 6:00	EPA625	2/28/19 16:01	12.6	ug/L	2SO	24.00	DI, D7,J	SJM
1902113-01	C	Di-n-octyl phthalate	02/1 S/19 6:00	EPA625	2/28/19 16:01	ND	ug/L	2.SS	24.00	DI,D7	SJM
1902113-01	C	Fluoranthene	02/1 S/19 6:00	EPA625	2/28/19 16:01	ND	ug/L	1.32	8.00	DI, D7	SJM
1902113-01	C	Fluorene	02/1 S/19 6:00	EPA625	2/28/19 16:01	ND	ug/L	1.54	8.00	DI,D7	SJM
1902113-01	C	Hexachlorobenzene	02/IS/19 6:00	EPA625	2/28/19 16:01	ND	ug/L	0.62	8.00	DI,D7	SJM
1902113-01	C	Hexachlorobutadiene	02/IS/19 6:00	EPA625	2/28/19 16:01	ND	ug/L	1.01	8.00	DI,D7	SJM
1902113-01	C	Hexachlorocyclopentadiene	02/IS/19 6:00	EPA625	2/28/19 16:01	ND	ug/L	4.23	24.00	DI,D7	SJM
1902113-01	C	Hexachloroethane	02/1 S/19 6:00	EPA625	2/28/19 16:01	ND	ug/L	1.26	8.00	DI,D7	SJM
1902113-01	C	Indeno(1,2,3-cd)pyrene	02/1 S/19 6:00	EPA625	2/28/19 16:01	ND	ug/L	2.83	24.00	DI,D7	SJM
1902113-01	C	Isophorone	02/IS/19 6:00	EPA625	2/28/19 16:01	ND	ug/L	1.66	8.00	D7,DI	SJM
1902113-01	C	Naphthalene	02/IS/19 6:00	EPA625	2/28/19 16:01	ND	ug/L	1.77	8.00	DI,D7	SJM
1902113-01	C	n-Decane	02/IS/19 6:00	EPA625	2/28/19 16:01	ND	ug/L	I.9S	8.00	DI,D7	SJM
1902113-01	C	Nitrobenzene	02/IS/19 6:00	EPA625	2/28/19 16:01	ND	ug/L	2.10	24.00	DI,D7	SJM
1902113-01	C	N-Nitrosodimethylamine	02/1S/19 6:00	EPA625	2/28/19 16:01	ND	ug/L	2.09	24.00	DI,D7	SJM
1902113-01	C	N-Nitrosodi-n-propylamine	02/IS/19 6:00	EPA625	2/28/19 16:01	ND	ug/L	2.43	24.00	DI,D7	SJM
1902113-01	C	N-Nitrosodiphenylamine	02/IS/19 6:00	EPA625	2/28/19 16:01	ND	ug/L	6.08	40.00	DI, D7, FC3	SJM
1902113-01	C	n-Octadecane	02/1 S/19 6:00	EPA625	2/28/19 16:01	6.59	ug/L	2.18	24.00	DI, D7, J	SJM
1902113-01	C	Pentachlorophenol	02/IS/19 6:00	EPA625	2/28/19 16:01	ND	ug/L	4.02	24.00	DI,D7	SJM
1902113-01	C	Phenanthrene	02/1 S/19 6:00	EPA625	2/28/19 16:01	ND	ug/L	1.63	8.00	DI,D7	SJM
1902113-01	C	Phenol	02/1 S/19 6:00	EPA625	2/28/19 16:01	17.9	ug/L	2S9	24.00	DI,D7,J	SJM
1902113-01	C	Pyrene	02/IS/19 6:00	EPA625	2/28/19 16:01	ND	ug/L	1.38	8.00	DI,D7	SJM
1902113-01	C	1,2-Diphenylhydrazine	02/IS/19 6:00	EPA8270C	2/28/19 16:01	ND	ug/L	0.98	8.00		SJM
1902113-0IREI	C	Lead	02/IS/19 6:00	EPA200.8	4/10/19 I 7:S6	3.96	ug/L	0.10	2.00	DI	JB
1902113-0IREI	C	Thallium	02/IS/19 6:00	EPA200.8	4/10/19 I 7:S6	ND	ug/L	0.09	2.00	DI	JB
1902113-0IREI	C	Zinc	02/IS/19 6:00	EPA200.8	4/10/19 I 7:S6	225	ug/L	0.86	2.00	D2	JB

Dewatered Cake Biosolids (20001-5703)

1902113-02	C	Antimony	02/IS/19 6:00	EPA6010D	3/S/19 13:39	ND	mg/kgdry		10.SI		MLB
1902113-02	C	Arsenic	02/IS/19 6:00	EPA6010D	3/S/19 1SS3	ND	mg/kg dry		10.SI		MLB
1902113-02	C	Beryllium	02/IS/19 6:00	EPA60IOD	3/S/19 13:39	ND	mg/kg dry		2.10		MLB
1902113-02	C	Cadmium	02/IS/19 6:00	EPA6010D	3/S/19 13:39	ND	mg/kg dry		4.20		MLB
1902113-02	C	Chromium	02/IS/19 6:00	EPA6010D	3/S/19 13:39	29.8	mg/kg dry		10.SI		MLB
1902113-02	C	Copper	02/IS/19 6:00	EPA6010D	3/S/19 13:39	330	mg/kg dry		10.SI		MLB
1902113-02	C	Lead	02/IS/19 6:00	EPA60IOD	3/S/19 13:39	ND	mg/kg dry		10.SI		MLB
1902113-02	C	Mercury	02/IS/19 6:00	EPA 747IB	3/S/19 14:16	0.65	mg/kg dry		0.30		MJC
1902113-02	C	Molybdenum	02/IS/I 9 6:00	EPA 6010D	3/S/19 13:39	12.3	mg/kg dry		4.20		MLB
1902113-02	C	Nickel	02/IS/19 6:00	EPA60IOD	3/S/19 13:39	21.4	mg/kg dry		IO.SI		MLB
1902113-02	C	Selenium	02/IS/19 6:00	EPA6010D	3/S/19 13:39	ND	mg/kg dry		21.02		MLB
1902113-02	C	Silver	02/IS/19 6:00	EPA6010D	3/S/19 I SS3	3.37	mg/kg dry		I.OS		MLB
1902113-02	C	Thallium	02/IS/19 6:00	EPA6010D	3/S/19 I SS3	ND	mg/kgdry		10.SI		MLB
1902113-02	C	Zinc	02/IS/19 6:00	EPA60IOD	3/S/19 13:39	668	mg/kg dry		10.SI		MLB
1902113-02	C	Cyanide, Total	02/1 S/19 6:00	EPA 9014	2/22/19 16:23	0.382	mg/kg dry	0.191	0.637	E4, M2	AM *
• Analysis Performed by:Legend Technical Services of Arizona, Inc. - See attached contract lab report for official results.											
1902113-02	C	%Solids	02/IS/19 6:00	SM2540G	2/21/19 IS:40	16	%		1		SLL *
• Analysis Performed by:Legend Technical Services of Arizona, Inc. - See attached contract lab report for official results.											
1902113-02	C	%Solids	02/IS/19 6:00	SM2540G	2/17/19 09:SS	16.31	%		0.01		LAH
1902113-02	C	Acrolein.	02/IS/19 6:00	EPA624	2/21/19 12:39	ND	mg/kg dry	0.0202	0.10		JEL
1902113-02	C	Acrylonitrile	02/IS/19 6:00	EPA624	2/21/19 12:39	ND	mg/kg dry	0.03SO	0.10		JEL
1902113-02	C	4,4-DDD	02/IS/19 6:00	EPA625	3/8/19 00:IS	ND	mg/kg dry	0.00410	O.QI	DI, D7, NI	HAV
I 902113-02	C	4,4-DDE	02/IS/19 6:00	EPA625	3/8/19 00:IS	ND	mg/kg dry	0.00648	0.01	DI,D7	HAV
1902113-02	C	4,4-DDT	02/IS/19 6:00	EPA625	3/8/19 00:IS	ND	mg/kg dry	O.CCS66	0.01	DI, D7, NI	HAV
1902113-02	C	Aldrin	02/IS/19 6:00	EPA625	3/8/19 00:IS	ND	mg/kg dry	0.00664	0.01	DI, D7, NI	HAV
1902113-02	C	alpha-BHC	02/IS/19 6:00	EPA625	3/8/19 00:IS	ND	mg/kg dry	0.00697	O.QI	DI, D7, NI	HAV
1902113-02	C	beta-BHC	02/IS/19 6:00	EPA625	3/8/19 00:IS	ND	mg/kg dry	0.0147S	0.02	DI,D7,NI	HAV
1902113-02	C	Chlordane	02/IS/19 6:00	EPA625	3/8/19 00:IS	ND	mg/kg dry	0.01SS7	0.08	DI,D7	HAV
1902113-02	C	delta-BHC	02/IS/19 6:00	EPA625	3/8/19 00:IS	ND	mg/kg dry	0.0029S	0.01	DI, D7, NI	HAV
1902113-02	C	Dieldrin	02/IS/19 6:00	EPA625	3/8/19 00:IS	ND	mg/kg dry	0.00680	0.01	DI, D7, NI	HAV
1902113-02	C	Endosulfan I	02/IS/19 6:00	EPA625	3/8/19 00:IS	ND	mg/kg dry	0.00443	0.01	DI,D7,NI	HAV
1902113-02	C	Endosulfan 11	02/1 S/19 6:00	EPA 625	3/8/19 00:IS	ND	mg/kg dry	O.CCS98	0.01	DI, D7, NI	HAV

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Lab ID:	Sample Type	Parameter	Sample Dateffime	Analysis Method	Analysis Dateffime	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
1902113-02	C	Endosulfan sulfate	0211 Sil 9 6:00	EPA625	318119 00:15.	ND	mg/kg dry	0.00467	0.01	O7,Nl,Dl	HAV
1902113-02	C	Endrin	0211 Sil 9 6:00	EPA625	318119 00:15	ND	mg/kg dry	0.01090	0.02	Dl,D7, NI	HAV
1902113-02	C	Endrin aldehyde	02/l Sil 9 6:00	EPA625	318119 00:15	ND	mg/kg dry	0.00984	0.Ql	Dl,D7, NI	HAV
1902113-02	C	gamma-BHC (Lindane)	02/15119 6:00	EPA625	318119 00:15	ND	mg/kg dry	0.01131	0.02	Dl,D7,Nl	HAV
1902113-02	C	Heptachlor	02/l Sil 9 6:00	EPA625	318119 00:15	ND	mg/kg dry	0.00410	0.01	Dl,D7,Nl	HAV
1902113-02	C	Heptachlor Epoxide	02/l Sil 9 6:00	EPA625	318119 00:15	ND	mg/kg dry	0.00697	0.Ql	Dl,D7, NI	HAV
1902113-02	C	PCB 1016	02/15119 6:00	EPA625	318119 00:15	ND	mg/kg dry	0.00902	0.02	Dl,D7	HAV
1902113-02	C	PCB 1221	0211 Sil 9 6:00	EPA625	318119 00:15	ND	mg/kg dry	0.01393	0.02	D1,D7	HAV
1902113-02	C	PCB 1232	02115119 6:00	EPA625	318119 00:15	ND	mg/kg dry	0.00574	0.02	Dl,D7	HAV
1902113-02	C	PCB 1242	02115119 6:00	EPA625	318119 00:15	ND	mg/kg dry	0.01066	0.02	Dl,D7	HAV
1902113-02	C	PCB 1248	0211 Sil 9 6:00	EPA625	318119 00:15	ND	mg/kg dry	0.00861	0.02	Dl,D7	HAV
1902113-02	C	PCB 1254	02115119 6:00	EPA625	318119 00:15	ND	mg/kg dry	0.01557	0.02	Dl,D7	HAV
1902113-02	C	PCB 1260	0211 Sil 9 6:00	EPA625	318119 00:15	ND	mg/kg dry	0.00656	0.02	Dl,D7	HAV
1902113-02	C	Total PCBs	02115119 6:00	EPA625	318119 00:15	ND	mg/kg dry	0.01557	0.02	Dl,D7	HAV
1902113-02	C	Toxaphene	02115119 6:00	EPA625	318119 00:15	ND	mg/kg dry	0.14508	0.16	Dl,D7	HAV
1902113-02	C	Methoxychlor	02115119 6:00	EPA8270C	318119 00:15	ND	mg/kg dry	0.00410	0.01	DI, D7,Nl	HAV
1902113-02	C	I, I, I-Trichloroethane	02115119 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.004	0.01	QI	ADP
1902113-02	C	I, 1,2,2-Tetrachloroethane	02/15119 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.001	0.01	QI	ADP
1902113-02	C	I, 1,2-Trichloroethane	02/15119 6:00	EPA624	2128119 17:27	ND	mg/kg dry	0.002	0.01	QI	ADP
1902113-02	C	I, 1-Dichloroethane	02115119 6:00	EPA624	2128119 17:27	ND	mg/kg dry	0.003	0.Ql	QI	ADP
1902113-02	C	I, 1-Dichloroethene	02115119 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.002	0.Ql	QI	ADP
1902113-02	C	1,2-Dichlorobenzene	02/l 5119 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.002	0.01	QI	ADP
1902113-02	C	1,2-Dichloroethane	02115119 6:00	EPA624	2128119 17:27	ND	mg/kg dry	0.002	0.01	QI	ADP
1902113-02	C	1,2-Dichloropropane	02115119 6:00	EPA624	2128119 17:27	ND	mg/kg dry	0.002	0.Ql	QI	ADP
1902113-02	C	1,3-Dichlorobenzene	02/l 5119 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.002	0.01	QI	ADP
1902113-02	C	1,4-Dichlorobenzene	02115119 6:00	EPA624	2/28119 17:27	0.04	mg/kg dry	0.003	0.Ql	QI	ADP
1902113-02	C	2-Chloroethyl vinyl ether	0211 Sil 9 6:00	EPA624	2128119 17:27	ND	mg/kg dry	0.005	0.Ql	QI	ADP
1902113-02	C	Benzene	02115119 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.002	0.01	QI	ADP
1902113-02	C	Bromodichloromethane	0211 Sil 9 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.005	0.01	QI	ADP
1902113-02	C	Bromoform	02115119 6:00	EPA624	2128119 17:27	ND	mg/kg dry	0.006	0.01	QI	ADP
1902113-02	C	Bromomethane	0211 Sil 9 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.003	0.01	QI	ADP
1902113-02	C	Carbon Tetrachloride	02/15119 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.007	0.01	QI	ADP
1902113-02	C	Chlorobenzene	02115119 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.001	0.01	QI	ADP
1902113-02	C	Chloroethane	0211 Sil 9 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.004	0.Ql	QI	ADP
1902113-02	C	Chloroform	0211 Sil 9 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.003	0.01	QI	ADP
1902113-02	C	Chloromethane	02/l Sil 9 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.004	0.01	QI	ADP
1902113-02	C	cis-1,3-Dichloropropene	0211 Sil 9 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.002	0.01	QI	ADP
1902113-02	C	Dibromochloromethane	02115119 6:00	EPA624	2128119 17:27	ND	mg/kg dry	0.001	0.01	QI	ADP
1902113-02	C	Ethyl Benzene	02115119 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.002	0.01	QI	ADP
1902113-02	C	Methylene Chloride	0211 Sil 9 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.004	0.01	QI	ADP
1902113-02	C	Tetrachloroethene	02115119 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.004	0.01	QI	ADP
1902113-02	C	Toluene	02115119 6:00	EPA624	2/28119 17:27	0.04	mg/kg dry	0.003	0.01	QI	ADP
1902113-02	C	Total Trihalomethanes	0211 Sil 9 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.006	0.01	QI	ADP
1902113-02	C	trans-1,2-Dichloroethene	02115119 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.003	0.01	QI	ADP
1902113-02	C	trans-1,3-Dichloropropene	02115119 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.002	0.Ql	QI	ADP
1902113-02	C	Trichloroethene	02115119 6:00	EPA624	2128119 17:27	ND	mg/kg dry	0.003	0.01	QI	ADP
1902113-02	C	Trichlorofluoromethane	02115119 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.005	0.01	QI	ADP
1902113-02	C	Vinyl chloride	02115119 6:00	EPA624	2/28119 17:27	ND	mg/kg dry	0.004	0.01	QI	ADP
1902113-02	C	1,2,4-Trichlorobenzene	02115119 6:00	EPA8260	2128119 17:27	ND	mg/kg dry	0.002	0.01	QI	ADP
1902113-02	C	1,2-Dibromo-3-chloropropane	02/15119 6:00	EPA8260	2/28119 17:27	ND	mg/kg dry	0.002	0.02	QI	ADP
1902113-02	C	1,2-Dibromoethane	02115119 6:00	EPA8260	2/28119 17:27	ND	mg/kgdry	0.002	0.01	QI	ADP
1902113-02	C	cis-1,2-Dichloroethene	02115119 6:00	EPA8260	2/28119 17:27	ND	mg/kg dry	0.004	0.Ql	QI	ADP
1902113-02	C	m,p-Xylenes	02115119 6:00	EPA8260	2/28119 17:27	ND	mg/kg dry	0.003	0.02	QI	ADP
1902113-02	C	o-Xylene	02115119 6:00	EPA8260	2/28119 17:27	ND	mg/kg dry	0.002	0.01	QI	ADP
1902113-02	C	Styrene	02115119 6:00	EPA8260	2/28119 17:27	ND	mg/kg dry	0.002	0.Ql	QI	ADP
1902113-02	C	Xylenes, total	0211 Sil 9 6:00	EPA8260	2128119 17:27	ND	mg/kg dry	0.003	0.02	QI	ADP
1902113-02	C	2,3,7,8-TCDD- Dioxin Scan	02115119 6:00	EPA625	311119 19:30	ND	ug/kg dry		0.15		SJM
1902113-02	C	1,2,4-Trichlorobenzene	02115119 6:00	EPA625	2128119 19:10	ND	mg/kg dry	0.06	0.08	Dl,D7	SJM
!902113-02	C	2,3-Dichloroaniline	02115119 6:00	EPA625	2/28119 19:10	ND	mg/kg dry	0.09	0.24	D7,DI	SJM
1902113-02	C	2,4,6-Trichlorophenol	02115119 6:00	EPA625	2/28119 19:10	ND	mg/kg dry	0.05	0.08	DI, D7	SJM

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Lab ID:	Sample Type	Parameter	Sample Date/fime	Analysis Method.	Analysis Date/fime	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
1902113-02	C	2,4-Dichlorophenol	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.07	0.08	DI,D7	SJM
1902113-02	C	2,4-Dimethylphenol	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.14	0.24	DI,D7	SJM
1902113-02	C	2,4-Dinitrophenol	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.34	0.80	DI,D7,VI	SJM
1902113-02	C	2,4-Dinitrotoluene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.09	.0.24	DI,D7	SJM
1902113-02	C	2,6-Dinitrotoluene	02/15/19 6:00	EPA625	2/28/19 19: IO	ND	mg/kg dry	0.06	0.08	DI,D7	SJM
1902113-02	C	2-Chloronaphthalene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.06	0.08	DI,D7	SJM
1902113-02	C	2-Chlorophenol	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.05	0.08	DI,D7	SJM
1902113-02	C	2-Methyl-4,6-dinitrophenol	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.21	0.24	DI,D7	SJM
1902113-02	C	2-Methylphenol	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.05	0.08	DI,D7	SJM
1902113-02	C	2-Nitrophenol	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.11	0.24	DI,D7	SJM
1902113-02	C	3,3-Dichlorobenzidine	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.09	0.20	DI, D7, VI	SJM
1902113-02	C	4-Bromophenyl phenyl ether	02/15/19 6:00	EPA625	2/28/19 19:10'	ND	mg/kg dry	0.05	0.08	DI,D7	SJM
1902113-02	C	4-Chloro-3-methylphenol	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.09	0.24	DI,D7	SJM
1902113-02	C	4-Chlorophenyl phenyl ether	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.05	0.08	DI,D7	SJM
1902113-02	C	4-Methylphenol	02/15/19 6:00	EPA625	2/28/19 19:10	1.44	mg/kg dry	0,07	0.08	DI,D7	SJM
1902113-02	C	4-Nitrophenol	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.19	0.24	DI,D7	SJM
1902113-02	C	Acenaphthene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.06	0.08	DI,D7	SJM
1902113-02	C	Acenaphthylene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.06	0.08	DI,D7	SJM
1902113-02	C	Anthracene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.08	0.08	DI,D7	SJM
1902113-02	C	Benzidine	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.26	0.40	DI,D7	SJM
1902113-02	C	Benzo[a]anthracene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.05	0.08	DI,D7	SJM
1902113-02	C	Benzo[a]pyrene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.08	0.08	DI,D7	SJM
1902113-02	C	Benzo[b]fluoranthene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.06	0.08	DI,D7	SJM
1902113-02	C	Benzo[ghi]perylene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.12	0.24	DI,D7	SJM
1902113-02	C	Benzo[k]fluoranthene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.09	0.24	DI,D7	SJM
1902113-02	C	bis(2-<:hloroethoxy)methane	02/I 5/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.08	0.08	D7,DI	SJM
1902113-02	C	bis(2-<:hloroethyl)ether	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.08	0.24	DI,D7	SJM
1902113-02	C	bis(2-<:hloroisopropyl)ether	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0,07	0.08	DI,D7	SJM
1902113-02	C	bis(2-ethylhexyl)phthalate	02/15/19 6:00	EPA625	2/28/19 19:10	6.48	mg/kg dry	0.11	0.24	DI,D7	SJM
1902113-02	C	Butylbenzylphthalate	02/I 5/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.08	0.08	DI,D7	SJM
1902113-02	C	Carbazole	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.11	0.24	DI,D7	SJM
1902113-02	C	Chrysene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.05	0.08	DI,D7	SJM
1902113-02	C	Dibenzo(a,h)anthracene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.12	0.24	DI,D7	SJM
1902113-02	C	Diethyl phthalate	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.09	0.24	DI,D7	SJM
1902113-02	C	Dimethyl phthalate	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.02	0.08	DI,D7	SJM
1902113-02	C	Di-n-butyl phthalate	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.10	0.24	DI,D7	SJM
1902113-02	C	Di-n-octyl phthalate	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.10	0.24	DI,D7	SJM
1902113-02	C	Fluoranthene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.05	0.08	DI,D7	SJM
1902113-02	C	Fluorene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.06	0.08	DI,D7	SJM
1902113-02	C	Hexachlorobenzene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.02	0.08	DI,D7	SJM
1902113-02	C	Hexachlorobutadiene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.04	0.08	DI,D7	SJM
1902113-02	C	Hexachlorocyclopentadiene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.17	0.24	DI,D7	SJM
1902113-02	C	Hexachloroethane	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.05	0.08	DI,D7	SJM
1902113-02	C	Indeno(l ,2,3-<:d)pyrene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.11	0.24	DI,D7	SJM
1902113-02	C	Isophorone	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0,07	0.08	DI,D7	SJM
1902113-02	C	Naphthalene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0,07	0.08	DI,D7	SJM
1902113-02	C	n-Decane	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.08	0.08	DI,D7	SJM
1902113-02	C	Nitrobenzene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.08	0.24	DI,D7	SJM
1902113-02	C	N-Nitrosodimethylamine	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.08	0.24	DI,D7	SJM
190!113-02	C	N-Nitrosodi-n-propylamine	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.10	0.24	DI,D7	SJM
1902113-02	C	N-Nitrosodiphenylamine	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.24	0.40	D1,D7,PC3	SJM
1902113-02	C	n-Octadecane	02/15/19 6:00	EPA625	2/28/19 19:10	4.05	mg/kg dry	0.09	0.24	DI,D7	.SJM
1902113-02	C	Pentachlorophenol	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.16	0.24	D7,DI	SJM
1902113-02	C	Phenanthrene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0,07	0.08	DI,D7	SJM
1902113-02	C	Phenol	02/15/19 6:00	EPA625	2/28/19 19:10	2.71	mg/kg dry	0.10	0.24	DI,D7	SJM
1902113-02	C	Pyrene	02/15/19 6:00	EPA625	2/28/19 19:10	ND	mg/kg dry	0.06	0.08	DI,D7	SJM
1902113-02.	C	I ,2-Diphenylhydrazine	02/15/19 6:00	EPA8270C	2/28/19 19:10	ND	mg/kg dry	0.04	0.08	DI,D7	SJM
1902113-02	C	1,4-Dichlorobenzene	02/15/19 6:00	EPA8270C	2/28/19 19:10	ND	mg/kg dry	0.05	0.08		SJM
1902113-02	C	2,4,5-Trichlorophenol	02/15/19 6:00	EPA8270C	2/28/19 19:10	ND	mg/kg dry	0.10	0.24		SJM
1902113-02	C	3 & 4-Methylphenol	02/15/19 6:00	EPA8270C	2/28/19 19:10	ND	mg/kg dry	0.09	0.24		SJM

Qualifier Definitions

M2	Matrix spike recovery was low; the associated blank spike recovery was acceptable.
A	Absence
DI	Sample required dilution due to matrix.
D2	Sample required dilution due to high concentration of target analyte.
D4	Minimum Reporting Limit (MRL) adjusted to reflect sample amount received and analyzed.
D7	Minimum Reporting Limit adjusted to reflect sample dilution.
E4	Concentration estimated. Analyte was detected below laboratory minimum reporting level (MRL), but above the MDL.
J	Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
MS	Analyte concentration was determined by the method of standard addition (MSA).
NI	See case narrative.
N7	Additional analysis was not performed based on the "Total" result which was below the requested analyte's MCUAction leveVfrigger Level.
NA	Not Analyzed
NR	Not Reported
PC3	Semi-quantitation is included in the case narrative.
QI	Sample integrity was not maintained. See case narrative.
Q6	Sample was received above recommended temperature.
VI	CCV recovery was above method acceptance limits. This target analyte was not detected in the sample.

General Notes and Definitions

J	Equivalent to E4 Qualifier• Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
ND	Analyte NOT DETECTED at or above reporting limit (MDL). Equivalent to ES Qualifier• Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
C	Sample Type • Composite
CD	Sample Type • Composite Duplicate
D	Sample Type • Discrete
DD	Sample Type - Discrete Duplicate
NR	Not Reported
DET	Analyte DETECTED
DRY	Sample results reported on a dry weight basis
RPO	Relative Percent Difference
Analysis Date	Analysis Date represents the final reading date.
Field Results	Field Results performed by "SMPLR" (Sampler), are not subject to approval of Laboratory Director.
Solids, Total Volatile	Used for process control samples only.
RE	Re-Analysis has been performed.
FD	Field Duplicate
FB	Field Blank
UC	Under Construction
EB	Equipment Blank

Case Narrative(s)

1902113-01, -02. -03

EPA Method 624/8260 Purgeables and EPA Method 624 Acrolein/Acrylonitrile: QI: Sample refrigerator was discovered on 2/17/19 to be outside of method required temperature range. Samples were moved immediately, but the refrigerator was in noncompliance for an unknown amount of time. MCD 3/22/19

1902113-01,-03

EPA Method 624 Purgeables NI: Sample was preserved after 7 days per laboratory method. Preservation to <2 depletes 2 CEVE if it is in the sample. 2CEVE cannot be reported on this sample. ADP 3/27/19

Semi-Quantitation
Method: 625
1902113-03

Compound Name	Concentration-ug/L
Palmitic Acid	815
Stearic Acid	274

SJM 04/15/19

Semi-Quantitation
Method: 625
1902113-01

Compound Name	Concentration-ug/L
Benzoic Acid	106
NN-Dimethyl-1-dodecanamine	771
Dodecanoic Acid	118
Tetradecanoic Acid	226
Palmitic Acid	69495
OleicAcid	89849
Stearic Acid	34607

SJM 04/15/19

Semi-Quantitation
Method: 625
1902113-02

Compound Name	Concentration-mg/Kg
Benzeneacetic Acid	37
N,N-Dimethyl-1-dodecanamine	80
Tetradecanoic Acid	52
Palmitic Acid	15440
OleicAcid	12157

SJM 04/15/19

1902113-01. -02, -03

EPA Method 625 Pesticides: Target analytes flagged with NI failed the Blank Spike and Matrix Spike Duplicate Recoveries due to suspected extractor failure. All Matrix Spike Recoveries were acceptable, however, MS/MSD RPO was unacceptable. Surrogate Recoveries for all QC and batch samples were acceptable. HAV/MCD 04/16/19

PIMA COUNTY
WASTEWATER RECLAMATION
COMPLIANCE AND REGULATORY AFFAIRS o m C E LABORATORY
PIMA COUNTY RWRD
CRAO- LABORATORY SERVICES
2955 W. Calle Agua Nueva Tucson AZ, 85745
Phone: 520-724-6200 Fax: 520-724-6071

FINAL LABORATORY GROUP REPORTS

LIMS #: 1902113-01 through 03
Parameters: Mercury, PPMs, Total Cyanide, Acrolein and Acrylonitrile, Dioxin Scan, Organochlorine Pesticides & PCBs, Purgeable Organics, Semivolatile Organics, 503 Metals, Total Solids, Barium, Boron, Hardness, Iron, Manganese, Mercury, Silver, Fluoride, 625+

QA/QC Review

Copy of CoC included with Lab Report.	**Yes**
Sample IDs verified against CoC.	Yes
Sample dates/times are correct.	Yes
Analyses and methods verified against CoC.	Yes
Sample holding times not exceeded.	Yes
Data Qualifiers included if necessary.	Yes
Data Qualifier Definitions included.	Yes
Case Narratives correctly reference data qualifiers with analyst initials and date.	**Yes**
NA and N7 Qualifiers included for Amenable Cyanide Analysis.	**NIA**
Are there exceedences/Not Analyzed/No Results.	**Yes**
Is there a notification form attached for exceedences/Not Analyzed/No Results.	**Yes**
Correct units (mg/l or µg/1, mg/kg, SU@-9).	**Yes**
If there are Contract Lab Results, Is there a Contract Lab Checksheet.	Yes
Sample Receipt Checklist.	Yes
Correct Methods.	Yes
MDLS/MRLS	Yes

QA/QC Review date and inltials:C.t,/2<'.t %0 **Final Review date and initials:** /OD'1--I q JL\i

Comments:

This is a CONTROLLED Document. Unless Numbered, Any copy of this Report appearing in paper form is not controlled.
Completed by: Joseph Doranski Final Report Packet Copy Copy #:1

Form QA-22 Effective date 11/06/2018 Rev.7 Page 1 of 1

PIMA COUNTY WASTEWATER RECLAMATION

Pima County Regional Wastewater Reclamation D e p artment
Compliance and Regulatory Affairs Office Laboratory

CHAIN OF CUSTODY

ORDER & SAMPLE(S)
WORK ,901., U'3 02

PROJECT & LOCATION: Tres Rios WRF - Dewatered Cake Biosolids (Quarterly)

PROJECT-LOCATION NUMBER: 20001-5703 ---=()OOO(=x""x""xXX)=----

SAMPLE START DATE: Q,2-Ii-c20/c,, SAMPLE START TIME: D (oOO CLIENT: IWC

SAMPLE END DATE: 3:) - I - &O 10 (MMIDD/YY 011 MM/00/YYYY) SAMPLEENDTIME: Oy, 0 0 (Military-) SAMPLER(S):S:1114 d& ho'° .Jr/stef,I,Jez (PIN I.MI a) ""I)

Pennlt Type: 0 APP D Investigative ■ 503
AZPDES □ Reuse D Process Control
□ ,we O Air □ Other

Matrix: Biosolids ☐ Soil D Wastewater
D Groundwater ☐ Stormwater O AJr
D Industrial ☐ Surface Water □ Other

INORGANIC CHEMISTRY

METALS	Tot	Diss	D	C
Aluminum	☐	☐	☐	☐
Antimony	☐	☐	☐	☐
Arsenic	☐	☐	☐	☐
Barium	☐	☐	☐	☐
Beryllium	☐	☐	☐	☐
Boron	☐	☐	☐	☐
Cadmium	☐	☐	☐	☐
Calcium	☐	☐	☐	☐
Chromium	☐	☐	☐	☐
Cobalt	☐	☐	☐	☐
Copper	☐	☐	☐	☐
Hardness	☐	☐	☐	☐
Iron	☐	☐	☐	☐
Lead	☐	☐	☐	☐
Magnesium	☐	☐	☐	☐
Manganese	☐	☐	☐	☐
Mercury	x		☐	■
Mercury LL	☐	☐	☐	☐
Molybdenum	☐	☐	☐	☐
Nickel	☐	☐	☐	☐
Potassium	☐	☐	☐	☐
Selenium	☐	☐	☐	☐
Silver	☐	☐	☐	☐
Sodium	☐	☐	☐	☐
Thallium	☐	☐	☐	☐
Tin	☐	☐	☐	☐

METALS	Tot	Diss	D	C
Titanium	☐	☐	☐	☐
Vanadium	☐	☐	☐	☐
Zinc	☐	☐	☐	☐
PPMs•	x		☐	■
TCLPMetals			☐	☐
503 Metals-			☐	■
Dissolved Cr+6			☐	☐

WETMETHODS	D	C
Ammonia as N	☐	☐
Chloride	0	0
Cyanide, Total [	0	■
Cyanide, Amenable	☐	☐
Fluoride	☐	☐
Ignltability	☐	☐
Nitrate as N	☐	☐
Nitrite as N	☐	☐
Nitrate/Nitrite as N	☐	☐
Nitrogen, Total Kjeklahl	☐	☐
Nitrogen, Total as N	☐	☐
Orthophosphate as P	☐	☐
Phosphorus, Total as P	☐	☐
Sulfate	☐	☐
Sulfide	☐	☐
other	☐	☐
Other	☐	☐

ORGANIC CHEMISTRY

	D	C
Acrolein and Acrylonitrile	■	☐
Dioxin GC/SIM/MS Scan	☐	■
Organochlorlne Pesticides & PCBs	☐	■
Purgeable Organics (GCMS)	■	☐
Semivolatile Organics (GCMS)	☐	■
Bis(2-ethylhexyt) phthalate	☐	☐
Digester Gas	☐	☐
CH and Grease	☐	☐
Organic Carbon, Total	☐	☐
Organic Carbon, Dissolved	☐	☐
TCLP Herbicides (Contract Lab)	☐	☐
TCLP Pesticides	☐	☐
TCLP Semivolatile Organics	☐	☐
TCLP Volatile Organics	☐	☐
TTHM	☐	☐
Total Petroleum Hydrocarbons	☐	☐
Volatile Acids	☐	☐
Other	☐	☐
Other	☐	☐

EFFLUENT TOXICITY TESTING	D	C
Chronic *P. promelas*	☐	☐
Chronic C. *dub/a*	☐	☐
Chronic *Selenastrom capricomutum*	☐	☐
Other	☐	☐

MICROBIOLOGY - WET CHEM

	D	C
Alkalinity	D	D
OOD	0	0
COD	D	D
Coliform, Fecal	O	O
Coliform, Total	D	D
Specific Conductance	D	D
E.coli	☐	☐
Oxygen, Dissolved	D	D
pH	☐	☐
Solids, Tota1(1 ;2_c.:–./–,,.l'1		
Solids, Total Dissolved	☐	☐
Solids, Total Suspended	D	D
Solids, Total Volatile	O	0
Solids, Volatile Suspended	☐	D
other	☐	D

OTHER	D	C
1P,a"1F"1e.r		
	☐	0
1	☐	☐
1	D	D
	☐	☐

COMPLIANCE FIELD MEASUREMENTS

	Result	Units
D Chlorine		µgn..
D Specific Conductance *SM 2510 8*		µmhos/cm
D Oxygen, Dissolved *SM 4500-0 G*		mgn..
O P H @ p H Temp *SM 4500-H B*	@	pH Units 0 ° C
D Temperature *SM25508*		·C
□ Total Depth of Well		feet
□ Depth to Water		feet

I-O0 ; ther

Comments/Instructions:
The Lab shall composite the Purgeable Organic and

Da.Oa.nA.ode.rl Ag.L.ao nli · 1e.sa.m.aders:
C, t ft
t,,,-../ I'5, ccs 02f5fJ
Oa#t►-012►►0

Sfiltu,m Blank Prep Data & Initials:
[0J -Cf:-{ xlo14] [,e]

Chain of Custody Record (Slgnnm Only)

Relinquished by Sampler:	Received by:	Date:	Time: (Military time)
[signature]	[signature]	2·14·19	/S!h>
Relinquished by: [signature]	Received by: Refrigerator	Date: 02/15/19	Time: (Military time) 0130
Relinquished by: Refrigerator	Received by: [signature]	Date: 02·15·19	Time: (Military time) 0600
Relinquished by: [signature]	Received by: [signature]	Date: 02-15-19	Tine: (Military time) 0815
Relinquished by:	Received by:	Date:	Tine: (Military tine)

Sample Integrtty/PnMrvatlon:
# of Bottles Delivered: (9) CO
Transported on Ice: ☒ YES ☐ NO

Lab Receipt
Temperature: 5 °C
Initials: GS
Q6 qualifier? ☐ YES ☒ NO

LAB USE ONLY

Sample Inspection:	Yes	No	NA
Chain of Custody Record completed appropriately?	☒	☐	☐
Sample labels match Chain of Custody?	☒	☐	☐
Correct number of sample bottles were delivered?	☒	☐	☐
Custody seals intact?	☐	☐	☒
Within holding time?	☒	☐	☐
Sufficient sample volume for analysis?	☒	☐	☐
Samples are in properly preserved containers?	☒	☐	☐
Sample containers damaged/leaking/frozen?	☐	☒	☐
40 ml vials headspace, > pea-sized air bubble?	☒	☐	☐
Received from a refrigerator?	☐	☒	☐

• *Sb, Aa, Be, Cd, Cr, Cu, Pb, Ni, Se, Ag, n, Zn, Metcury(Cold Vapotj*
- *As, Cd, Cr, Cu, Pb, Mercury, Mo, Ni, Se, Zn*

PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT
WATER QUALITY
SAMPLE COLLECTION REPORT

SAMPLE LOCATION: Tres Rios WRF – Dewatered Cake Biosolids LIMS: 1902 11302
LOCATION ID: 20001 – 5703 SAMPLERS: Silva, Kaufman, Rainbow, Martinez SAMPLE DATE: 2-15-19
Last names only, primary sampler first

Sample Dore	Parameter	Frequency	AUTO MAN	Volume Submitted	Bottle/Preservation
C	Semivolatile Organics	Hand Composite	Man	1000ml	Amber Glass/None/Ice
C	Organochlorine Pest & PCB's		Man	1000ml	Amber Glass/None/Ice
C	Dioxin		Man	1000ml	Amber Glass/None/Ice
C	Priority Pollutant & 503 Metals	4Aliquots for the duration of the discharge	Man	1000 ml	Dissolved Metals/None/Ice
C	Total Solids		Man	1000ml	General Purpose/None/Ice
C	Total Solids		Man	1000ml	General Purpose/None/Ice
C	Cyanide		Man	1000 ml	Dissolved Metals/None/Ice
			Man	1000 ml	Amber Glass/None/Ice
			Man	1000 ml	Amber Glass/None/Ice
To be Composited by the Laboratory					
D	Purgeable Organics	Hand Composite	Man	4X40	None/Ice
D	Acrolein/Acrylonitrile		Man	4X40	None/Ice
		4 Aliquots for the duration of the discharge			
To be Submitted to an outside Laboratory					

	Time
Aliquot #1	2-14-19 @ 0710
Aliquot #2	2-14-19 @ 1300
Aliquot #3	2/14/19 @ 1925
Aliquot #4	2/15/19 @ 0110

Comments:	Dewatered Cake Blosolids samples are not preserved.
	All Composites including Cyanide can be poured off at the end of the sampling event

Laboratory Sample ID

CHAIN OF CUSTODY RECORD

LEGEND Technical Services, Inc.
17631 N. 25th Avenue • Phoenix, AZ 65023 • (602) 324-6100 • Fax (602) 324-6101
04565 S. Palo Verde Rd, Ste 423 • Tucson, AZ 65714 • (520) 327-1234 • Fax (520) 327-0518

Page 1 of 1

Please Print Clearly

CLIENT INFORMATION

Client Name	Address	City	State	Zip	Phone	Fax Number or Email Address
Pima County CRAO Lab	2955 W Calle Agua Nueva	Tucson	AZ	85745	520-724-6016	joseph.doranski@pima.gov

Project Name	Project Number	Contact	P.O. No.	
Cyanides #3		Joe Doranski	19-022880	Fax Results ☐ QC Report ☐ EDD ☒ Email Results ☒ Special Detection Limits ☐

SAMPLE TYPE CODES

DW=Drinking Water, WW=Wastewater, SW=Surface Water, GW=Groundwater, O=Other, S=Soil/Solid, T=Travel Blank, F=Food, G=Sludge/Biosolids

TURN AROUND TIME

Laboratory Authorization Required for Rush

Standard 10 • 15 Day

D Other _____

REQUESTED ANALYSES

Client's Sample Identification	Date	Time	Sample Location	Composite		Grab	Compliance	No. of Containers	pH ✓ (Lab Use Only)	Total cyanide mg/kg	Total % solids dry weight															LAB NO.
1902112-03	02/15/19	600	Agua Nueva WRF - thickened sludge	X		G	X	2		X	X															
1902113-02	02/15/19	600	Tres Rios WRF - dewatered cake	X		G	X	2		X	X															

TO ENSURE COMPLETION OF ANALYSIS, SAMPLES MUST BE RECEIVED AT LEAST 3 HOURS PRIOR TO THE HOLD TIME EXPIRATION

Comments / Special Instructions:

SAMPLE CONDITION UPON RECEIPT (Lab Use)

No. of Containers		
Temperature	°C	
Custody Seals	y	N
Seals Intact	y	N
Preserved	y	N

WHITE-LAB YELLOW-CLIENT

	RELINQUISHED BY		SAMPLES RECEIVED BY	
(D)	Sampler Signature: [signature]	Date 2/19/19	Signature: [signature]	Date 2/19/19
	Sampler Printed Name: Greg Spence	Time 1209	Printed Name: Casey Sos	Time 1209
	Signature	Date	Signature	Date
	Printed Name	Time	Printed Name	Time
(J)	Signature	Date	Signature	Date
	Printed Name	Time	Printed Name	Time

FORM CS-016.2 (07/18)

PIMA COUNTY

WASTEWATER RECLAMATION

COMPLIANCE AND REGULATORY AFFAIRS OFFICE LABORATORY
2955 W Agua Nueva, Tucson, AZ 85745
Telephone: (520) 724-6200

LIMS CHECKLIST FOR SUBCONTRACT DATA

LIMS ID	**19021'12-03, 19021"'13-02**	**DO**	**19-022880**
CONTRACT LAB	**Legend Technical Services, Inc., Phoenix;**	**SAMPLE GROUP**	**Cyanides #3**
ANALYSES	**Total Cyanide, Total Solids**	**REPORT ID**	**1981982**

TRANSFER & CONVERT FILES:	
Was the contract lab spreadsheet file saved to \\Solimsann\elementshare\TransferIn ?	y
Was the above-mentioned file converted from a .xis file to a .mdb file for each WO#, and further, for each subcontract location, or separate analysis (as applicable), on the contract lab report? (Element>Proiect Management>Reports)	y
Was the converted file attached to the sample in LIMS?	y
VALIDATING CONTRACT LAB REPORT, CHAIN OF CUSTODY(S), AND DO#:	
Is contract lab report signed and dated?	y
Is copy of contract lab COC included with contract lab report?	y
Do the contract lab COC and CRAO COC(s) list the same sample ID, sample date, and analysis requested?	y
Do the sample dates and received dates on the CL report match the CL COC?	y
Does the CL report include all requested analysis?	y
Is the CL licensed in AZ for reported methods?	y
Does the DO match COC in types and number of tests?	N/A
CONTRACT LAB REPORT, EXCEL SPREADSHEET, and QC:	
Do CL report and CL spreadsheet report the same sample result(s), sample date(s), and analysis date(s)?	y
Was a case narrative included in contract lab report?	y
Does the data packet include a QC report from the primary lab and any secondary subcontract labs?	y
Did the CL report list applicable AZ data qualifiers?	y
Were any dilutions made?	y
Were any results from diluted samples reported as ND?	y
Were the results from any diluted samples qualified accordingly?	y
Was QC included for every analysis method (e.g. Blk, LCS, MS, MSD)?	y
Did QC pass stated acceptance limits? If not, was it qualified?	y
Were samples analyzed within required holding times?	y
SOCs: Are MDLs below water quality standards? (If not, notify Belinda Gamboa-Felix.)	N/A
Semivolatiles & Volatiles: Were all analytes delivered?	N/A
COMPLIANCE LIMIT REVIEW	
Were results compared to the discharge permit?.	N/A
Was Belinda Gamboa-Felix notified of any exceedences?	N/A
WET TESTING SPECIFIC REQUIREMENTS	
Is statement of Pass/Fail reflected in endpoints?	N/A
Ceriodaphnia: Survival and reproduction data included?	N/A
P. Promelas: Survival and growth data included?	N/A
Se/enastrum: Growth data included?	N/A
Was chemistry data included?	N/A

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Effective 01-23-2019

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Are Reference Toxicant Test results and Control Charts within limits?	N/A
Was PMSD Determination included and within acceptable range? (minimum acceptable= 13)	N/A
Do endpoints include TUc, NOEC, LOEC, and IC25?	N/A
Do statistics verify endpoints?	N/A
Were Control Charts updated to include month of analysis?	N/A
Reviewer Initials: ABR **Review Date:** 3-19-19	

PEER/FINAL REVIEW:	PR	FR
LIMS/Excel data matches printed CL report?	✓	
Analysis dates are correct?	✓	
Correct data qualifiers included, if necessary?		
CRAO report shows result is from contract lab?	✓	
CRAO report shows correct Contract Lab (e.g. Legend Technical Services of Arizona, Phoenix)?	✓	
DO received in Pima Core?	✓	
Analysis set to Reported?		✓

Peer Reviewer Initials:	JM	**Review Date:**	3-31-19
Final Reviewer Initials:	JEC	**Review Date:**	3·26·19

CORRECTIVE ACTION REPORT:			
Preliminary Review:		Date:	
QA/QC Review:		Date:	
Data Entry:		Date:	
Peer Review:		Date:	
Lab Supervisor:		Date:	

LIMS #:	**DEVIATION:**	**CORRECTIVE ACTION:**

DEVIATIONS FROM ACCEPTABLE QA/QC:

Missing QC Report/Data
Holding Time for analysis exceeded.
Inappropriate dilution performed.
Missing COC.
Missing Data Qualifiers.
Incorrect Analysis Method.
Incorrect Sample IDs.
Other.

CORRECTIVE ACTION:

Request report correction from Subcontract Lab project manager.
Add missing Data Qualifiers.
Notify data end-user of deviation.
Arrange for resampling.
Other.

LEGEND
Technical Services, Inc.

4585 S. Palo Verde Rd., Ste. 423 • Tucson, AZ 85714
P (520) 327-1234 • F (520) 327-0518
www.legend-group.com

05 March 2019

Joe Doranski
Pima County RWRD CRAO Lab
2955 W Calle Agua Nueva
Tucson, AZ 85745
Fax: (520) 579-6002

RE: Cyanide

Laboratory Work Order No.: 19B1982

Legend Technical Services of Arizona, Inc. is pleased to provide the enclosed analytical results for the aforementioned project. These results relate only to the items tested. This cover letter and the accompanying pages represent the full report for these analyses and should only be reproduced in full. Samples for this project were received by the laboratory on 02119119 12:30.

The samples were processed in accordance with the Chain of Custody document and the results presented relate only to the samples tested. The Chain of Custody is considered part of this report.

All samples will be retained by LEGEND for 30 days from the date of this report and then discarded unless other arrangements are made. Due to hold-time and method sample volume requirements, microbiological samples are not retained unless other arrangements are made.

This entire report was reviewed and approved for release by the undersigned. If you have any questions concerning this report, please feel free to contact me.

Sincerely,
LEGEND TECHNICAL SERVICES OF ARIZONA, INC.

◆◆

Kaitlyn M. Martel For Alyssa Mazza
Laboratory Technician I
(602) 324-6100

This laboratory report is confidential and is intended for the sole use of LEGEND and it's client.

Pima County RWRD CRAO Lab 2955 W Calle Agua Nueva Tucson, AZ 85745	Project: Cyanide Project Number: Cyanides #3 2/19/19 Project Manager: Joe Doranski	Reported: 03/05/19 09:23

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	'fype	Data Sampled	Date Received
1902112-03	1981982-01	Solid (Dry Weight)	Composite	02/15/19 06:00	02/19/19 12:30
1902113-02	1981982-02	Solid (Dry Weight)	Composite	02/15/19 06:00	02/19/19 12:30

Sample Condition Upon Receipt:

Temperature: 2.00 C

All samples were received in acceptable condition unless noted otherwise in the case narrative.

Case Narrative:

Holding Times: All holding times were met unless otherwise qualified.

QA/QC Criteria: All analyses met method requirements unless otherwise qualified.

Certifications: AZ(PHX)0004, AZ(TUC)OOO4, AIHA#102982, CDC ELITE Member.

Accreditation is applicable only to the test methods specified on the scope of accreditation held by LEGEND.

Comments: All reporting limits utilized in this report are from the approved method with the lowest possible levels of detection. All samples were analyzed on a "wet" basis unless designated as "dry weight".

Pima County RWRD CRAO Lab 2955 W Calle Agua Nueva Tucson, AZ 85745	Project: Cyanide Project Number. Cyanides #3 2/19/19 Project Manager: Joe Doranski	Reported: 03/05/19 09:23

1902112-03 (19B1982-01) Solid (Dry Weight) (Composite) Sampled: 02/15/19 06:00 Received: 02/19/19 12:30

Legend Technical Services of Arizona, Inc.

Analyte	Result	MDL	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Inorganic Chemistry										
Cyanide, Total	<	33.3	111	mg/kg dry	10	B9B1553	02/22/19 09:13	02/22/19 16:23	EPA9014	D1, EB
%Solids	0.9		1	%	1	B9B1518	02/21/19 15:40	02/21/19 15:40	SM 2540 G	

1902113-02 (19B1982-02) Solid (Dry Weight) (Composite) Sampled: 02/15/19 06:00 Received: 02/19/19 12:30

Legend Technical Services of Arizona, Inc.

Analyte	Result	MDL	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Inorganic Chemistry										
Cyanide, Total	0.382	0.191	0.637	mg/kg dry	1	B9B1553	02/22/19 09:13	02/22/19 16:23	EPA9014	E4, M2
% Solids	16		1	%	1	B9B1518	02/21/19 15:40	02/21/19 15:40	SM 2540 G	

PIMA COUNTY
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office (CRAO) Laboratory
2955 W. Calle Agua Nueva, Tucson Arizona 85745-9750, Phone (520) 724-6200

Report Date: 08/13/2019
Laboratory License: AZO159

Sample Analysis Report

Tres Rios WRF

April 2019

Sample Integrity

SAMPLE RECEIPT: Samples were received intact at the required temperature, unless otherwise noted with a data qualifier below. Please refer to the Chain of Custody for sample receipt details.

HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the Pima County CRAO Laboratory Quality Manual.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS:

Notes and Definitions:

See attached

Case Narratives:

See attached

All results on this report intended for compliance submission must have the associated chain(s) of custody attached for the results to meet reporting requirements as per ADHS Laboratory licensure rules. If you have received this report for compliance purposes and it is not complete, please contact the Compliance and Regulatory Affairs Office for a final report in its entirety.

Reviewed By:

Laboratory Director or Designee
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office Laboratory

1·20·1?
Date

Laboratory License: AZ0159

Sample Qualifiers

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Sample Qualifiers
Raw Influent	1904090-01	Water	4/12/2019 6:00:00	4/12/2019 8:17:00	Q6
Dewatered Cake Biosolids	1904090-03	Biosolids	4/12/2019 6:00:00	4/12/2019 8:17:00	Q6

Laboratory License# AZOI59

Lab ID:	Sample Type	Parameter	Sample Dateffime	Analysis Method	Analysis Dateffime	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
1904090-0 I	C	Di-n-butyl phthalate	04/12/19 6:00	EPA62S	4/22/19 17:17	ND	ug/L	2.50	12.00	DI, 07	SJM
1904090-01	C	Di-n-octyl phthalate	04/12/19 6:00	EPA62S	4/22/19 17:17	ND	ug/L	2.55	12.00	DI, 07	SJM
1904090-0 I	C	Fluoranthene	04/12/19 6:00	EPA62S	4/22/19 17:17	ND	ug/L	1.32	4.00	07, DI	SJM
1904090-01	C	Fluorene	04/12/19 6:00	EPA62S	4/22/19 17:17	ND	ug/L	1.54	4.00	DI, 07	SJM
1904090-0 I	C	Hexachlorobenzene	04/12/19 6:00	EPA62S	4/22/19 17:17	ND	ug/L	0.62	4.00	DI, 07	SJM
1904090-0 I	C	Hexachlorobutadicne	04/12/19 6:00	EPA62S	4/22/19 17: 17	ND	ug/L	1.01	4.00	DI, 07	SJM
I904090-0 I	C	Hcxachlorocyclopcntadiene	04/12/19 6:00	EPA62S	4/22/19 17:17	ND	ug/L	4.23	12.00	DI, 07	SJM
1904090-0 I	C	Hexachloroethane	04/12/19 6:00	EPA62S	4/22/19 17:17	ND	ug/L	1.26	4.00	DI, D7	SJM
1904090-0 I	C	Indeno(1,2,3-cd}pyrene	04/12/19 6:00	EPA62S	4/22/19 17:17	ND	ug/L	2.83	12.00	DI, 07	SJM
I904090-0 I	C	Isophorone	04/12/19 6:00	EPA62S	4/22/19 17:17	ND	ug/L	1.66	4.00	DI, 07	SJM
I904090-0 I	C	Naphthalene	04/12/19 6:00	EPA62S	4/22/19 17:17	ND	ug/L	1.77	4.00	DI, 07	SJM
1904090-0 I	C	n-Decane	04/12/19 6:00	EPA62S	4/22/19 17:17	ND-	ug/L	1.95	4.00	01,07	SJM
1904090-0 I	C	Nitrobenzene	04/12/19 6:00	EPA62S	4/22/19 17:17	ND	ug/L	2.10	12.00	DI, 07	SJM
I904090-0 I	C	N-Nitrosodimethylarnine	04/12/19 6:00	EPA62S	4/22/19 17:17	ND	ug/L	2.09	12.00	07, PC3, DI	SJM
1904090-01	C	N-Nitrosodi-n-propylamine	04/12/19 6:00	EPA62S	4/22/19 17:17	ND	ug/L	2.43	12.00	DI, D7	SJM
1904090-0 I	C	N-Nitrosodiphenylamine	04/12/19 6:00	EPA62S	4/22/19 17:17	ND	ug/L	6.08	20.00	DI, 07	SJM
I904090-01	C	n-Octadecane	04/12/19 6:00	EPA62S	4/22/19 17:17	3.43	ug/L	2.18	12.00	DI, 07, J	SJM
1904090-0 I	C	Pentachlorophenol	04/12/19 6:00	EPA62S	4/22/19 17:17	ND	ug/L	4.02	12.00	DI, 07	SJM
1904090-0 I	C	Phenanthrene	04/12/19 6:00	EPA62S	4/22/19 17:17	ND·	ug/L	1.63	4.00	DI, 07	SJM
1904090-0 I	C	Phenol	04/12/19 6:00	EPA62S	4/22/19 17:17	26.8	ug/L	2.59	12.00	DI, 07	SJM
1904090-01	C	Pyrene	04/12/19 6:00	EPA62S	4/22/19 17:17	ND	ug/L	1.38	4.00	DI, 07	SJM
1904090-0 I	C	1,2-Diphcnylhydrazine	04/12/19 6:00	EPA8270C.	4/22/19 17:17	ND	ug/L	0.98	4.00	DI, 07	SJM
I904090-0 IRE I	C	Lead	04/12/19 6:00	EPA200.8	5/13/19 15: 13	1.47	ug/L	0.10	2.00	D1,J	JB
1904090-0IREI	C	Thallium	04/12/19 6:00	EPA 200.8	5/13/19 15:13	ND	ug/L	0.09	2.00	DI	JB
1904090-0IREI	C	Zinc	04/12/19 6:00	EPA 200.8	5/13/19 15:13	163	ug/L	0.86	2.00	02	JB
Dewatered Cake Biosolids (20001-5703)											
1904090-03	C	Antimony	04/12/19 6:00	EPA6010D	5/14/19 09:47	ND	mg/kg dry		9.63		MLB
1904090-03	C	Arsenic	04/12/19 6:00	EPA6010D	5/16/19 12:12	ND	mg/kg dry		9.63		MLB
1904090-03	C	Beryllium	04/12/19 6:00	EPA6010D	5/9/19 11:44	ND	mg/kg dry		1.93		MLB
1904090-03	C	Cadmium	04/12/19 6:00	EPA6010D	5/9/19 11:44	ND	mg/kg dry		3.85		MLB
1904090-03	C	Chromium	04/12/19 6:00	EPA6010D	5/9/19 11:44	29.1	mg/kg dry		9.63		MLB
1904090-03	C	Copper	04/12/19 6:00	EPA6010D	5/9/19 11:44	347	mg/kgdry		9.63		MLB
1904090-03	C	Lead	04/12/19 6:00	EPA6010D	5/9/19 11:44	112	mg/kg dry		9.63		MLB
1904090-03	C	Mercury	04/12/19 6:00	EPA 7471B	5/2/19 12:14	0.83	mg/kg dry		0.30		MJC
1904090-03	C	Molybdenum	04/12/19 6:00	EPA6010D	5/9/19 11:44	13.0	mg/kg dry		3.85		MLB
1904090-03	C	Nickel	04/12/19 6:00	EPA6010D	5/9/19 11:44	20.4	mg/kg dry		9.63		MLB
1904090-03	C	Selenium	04/12/19 6:00	EPA6010D	5/9/19 17:03	ND	mg/kg dry		19.25		MLB
1904090-03	C	Silver	04/12/19 6:00	EPA6010D	5/16/19 12:12	2.96	mg/kgdry		0.96		MLB
1904090-03	C	Thallium	04/12/19 6:00	EPA6010D	5/9/19 17:03	ND	mg/kg dry		9.63		MLB
1904090-03	C	Zinc	04/12/19 6:00	EPA6010D	5/9/19 11:44	695	mg/kg dry		9.63		MLB
1904090-03	C	Cyanide, Total	04/12/19 600	EPA 9014	4/19/19 13:31	0.321	mg/kg dry	0.192	0.641	E4	ALK *
• Analysis Performed by:Legend Technical Services of Arizona, Inc. - See attached contract lab report for official results.											
1904090-03	C	% Solids	04/12/19 6:00	SM 2540G	4/17/19 16:05	16	%		1		SLL *
• Analysis Performed by:Legend Technicai Services of Arizona, Inc. - See attached contract lab report for official results.											
1904090-03	C	%Solids	04/12/19 6:00	SM2S40G	4/14/19 12:03	16.77	%		0.01		LAH
1904090-03	C	Acrolein	04/12/19 6:00	EPA 624	4/17/19 21 :27	ND	mg/kg dry	0.00360	0.01		JEL
1904090-03	C	Acrylonitrile	04/12/19 6:00	EPA624	4/17/19 21:27	ND	mg/kg dry	0.00280	0.01		JEL
1904090-03	C	4,4-000	04/12/19 6:00	EPA62S	4/24/19 05:27	ND	mg/kg dry	0.00301	0.01	DI,O7	HAV
1904090-03	C	4,4-DDE	04/12/19 6:00	EPA62S	4/24/19 05:27	ND	mg/kg dry	0.00475	0.01	01,07	HAV
1904090-03	C	4,4-DDT	04/12/19 6:00	EPA62S.	4/24/19 05:27	ND	mg/kg dry	0.00415	0.02	m;o1	HAV
1904090-03	C	Aldrin	04/12/19 6:00	EPA62S	4/24/19 05:27	ND	mg/kg dry	0.00487	0.01	01,07	HAV
1904090-03	C	alpha-BHC	04/12/ 19 6:00	EPA62S	4/24/19 05:27	ND	mg/kg dry	0.00511	0.01	DI,D7	HAV
1904090-03	C	beta-BHC	04/12/19 6:00	EPA62S	4/24/19 05:27	ND	mg/kg dry	0.01083	0.02	DI,D7	HAV
1904090-03	C	Chlordane	04/12/19 6:00	EPA62S	4/24/19 05:27	ND	mg/kg dry	0.01143	0.06	DI,D7	HAV
1904090-03	C	delta-BHC	04/12/19 6:00	EPA62S	4/24/19 05:27	ND	mg/kg dry	0.00217	0.01	01,07	HAV
1904090-03	C	Dieldrin	04/12/19 6:00	EPA62S	4/24/19 05:27	ND	mg/kg dry	0.00499	0.01	01,07	HAY
1904090-03	C	Endosulfan I	04/12/19 6:00	EPA62S	4/24/19 05:27	ND	mg/kg dry	0.00325	0.01	01,07	HAV
1904090-03	C	Endosulfan II	04/12/19 6:00	EPA62S	4/24/19 05:27	ND	mg/kg dry	0.00439	0.01	01,07	HAV

Laboratory License # AZO 159

Lab ID:	Sample Type	Parameter	Sample Dateffime	Analysis Method	Analysis Datcffime	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
1904090-03	C	Endosulfan sulfate	04/12/19 6:00	EPA625	4/24/19 05:27	ND	mg/kg dry	0.00343	0.01	01,07	HAY
1904090-03	C	Endrin	04/12/19 6:00	EPA625	4/24/19 05:27	ND	mg/kg dry	0.00800	0.02	DI, 07	HAY
1904090-03	C	Endrin aldehyde	04/12/19 6:00	EPA625	4/24/19 05:27	ND	mg/kg dry	0.00722	0.QI	01,D7	HAY
1904090-03	C	gamma-BHC (Lindane)	04/12/19 6:00	EPA625	4/24/19 05:27	ND	mg/kg dry	0.00830	0.02	01,07	HAY
1904090-03	C	Heptachlor	04/12/19 6:00	EPA625	4/24/19 05:27	ND	mg/kg dry	0.00301	0.01	D1,D7	HAY
1904090-03	C	Heptachlor Epoxide	04/12/19 6:00	EPA625	4/24/19 05:27	ND	mg/kgdry	0.00511	0.01	01,07	HAY
1904090-03	C	PCB 1016	04/12/19 6:00	EPA625	4/24/19 05:27	ND	mg/kgdry	0.00662	0.05	01,07	HAY
1904090-03	C	PCB 1221	04/12/19 6:00	EPA62S	4/24/19 05:27	ND	mg/kg dry	0.01023	0.02	01,07	HAY
1904090-03	C	PCB 1232	04/12/19 6:00	EPA625	4/24/19 05:27	ND	mg/kg dry	0.00421	0.02	DI,D7	HAY
1904090-03	C	PCB 1242	04/12/19 6:00	EPA62S	4/24/19 05:27	ND	mg/kgdry	0.00782	0.02	01,07	HAY
1904090-03	C	PCB 1248	04/12/19 6:00	EPA625	4/24/19 05:27	ND	mg/kg dry	0.00632	0.02	01,07	HAY
1904090-03	C	PCB 1254	04/12/19 6:00	EPA625	4/24/19 05:27	ND	mg/kg dry	0.01143	0.02	01,07	HAY
1904090-03	C	PCB 1260	04/12/19 6:00	EPA625	4/24/19 05:27	ND	mg/kg dry	0.00481	0.02	01,07	HAY
1904090-03	C	Total PCBs	04/12/19 6:00	EPA625	4/24/19 05:27	ND	mg/kg dry	0.01143	0.05	01,07	HAY
1904090-03	C	Toxaphcne	04/12/19 6:00	EPA625	4/24/19 05 :27	ND	mg/kgdry	0.10647	0.12	01,07	HAY
1904090-03	C	Methoxychlor	04/12/19 6:00	EPA8270C	4/24/19 05 :27	ND	mg/kg dry	0.00301	0.01	D1,D7	HAY
1904090-03	C	I, 1, 1-Trichloroethane	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kgdry	0.004	O.QI		ADP
1904090-03	C	I, 1,2,2-Tetrachloroethane	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.001	0.01		ADP
1904090-03	C	I, 1,2-Trichloroethane	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.002	0.01		ADP
1904090-03	C	I, 1-Dichloroethane	04/12/1 9 6 00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.003	0.01		ADP
1904090-03	C	1, 1-Dichloroethene	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.002	0.01		ADP
1904090-03	C	1.2-Dichlombenzcne	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.002	0.01		ADP
1904090-03	C	1,2-Dichlorocthane	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.002	0.01		ADP
1904090-03	C	1,2-Dichloropropane	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.002	O.QI		ADP
1904090-03	C	1,3-Dichlorobcnzene	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.002	0.01		ADP
1904090-03	C	1,4-Dichlorobenzene	04/12/19 6:00	EPA624	4/16/19 17:20	0.04	mg/kg dry	0.003	0.01		ADP
1904090-03	C	2-Chloroethyl vinyl ether	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.005	0.02		ADP
1904090-03	C	Benzene	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.002	0.01		ADP
1904090-03	C	Bromodichloromethane	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kgdry	0.005	0.01		ADP
1904090-03	C	Bromoform	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kgdry	0.006	0.01		ADP
1904090-03	C	Bromomethane	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.003	0.01		ADP
1904090-03	C	Carbon Tetrachloride	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.007	0.01		ADP
1904090-03	C	Chlorobcnzene	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.001	0.01		ADP
1904090-03	C	Chlorocthane	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.004	0.01		ADP
1904090-03	C	Chloroform	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.003	o.oi		ADP
1904090-03	C	Chloromethane	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.004	0.QI		ADP
1904090-03	C	cis-1,3-Dichloropropene	04/.12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.002	0.01		ADP
1904090-03	C	Dibromochloromethane	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kgdry	0.001	0.01		ADP
1904090-03	C	Ethyl Benzene	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kgdry	0.002	0.01		ADP
1904090-03	C	Methylene Chloride	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kgdry	0.004	0.01		ADP
1904090-03	C	Tetrachloroethene	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.004	0.01		ADP
1904090-03	C	Toluene	04/12/19 6:00	EPA624	4/16/19 17:20	0.15	mg/kg dry	0.003	0.01		ADP
1904090-03	C	Total Trihalomethanes	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.006	0.01		ADP
1904090-03	C	trans-1,2-Dichloroethene	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.003	0.01		ADP
1904090-03	C	trans-1,3-Dichloropropene	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.002	0.01		ADP
1904090-03	C	Trichloroethene	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.003	0.01		ADP
1904090-03	C	Trichlorofluoromethane	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.005	0.01		ADP
1904090-03	C	Vinyl thloride	04/12/19 6:00	EPA624	4/16/19 17:20	ND	mg/kg dry	0.004	0.QI		ADP
1904090-03	C	1,2,4-Trichlorobcnzene	04/12/19 6:00	EPA8260	4/16/19 17:20	ND	mg/kg dry	0.044	0.20		ADP
1904090-03	C	1,2-Dibromo-3-chloropropane	04/12/19 6:00	EPA8260	4/16/19 17:20	ND	mg/kg dry	0.036	0.40		ADP
1904090-03	C	1,2-Dibromoethane	04/12/19 6:00	EPA 8260	4/16/19 17:20	ND	mg/kg dry	0.040	0.20		ADP
1904090-03	C	cis-1,2-Dichloroethene	04/12/19 6:00	EPA 8260	4/16/19 17:20	ND	mg/kg dry	0.080	0.20		ADP
1904090-03	C	m,p-Xylencs	04/12/19 6:00	EPA8260	4/16/19 17:20	ND	mg/kg dry	0.064	0.40		ADP
1904090-03	C	o-Xylene	04/12/19 6:00	EPA8260	4/16/19 17:20	ND	mg/kg dry	0.032	0.20		ADP
1904090-03	C	Styrene	04/12/19 6:00	EPA8260	4/16/19 17:20	ND	mg/kg dry	0.032	0.20		ADP
1904090-03	C	Xylenes, total	04/12/19 6:00	EPA8260	4/16/19 17:20	ND	mg/kg dry	0.064	0.40		ADP
1904090-03	C	2,3,7,8-TCDD-Dioxin Scan	04/12/19 6:00	EPA625	5/17/19 14:56	ND	ug/kg dry		0.15		SJM
1904090-03	C	1,2,4-Trichlorobcnzene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.06	0.08	07,01	SJM
1904090-03	C	2,3-Dichloroaniline	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.09	0.24	01,07	SJM
1904090-03	C	2,4,6-Trichlorophenol	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.05	0.08	DI,O7	SJM

Laboratory License# AZ0159

Lab ID:	Sample Type	Parameter	Sample Dateffime	Analysis Method	Analysis Dateffime	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
1904090-03	C	2,4-Dichlorophenol	04/12/19 6:00	EPA625	4/22/19 19: 11	ND	mg/kg dry	0.07	0.08	DI, D7	SJM
1904090-03	. c	2,4-Dimethylphenol	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.14	0.24	DI, D7	SJM
1904090-03	C	2,4-Dinitrophenol	04/12/19 6:00	EPA 625	4/22/19 19:11	ND	mg/kg dry	034	0.40	DI, D7	SJM
1904090-03	C	2,4-Dinitrotoluene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.09	0.24	DI, D7	SJM
1904090-03	C	2,6-Dinitrotoluene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.06	0.08	DI, D7	SJM
1904090-03	C	2-Chloronaphthalene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kgdry	0.06	0.08	DI, D7	SJM
1904090-03	C	2-Chlorophenol	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.05	0.08	DI, D7	SJM
1904090-03	C	2-Methyl-4,6-dinitrophenol	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.21	0.24	Dl,D7	SJM
1904090-03	C	2-Methylphenol	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.05	0.08	DI, D7	SJM
1904090-03	C	2-Nitrophenol	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.11	0.24	DI, D7	SJM
1904090-03	C	3,3-Dichlorobenzidine	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.09	0.20	DI, D7	SJM
1904090-03	C	4-Bromophenyl phenyl ether	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.05	0.08	DI, D7, Sl1	SJM
1904090-03	C	4-Chloro-3-methylphenol	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.09	0.24	Dl,D7	SJM
1904090-03	C	4-Chlorophenyl phenyl ether	04/12/19 6:00	EPA625	4/22/19 19: 11	ND	mg/kg dry	0.05	0.08	DI, D7	SJM
1904090-03	C	4-Methylphenol	04/12/19 6:00	EPA625	4/22/19 19:11	3.18	mg/kg dry	0.07	0.08	DI, D7	SJM
1904090-03	C	4-Nitrophenol	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.19	0.24	DI, D7	SJM
1904090-03	C	Acenaphthene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.06	0.08	DI, D7	SJM
1904090-03	C	Acenaphthylene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.06	0.08	DI, D7	SJM
1904090-03	C	Anthracene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.08	0.08	D7, SIi, DI	SJM
1904090-03	C	Benzidine	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.26	0.40	DI, D7	SJM
1904090-03	C	Benzo[a]anthracene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.05	0.08	DI, D7	SJM
1904090-03	C	Benzo[a]pyrene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.08	0.08	DI, D7	SJM
1904090-03	C	Benzo[b]fluoranthene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.06	0.08	DI, D7	SJM
1904090-03	C	Benzo[ghi]perylene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.12	0.24	DI, D7	SJM
1904090-03	C	Benzo[k]fluoranthene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.09	0.24	DI, D7	SJM
1904090-03	C	bis(2-chloroethoxy)methane	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kgdry	0.08	0.08	DI, D7	SJM
1904090-03	C	bis(2-chloroethyl)ether	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.08	0.24	DI, D7	SJM
1904090-03	C	bis(2-chloroisopropyl)ether	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.07	0.08	DI, D7	SJM
1904090-03	C	bis(2-ethylhexyl)phthalate	04/12/19 6:00	EPA625	4/22/19 19:11	11.94	mg/kg dry	0.11	0.24	DI, D7	SJM
1904090-03	C	Butylbenzylphthalate	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.08	0.08	DI, D7	SJM
1904090-03	C	Carbazole	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.11	0.24	DI, D7, Sl1	SJM
1904090-03	C	Chrysene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.05	0.08	DI, D7	SJM
1904090-03	C	Dibenzo(a,h)anthracene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.12	0.24	DI, D7	SJM
1904090-03	C	Diethyl phthalate	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.09	0.24	DI, D7	SJM
1904090-03	C	Dimethyl phthalate	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.02	0.24	DI, D7	SJM
1904090-03	C	Di-n-butyl phthalate	04/12/19 6:00	EPA625	4/22/19 19:11	5.34	mg/kg dry	0.10	0.24	Dl,D7,S11	SJM
1904090-03	C	Di-n-octyl phthalate	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.10	0.24	DI, D7	SJM
1904090-03	C	Fluoranthene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.05	0.08	DI, D7, SIi	SJM
1904090-03	C	Fluorene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.06	0.08	D7, DI	SJM
1904090-03	C	Hexachlorobenzene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.02	0.08	DI, D7, Sl1	SJM
1904090-03	C	Hexachlorobutadiene	04/12/19 6:00	EPA62S	4/22/19 19:11	ND	mg/kg dry	0.04	0.08	Dl,D7	SJM
1904090-03	C	Hexachlorocyclopentadiene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.17	0.24	Dl,D7	SJM
1904090-03	C	Hexachloroethane	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.05	0.08	Dl,D7	SJM
1904090-03	C	lndeno(1,2,3-cd)pyrene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.11	0.24	Dl,D7.	SJM
1904090-03	C	lsophorone	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	O.o?	0.08	Dl,D7	SJM
1904090-03	C	Naphthalene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.07	0.08	Dl,D7	SJM
1904090-03	C	n-Decane	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.08	0.08	Dl,D7	SJM
1904090-03	C	Nitrobenzene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.08	0.24	Dl,D7	SJM
1904090-03	C	N-Nitrosodimethylamine	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.08	0.24	Dl,D7, PC3	SJM
1904090-03	C	N-Nitrosodi-n-propylamine	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.10	0.24	Dt,D7	SJM
1904090-03	C	N-Nitrosodiphenylamine	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.24	0.40	Dl,D7	SJM
1904090-03	C	n-Octadecane	04/12/19 6:00	EPA625	4/22/19 19:11	5.42	mg/kg dry	0.09	0.24	Dl,D7,S11	SJM
1904090-03	C	Pentachlorophenol	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.16	0.24	DI, D7, Sl1	SJM
1904090-03	C	Phenanthrene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.07	0.08	D1,D7,Sll	SJM
1904090-03	C	Phenol	04/12/19 6:00	EPA625	4/22/19 19:11	5.54	mg/kg dry	0.10	0.24	Dl,D7	SJM
1904090-03	C	Pyrene	04/12/19 6:00	EPA625	4/22/19 19:11	ND	mg/kg dry	0.06	0.08	Dl,D7	SJM
1904090-03	C	1,2-Diphenylhydrazine	04/12/19 6:00	EPA8270C	4/22/19 19:11	ND	mg/kg dry	0.05	0.08	Dl,D7	SJM
1904090-03	C	1,4-Dichlorobenzene	04/12/19 6:00	EPA8270C	4/22/19 19:11	ND	mg/kg dry	0.22	0.24		SJM
1904090-03	C	2,4,5-Trichlorophenol	04/12/19 6:00	EPA8270C	4/22/19 19:11	ND	mg/kg dry	0.10	0.24		SJM
1904090-03	C	3 & 4-Methylphenol	04/12/19 6:00	EPA8270C	4/22/19 19:11	ND	mg/kg dry	0.05	0.24		SJM

Qualifier Definitions

N4	The Minimum Reporting Limit (MRL) verification check did not meet the laboratory acceptance limit.
A	Absence
DI	Sample required dilution due to matrix.
D2	Sample required dilution due to high concentration of target analyte.
D4	Minimum Reporting Limit (MRL) adjusted to reflect sample amount received and analyzed.
D6	Minimum Reporting Limit (MRL) adjusted due to an automatic IOX dilution performed on this sample for the purpose of reporting traditional drinking water analytes for wastewater requirements.
D7	Minimum Reporting Limit adjusted to reflect sample dilution.
E4	Concentration estimated. Analyte was detected below laboratory minimum reporting level (MRL), but above the MDL.
ES	Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
H6	The filtration was not done within the required 15 minutes of sampling, the sample was filtered in the laboratory.
J	Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
NI	See case narrative.
N7	Additional analysis was not performed based on the "Total" result which was below the requested analyte's MCL/Action level/Trigger Level.
NA	Not Analyzed
PC3	Semi-quantitation is included in the case narrative.
Q6	Sample was received above recommended temperature.
Si1	Surrogate recovery was high. Data reported per ADEQ policy 0154.000
T4	Tentatively identified compound. Concentration is estimated and based on the closest internal standard.
VJ	CCV recovery was above method acceptance limits. This target analyte was not detected in the sample.

General Notes and Definitions

J	Equivalent to E4 Qualifier - Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
ND	Analyte NOT DETECTED at or above reporting limit (MDL). Equivalent to ES Qualifier - Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
C	Sample Type - Composite
CD	Sample Type - Composite Duplicate
D	Sample Type - Discrete
DD	Sample Type - Discrete Duplicate
NR	Not Reported
DET	Analyte DETECTED
DRY	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
Analysis Date	Analysis Date represents the final reading date.
Field Results	Field Results performed by "SMPLR" (Sampler), are not subject to approval of Laboratory Director.
Solids, Total Volatile	Used for process control samples only.
RE	Re-Analysis has been performed.
FD	Field Duplicate

FB	Field Blank
UC	Under Construction
EB	Equipment Blank
NA	Not Analyzed

Case Narrative(s)

Semi-Quantitation
Method: 625
1904090-02

Compound Name	Concentration-ug/L
Palmitic Acid	230
Stearic Acid	147

SJM 05/17/19

Semi-Quantitation
Method: 625
1904090-01

Compound Name	Concentration-ug/L
2-Butoxyethanol	101
Benzoic Acid	121
Benzeneacetic Acid	99
N,N-Dimethyl-1-dodecanamine	548
Tetradecanoic Acid	172
Palmitic Acid	42834
OleicAcid	62905
Stearic Acid	18607

SJM05/17/19

Semi-Quantitation
Method: 625
1904090-03

Compound Name	Concentration-mg/Kg
Benzeneacetic Acid	29
Tetradecanoic Acid	32
Palmitic Acid	9034
OleicAcid	5648
Stearic Acid	2469

SJM 05/20/19

1904154-01
Nitrite SM 4500-NO2-B - Sample was analyzed on 4/23/19 within holding time, but the batch contained quality control failures making the data unusable. These failures were not discovered until the afternoon of 4/24/19 at which point the holding time for the sample had expired. Sample recollected for Nitrite 4/25/19, WO 1904184 MJC 4/25/19. Edited JEC 6/14/19.

PIMA COUNTY WASTEWATER RECLAMATION

Pima County Regional Wastewater Reclamation Department
Compliance/Regulatory Affairs Office Laboratory

CHAIN OF CUSTODY

WORK ORDER & SAMPLE(S): 1904096-03

PROJECT & LOCATION: Tres Rios WRF - Dewatered Cake Biosolids (Semi-Annual)

PROJECT-LOCATION NUMBER: 20001-5703 ----c,o-=oo=a=XXXX)==----

SAMPLE START DATE: 04/11/2019 (MM/DD/YY OR MM/DD/YYYY)

SAMPLE START TIME: 0600 (Military time)

CLIENT: IWC

SAMPLE END DATE: 04/12/2019 (MM/DD/YY OR MM/DD/YYYY)

SAMPLE END TIME: 0600 (Military time)

SAMPLER(S): Sliva, Kaufman, Riccaboni, Martinez (Print Name(s) Only)

Permit Type: 0 APP; AZPDES; 01; D Investigative; Reuse; Air; 0503; Process Control; Other

Matrix: Biosolids; D Groundwater; 0 Industrial; Soil; D Stormwater; Surface Water; Wastewater; Air; Other

INORGANIC CHEMISTRY

METALS	Tot	Diss	D	C
Aluminum	D	D	D	D
Antimony	D	D	D	D
Arsenic	D	D	D	D
Barium		0	0	0
Beryllium		0	0	
Boron	D	D	D	D
Cadmium	D	D	D	D
Calcium				
Chromium	D	D	D	D
Cobalt		0		
Copper				0
Hardness	D	D	D	D
Iron	D	D	D	D
Lead	D	D	D	D
Magnesium		0		
Manganese				
Mercury	x			
Mercury LL		D	D	D
Molybdenum	D	D	D	D
Nickel	D	D	D	D
Potassium	D		0	0
Selenium		D	D	D
Silver	D	D	D	D
Sodium	D	D	D	D
Thallium				
Tin	D			

METALS	Tot	Diss	D	C
Titanium	D	D	D	D
Vanadium	D	D	D	D
Zinc	D	D	D	D
PPMs *	x		O	
TCLP Metals				
503 Metals -			D	
Dissolved Cr+6			D	D

WET METHODS	D	C
Ammonia as N	D	D
Chloride		
Cyanide, Total {p,lt.. t)		
Cyanide, Amenable	D	D
Fluoride	D	D
Ignitability		
Nitrate as N	D	D
Nitrite as N		
Nitrate/Nitrite as N	D	D
Nitrogen, Total Kjeldahl	D	D
Nitrogen, Total as N	D	D
Orthophosphate as P		
Phosphorus, Total as P	D	D
Sulfate	D	D
Sulfide	D	D
Other _____		
Other _____	D	D

ORGANIC CHEMISTRY

	D	C
Acrolein and Acrylonitrile		D
Dioxin GC/SIM/MS Scan	D	
Organochlorine Pesticides & PCBs	D	
Pll'geable Organics (GCMS)		0
Semivolatile Organics (GCMS)		
Bls(2-elhylhexyl) phthalate	D	D
Digester Gas	D	D
011 and Grease	O	0
Organic Carbon, Total	D	D
Organic Carbon, Dissolved		0
TCLP Herbicides (Contrad Lab)	0	0
TCLP Pesticides	D	D
TCLP SemlvolatNe Organics	D	D
TCLP Volatile Organics	O	0
TTHM	D	D
Total Petroleum Hydrocarbons	O	O
Volatile Acids	D	D
Other _____	O	D
Other _____	D	D

EFFLUENT TOXICITY TESTING

	D	C
ChronlcP.pn,me/a.s	D	D
Chronic *C. dubia*	D	D
Chronic Selena.strum *capricomutum*		
Other _____	D	D

MICROBIOLOGY - WET CHEM

	D	C
Alkalinity		
BOD		
COD		
Coliform, Fecal		
Coliform, Total		
Specific Conductance		
E.coli		
Oxygen, Dissolved		
pH		
Solids, Total		
Solids, Total Dissolved		D
Solids, Total Suspended		
SoHds, Total Volatile		
Solids, Volatile Suspended		0
Other		

OTHER

	D	C
Paint Fliter	D	D
	D	D
	D	D
	D	D

COMPLIANCE FIELD MEASUREMENTS

	Result	Units
Chlorine *Hach 10014*		1,19/L
D Specific Conductance *SM2510B*		1,1mhos/cm
D Oxygen, Dissolved SM4500-0G		mg/l..
OPH@pHTemp *SM45I»HB*	CD	pH Unltl 0 C
D Temperature *SM25/508*		·C
Total Depth of Well		feet
D Depth to Water		feet
Other		

Comments/Instructions:

The lab shall composite the Acrolein/Acrylonitrile and Purgeable Organic samples. 624 + 603 04-12-19

Cyanide and lab 2 T%C sent to Legend TS 603 04-12-19 - 0277 4

Septum Blank Prwp Date & Initials: ,!JJ-o.f- PL'l

Chain of Custody Record (Signatins Only)

Relinquished by Sampler:	Received by:	Date:	Time: (Military time)
		4/11/19	1500
Relinquished by:	Received by:	Date:	Time: (Military time)
	Refrigerator	4/12/19	0130
Relinquished by:	Received by:	Date:	Time: (Military time)
Refrigerator		4-12-19	0600
Relinquished by:	Received by:	Date:	Time: (Military time)
	Michelle Jeerner	4-12-19	0823
Relinquished by:	Received by:	Date:	Time: (Military time)

Sample Integrity/Preservation:

# of Bottles Delivered: 9

Transported on Ice: [x] YES [ ] NO

Lab Receipt

Temperature: 7.0 °C

Initials:

Q6 qualifier? [x] YES [ ] NO

LAB USE ONLy

Sample Inspection:	Yes	No	NA
Chain of Custody Record completed appropriately?	✓		
Sample labels match Chain of Custody?	✓		
Correct number of sample bottles were delivered?	✓		
Custody seals intact?			✓
Within holding time?	✓		
Sufficient sample volume for analysis?	✓		
Samples are in properly preserved containers?	✓		
Sample containers damaged/leaking/frozen?		✓	
40 ml vials headspace, > pea-sized air bubble?	✓		
Received from a refrigerator?		✓	

• Sb, As, S., Cd, Cr, Cu, Pfl, Nl, Se, Ag, 11, Zn, Metr:u,y(Cold Va,,o,1
- As. Cd, Cr, Cu, Pb, Mercury, Mo, Nl, Se, Zn

PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT
WATER QUALITY
SAMPLE COLLECTION REPORT

SAMPLE LOCATION: Tres Rios WRF - Dewatered Cake Biosolids **LIMS:** (r.,at.-(Otjor{JJ
LOCATION ID: 20001-5703 **SAMPLERS:** 5,"{'", k.t..,.fm.,.. , f{;c,ce,,Jr,,-,:__ **SAMPLE DATE:** '{- 12 -L"j
List names only, prlmory11mplerf!M M4L'-l,.•,..<J

Sample Dore	Parameter	Frequency	AUTO MAN	Volume Submitted	Bottle/Preservation
C	Semivolatile Organics	Hand Composite	Man	1000ml	Amber Glass/None/Ice
C	Organochlorine Pest & PCB's		Man	1000 ml	Amber Glass/None/Ice
C	Dioxin		Man	1000 ml	Amber Glass/None/Ice
C	Priority Pollutant & 503 Metals	4 Aliquots for the duration of the discharge	Man	1000 ml	Dissolved Metals/None/Ice
C	Total Solids		Man	1000 ml	General Purpose/None/Ice
C	Total Solids (for outside lab)		Man	1000 ml	General Purpose/None/Ice
C	Cyanide		Man	1000 ml	Dissolved Metals/None/Ice
			Man	1000 ml	Amber Glass/None/Ice
			Man	1000 ml	Amber Glass/None/Ice
To be Composited by the Laboratory					
D	Purgeable Organics	Hand Composite	Man	4X40	None/Ice
D	Acrolein/Acrylonitrile		Man	4X40	None/Ice
		4 Aliquots for the duration of the discharge			
To be Submitted to an outside Laboratory					

		Time
Aliquot #1	4-11-19	0730
Aliquot #2	4-11-19	~~0130~~ 4-11-19 1330
Aliquot #3	4.11.19	1845
Aliquot#4	4.12.19	0030

Comments:	Dewatered Cake Biosolids samples are not preserved.
	All Composites including Cyanide can be poured off at the end of the sampling event

CHAIN OF CUSTODY RECORD

LEGEND Technical Services, Inc.
D 17631 N 25th Avenue• Phoenix, AZ 85023 • (602) 324-6100 • Fax (602) 324-6101
04585 S Palo Verde Rd, Ste 423 • Tucson, AZ 85714 • (520) 327-1234 • Fax (520) 327-0518

Page 1 of 1

Please Print Clearly

CLIENT INFORMATION

Client Name	Address	City	State	Zip	Phone	Fax Number or Email Address
Pima County CRAO Lab	2955 W. Calle Agua Nueva	Tucson	AZ	85745	520-724-6016	joseph.doranski@pima.gov

Project Name	Project Number	Contact	P.O. No.	
SOCs	Tres Rios WRF	Joe Doranski	19-027740	Fax Results ☐ QC Report ☐ EDD ☑ Email Results X Special Detection Limits ☐

SAMPLE TYPE CODES: DW=Drinking Water; WW=Wast.,,ater; SW=Surface Water; GW=Groundwater; O=Other; S=Soil/Solid; T=Travel Blank; F=Food; G=Sludge/Biosol1ds

TURN AROUND TIME: Laboratory Authorization Required for Rush

_glistandard 10- 15 Day

D Other _____

REQUESTED ANALYSES

Client's Sample Identification	Date	Time	Sample Location	Composite	Grab	Sample Type	Compliance	No. of Containers	pH (Lab Use Only)	504	515	*625.1	531	547	548	**549	***608.3	8141	1613	Tributyltin (TIC)	Uranium 200.8	T. cyanide mg/kg	Total % solids				Lab No.
1904091-01	04/12/19	600	Tres Rios WRF - final effluent #3	X		WW	X	23		x	x	x	x	x	x	x	x	x	x	x	x						01
Travel Blank						DI		1		x																	02
1904090-03	04/12/19	600	Tres Rios WRF - dewatered cake	X		G	X	2														X	X				

TO ENSURE COMPLETION OF ANALYSIS, SAMPLES MUST BE RECEIVED AT LEAST 3 HOURS PRIOR TO THE HOLD TIME EXPIRATION

Comments /Special Instructions: *625.1 ext -include Permethrin **549-Paraquat & Diquat -•soa.3 ext include Mirex

SAMPLE CONDITION UPON RECEIPT (Lab Use)

No. of Containers		
Temperature	°C	
Custody Seals	y	N
Seals Intact	y	N
Preserved	y	N

RELINQUISHED BY

①	Sampler Signature	Date 4/12/19	
	Sampler Printed Name: Greg Spence	Time 1215	
@	Signature	Date	
	Printed Name	Time	
③	Signature	Date	
	Printed Name	Time	

SAMPLES RECEIVED BY

Signature	Date 4/12/19
Printed Name: Brian Merritt	Time 1215
Signature	Date
Printed Name	Time
Signature	Date
Printed Name	Time

WHITE-LAB YELLOW-CLIENT

FORM CS-016.2 (07/18)

PIMA COUNTY
WASTEWATER RECLAMATION

COMPLIANCE AND REGULATORY AFFAIRS OFFICE LABORATORY
2955 W Agua Nueva, Tucson, AZ 85745
Telephone: (520) 724-6200

LIMS CHECKLIST FOR SUBCONTRACT DATA

LIMS ID	**1904091-01, 1904090-03**	**DO**	**19-027740**
CONTRACT LAB	**Legend Technical Services, St. Paul + Phoenix; Eurofins Eaton Analytical, Inc.; Pace Analytical, Minneapolis**	**SAMPLE GROUP**	**socs, Cyanide + %Solids**
ANALYSES	**EPA531.2, EPA547, EPA200.8, EPA608.3, EPA625.1, EPA504.1, EPA515.3, EPA548.1, EPA549.2 EPA-5 1613B-Tetras, EPA 81418, EPA 9014, EPA 2540 G**	**REPORT ID**	**19D1608**

TRANSFER & CONVERT FILES:	
Was the contract lab spreadsheet file saved to \\Solimsann\elementshare\TransferIn ?	y
Was the above-mentioned file converted from a .xis file to a .mdb file for each WO#, and further, for each subcontract location, or separate analysis (as applicable), on the contract lab report? (Element>Project Manaqement> Reports)	y
Was the converted file attached to the sample in LIMS?	y
VALIDATING CONTRACT LAB REPORT, CHAIN OF CUSTODY(S), AND DO#:	
Is contract lab report signed and dated?	y
Is copy of contract lab COC included with contract lab report?	y
Do the contract lab COC and CRAO COC(s) list the same sample ID, sample date, and analysis requested?	y
Do the sample dates and received dates on the CL report match the CL COC?	y
Does the CL report include all requested analysis?	N
Is the CL licensed in AZ for reported methods?	y
Does the DO match COC in types and number of tests?	N/A
CONTRACT LAB REPORT, EXCEL SPREADSHEET, and QC:	
Do CL report and CL spreadsheet report the same sample result(s), samPle date(s), and analvsis date(s)?	y
Was a case narrative included in contract lab report?	y
Does the data packet include a QC report from the primary lab and any secondary subcontract labs?	y
Did the CL report list aoolicable AZ data qualifiers?	y
Were any dilutions made?	y
Were any results from diluted samples reported as ND?	y
Were the results from any diluted samples qualified accordingly?	y
Was QC included for every analysis method (e.q. Blk, LCS, MS, MSD)?	y
Did QC pass stated acceptance limits? If not, was it qualified?	y
Were samples analyzed within required holdinq times?	y
SOCs: Are MDLs below water quality standards? (If not, notify Belinda Gamboa-Felix.)	y
Semivolatiles & Volatiles: Were all analytes delivered?	N
COMPLIANCE LIMIT REVIEW	
Were results compared to the discharge permit?.	N/A
Was Belinda Gamboa-Felix notified of any exceedences?	N/A
WET TESTING SPECIFIC REQUIREMENTS	
Is statement of Pass/Fail reflected in endpoints?	N/A

QA-18 SubcontractDataCheclist-Reports Rev 18
Effective 01-23-2019

Page 1 of 2

Ceriodaphnia: Survival and reproduction data included?	N/A
P. Prome/as: Survival and growth data included?	N/A
Selenastrum: Growth data included?	N/A
Was chemistry data included?	N/A
Are Reference Toxicant Test results and Control Charts within limits?	N/A
Was PMSD Determination included and within acceptable range? (minimum acceptable= 13)	N/A
Do endpoints include TUc, NOEC, LOEC, and IC25?	N/A
Do statistics verify endpoints?	N/A
Were Control Charts updated to include month of analysis?	N/A
Reviewer Initials: MF	**Review Date:** 07-15-2019

PEER/FINAL REVIEW:	PR	FR
LIMS/Excel data matches printed CL report?	✓	
Analysis dates are correct?	✓	
Correct data qualifiers included, if necessary?	✓	
CRAO report shows result is from contract lab?	✓	
CRAO report shows correct Contract Lab (e.g. Legend Technical Services of Arizona, Phoenix)?	✓	
DO received in Pima Core?	✓	
Analysis set to Reported?		✓

Peer Reviewer Initials:	JLP	**Review Date:**	7-22-19 JLP 7-23-19
Final Reviewer Initials:	JEC	**Review Date:**	7.22.19

CORRECTIVE ACTION REPORT:			
Preliminary Review:		Date:	
QA/QC Review:		Date:	
Data Entry:		Date:	
Peer Review:		Date:	
Lab Supervisor:		Date:	

LIMS#:	**DEVIATION:**	**O:ORRECIWE ACTJDN:**
J.fj_Q{j_09I- O I	E Eff{B f\ -P-+- I-=t_uJQ	8-Ji<?eW.:(f2t-- .1,1J. JLP 7-16-19

DEVIATIONS FROM ACCEPTABLE QA/QC:

Missing QC Report/Data
Holding Time for analysis exceeded.
Inappropriate dilution performed.
Missing COC.
Missing Data Qualifiers.
Incorrect Analysis Method.
Incorrect Sample IDs.
Other.

CORRECTIVE ACTION:

Request report correction from Subcontract Lab project manager.
Add missing Data Qualifiers.
Notify data end-user of deviation.
Arrange for resampling.
Other.

Pima County RWRD CRAO Lab 2955 WCalleAgua Nueva Tucson, AZ 85745	Project: SOCs Project Number: Tres Rios WRF Project Manager: Joe Doranski	Reported: 06/27/19 14:48

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
1904091-01	19D1608-01	Wastewater	Composite	04/12/19 06:00	04/12/19 12:45
Travel Blank	19D1608-02	Water		04/12/19 06:00	04/12/19 12:45
1904090-03	19D1608-03	Solid (Dry Weight)	Composite	04/12/19 06:00	04/12/19 12:45

Sample Condition Upon Receipt:

Temperature: **5.70 C**

All samples were received in acceptable condition unless noted otherwise in the case narrative.

Case Narrative:

Holding **Times:** All holding times were met unless otherwise qualified.

QA/QC Criteria: All analyses met method requirements unless otherwise qualified.

Certifications: AZ(PHX)0004, AZ(TUC)OOO4, AIHA#102982, CDC ELITE Member.

Accreditation is applicable only to the test methods specified on the scope of accreditation held by LEGEND.

Comments: All reporting limits utilized in this report are from the approved method with the lowest possible levels of detection. All samples were analyzed on a "wet" basis unless designated as "dry weight".

This report contains data that were produced by a subcontracted laboratory certified for the fields of testing performed.

Eurofins Eaton Analytical, Inc. AZ0432
Pat Muff
574-472-5503

Pace Analytical AZ0014
JoAnn Richardson
612.607.6407

Legend Technical Services, St. Paul AZ0557
Bach Pham
651.221.4062

Pace National (fka ESC) AZ0612
Daphne Richards
800.767.5859

Method EPA 8141 was cancelled due to subcontract lab prepping and analyzing sample by incorrect method (8081). Client was informed and will resample at a later date. 4/24/19 PBM

Report revised 5/16/19 to display 625.1 as the correct method of analysis. PBM

PIMA COUNTY
WASTEWATER RECLAMATION
COMPLIANCE AND REGULATORY AFFAIRS OFFICE LABORATORY
2955 W Agua Nueva, Tucson, 85745
Telephone: (520) 724-6200

LIMS CHECKLIST FOR SUBCONTRACT DATA

LIMS ID	1904091-01, 1904090-03	DO	19-027740
CONTRACT LAB	Legend Technical Services, St. Paul+ Phoenix; Eurofins Eaton Analytical, Inc.; Pace Analytical, Minneapolis	SAMPLE GROUP	SOCs, Cyanide + %Solids
ANALYSES	EPA531.2, EPA547, EPA200.8, EPA608.3, EPA625.1, EPA504.1, EPA515.3, EPA548.1, EPA549.2 EPA-51613B-Tetras, EPA 81418, EPA 9014, EPA 2540 G	REPORT ID	1901608

TRANSFER & CONVERT FILES:	
Was the contract lab spreadsheet file saved to \\Solimsaoo\elementshare\TransferIn ?	Y.
Was the above-mentioned file converted from a .xis file to a .mdb file for each WO#-, and further, for each subcontract location, or separate analysis (as applicable), on the contract lab report? (Element>Proiect Management>Reoorts)	y
Was the converted file attached to the sample in LIMS?	y
VALIDATING CONTRACT LAB REPORT, CHAIN OF CUSTOOY(S}, AND 00#:	
Is contract lab report signed and dated?	y
Is copy of contract lab COC included with contract lab report?	y
Do the contract lab COC and CRAO COC(S) list the same sample ID, sample date, and analysis requested?	y
Do the sample dates and received dates on the CL report match the CL COC?	y
Does the CL report include all requested analysis?	N
Is the CL licensed in AZ for reported methods?	y
Does the DO match COC in types and number of tests?	N/A
CONTRACT LAB REPORT, EXCEL SPREADSHEET, and QC:	
Do CL report and CL spreadsheet report the same sample result(s), sample date(s), and analysis date(s)?	y
Was a case narrative included in contract lab report?	y
Does the data packet include a QC report from the primary lab and any secondary subcontract labs?	y
Did the CL report list applicable AZ data qualifiers?	y
Were any dilutions made?	y
Were any results from diluted samples reported as ND?	y
Were the results from any diluted samples qualified accordingly?	y
Was QC included for evervanalysis method (e.g. Blk, LCS, MS, MSD)?	y
Did QC pass stated acceptance limits? If not, was it qualified?	y
Were samples analyzed within required holding times?	y
SOCs: Are MDLs below water quality standards? (If not, notify Belinda Gamboa-Felix.)	y
Semivolatiles & Volatiles: Were all analytes delivered?	N
COMPLIANCE LIMIT REVIEW	
Were results compared to the dischan:1e permit?.	N/A
Was Belinda Gamboa-Felix notified of any exceedences?	N/A
WET TESTING SPECIFIC REQUIREMENTS	
Is statement of Pass/Fail reflected in endpoints?	NIA

Ceriodaphnia: Survival. and reproduction data included?	NIA
P. Promelas: Survival and orowth data included?	NIA
Selenastrum: Growth data included?	NIA
Was chemistry data included?	NIA
Are Reference Toxicant Test results and Control Charts within limits?	NIA
Was PMSD Determination included and within acceptable range? (minimum acceptable= 13)	NIA
Do endpoints include TUc, NOEC, LOEC, and IC25?	NIA
Do statistics verify endpoints?	NIA
Were Control Charts updated to include month of analysis?	NIA
Reviewer Initials: MF **Review Date:** 07-15-2019	

PEER/FINAL REVIEW:	PR	FR
LIMSIExcel data matches printed CL report?	✓	
Analysis dates are correct?	✓	
Correct data qualifiers included, if necessary?	✓	
CRAO report shows result is from contract lab?	✓	
CRAO report shows correct Contract Lab (e.g. Legend Technical Services of Arj.zona, Phoenix)?	✓	
DO received in Pima Core?	✓	
Analysis set to Reported?		✓

Peer Reviewer Initials:	JP	**Review Date:**	7.22.19 JP 7.23.19
Final Reviewer Initials:	JEC	**Review Date:**	7.22.19

CORRECTIVE ACTION REPORT:			
Preliminary Review:		Date:	
QNQC Review:		Date:	
Data Entry:		Date:	
Peer Review:		Date:	
Lab Supervisor.		Date:	

LIMS#:	**DEVIATION:**	**CORRECTIVE ACTION:**
190409l-01	EPA 8141B not analyzed by Contract Lab.	Schedule Re-sampling event. JP 7-16-19

DEVIATIONS FROM ACCEPTABLE QA/QC:

Missing QC Report/Data
Holding Time for analysis exceeded.
Inappropriate dilution performed.
Missing COC.
Missing Data Qualifiers.
Incorrect Analysis Method.
Incorrect Sample IDs.
Other.

CORRECTIVE ACTION:

Request report correction from Subcontract Lab project manager.
Add missing Data Qualifiers.
Notify data end-user of deviation.
Arrange for resampling.
Other.

Bea Ronan

From: Brian Merritt <bmerritt@legend-group.com>
Sent: Thursday, June 27, 2019 14:58
To: Bea Ronan; Alyssa Mazza
Cc: Joseph Doranski
Subject: RE: Report - SOC Tres Rios WRF
Attachments: 19D1608 Sample2MDL_lowestCOC Rev TUCSON REVISED FINAL 06 27 19 1448.PDF; 19D1608 FINAL EXCEL 27 Jun 19 1448.xls

****
This message and sender come from outside Pima County. If you did not expect this message, proceed with caution. Verify the sender's identity before performing any action, such as clicking on a link or opening an attachment.
****

Attached are the revised reports for 19D1608.

Thank you,

Brian Merritt

4585 S. Palo Verde Rd, Ste 423
Tucson, AZ 85714
Phone: 520-327-1234
Cell: 520-991-8347
Fax: 520-327-0518
bmerritt@legend-group.com
http://www.legend-group.com

From: Bea Ronan <Bea.Ronan@pima.gov>
Sent: Tuesday, June 4, 2019 1:36 PM
To: Brian Merritt <bmerritt@legend-group.com>; Alyssa Mazza <aniazza@legend-group.com>
Cc: Joseph Doranski <Joseph.Doranski@pima.gov>
Subject: RE: Report - SOC Tres Rios WRF

Brian,

I have confirmed with Joe that we will need the actual reports arid EDDs to be revised, not just the EDDs. Specifically, here are the revisions/corrections that we need:

19D1608: We need a revised report that includes the missing dilution qualifiers for EPA 549.2 results, and that reports the QC data for all methods in the proper units (micrograms/L with the exception of dioxin, which needs to be reported in picograms/L)
19D1590: We need a revised report that reports the QC data for all methods in the proper units (micrograms/L with the exception of dioxin, which needs to be reported in picograms/L)

Thanks,
Bea Ronan
Chemist, Quality Assurance Unit

1

Pima County RWRD CRAO Lab 2955 W Calle Agua Nueva Tucson, AZ 85745	Project: SOCs Project Number: Tres Rios WRF Project Manager. Joe Doranski	Reported: 06/27/19 14:48

ANALYTICAL REPORT FOR SAMPLES

SampleID	Laboratory ID	Mab1x	Type	Date Sampled	Date Received
1904091'.-01	19D1608-01	vvastewater	Composite	04/12/19 06:00	04/12/19 12:45
Travel Blank	19D1608-02	\Nater		04/12/19 06:00	04/12/19 12:45
1904090-03	1901608-03	Solid (Dry 1/Veight)	Composite	04/12/19 06:00	04/12/19 12:45

Sample Condition Upon Receipt:

Temperature: 5.70 C

All samples were received in acceptable condition unless noted otherwise in the case narrative.

Case Narrative:

Holding Times: All holding times were met unless otherwise qualified.
QA/QC Criteria: All analyses met method requirements unless otherwise qualified.
Certifications: AZ(PHX)0004, AZ(TUC)OOO4, AIHA#102982, CDC ELITE Member.
Accreditation is applicable only to the test methods specified on the scope of accreditation held by GENO.
Comments: All reporting limits utilized in this report are from the approved method with the lowest possible levels of detection. All samples were analyzed on a "wet" basis unless designated as "dry weight".

This report contains data that were produced by a subcontracted laboratory certified for the fields of testing performed.

Eurofins Eaton Analytical. Inc. AZ0432
Pat Muff
574-472-5503

Pace Analytical AZ0014
JoAnn Richardson
612.607.6407

Legend Technical Services, St. Paul AZ0557
Bach Pham
651.221.4062

Pace National (fka ESC} AZ0612
Daphne Richards
800.767.5859

Method EPA 8141 was cancelled due to subcontract lab prepping and analyzing sample by incorrect method (8081). Client was informed and will resample at a later date. 4/24/19 PBM

Report r◆vised 5/16/19 to display 625.1 as the correct method of analysis. PBM

Pima County RWRD CRAO Lab 2955 W Calle Agua Nueva Tucson, AZ 85745	Project: SOCs Project Number: Tres Rios WRF Project Manager: Joe Doranski	Reported: 06/27/19 14:48

Inorganic Chemistry - Quality Control

Legend Technical Services of Arizona, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPO	RPD Limit	Notes
Batch B901598-NO PREP										
Blank (B9D1598-BU<1)				Pn,p"9d-&Analyzf1Ck0tl/11/f9						
%'soiids	<1	1	%							
Duplica1- (B9D1598-DUP1)	Source: 19D152 3			Prepared & Analyzed: 04/11119						
% Solids	19	1	%		18			3	5	
Batch B901672 - NO PREP										
Blank (B9D1672-8LK1)				Pref»twJ & Analyzed: 04/19119						
Cyanide, Total	<0.010	0.010	mg/kg wet							
LCS (B9D1672-BS1)				PrepatfKJ & Analyzed: 04/19/19						
Cyanide, Total	0.046	0.010	mg/kg wet	0.0500		92	80-120			
LCS Dup {B9D1672-BSD1)				P ♦	&Analyzed: 04/19119-					
Cyanide,' Total	0.046	0.010	mg/kg wet	0.0500		92	80-120	0	20	
Matrix Spike (B9D1672-MS1)	Source: 19D1396-02			Prepared & Analyzed: 04/19119						
Cyanide, Total	2.09	0.565	mg/kg dry	2.82	<0.565	74	80-120			M2
Matrix Spike Dup (B9D1672-MSD1)	Source: 19D1396-02			Prepared & Analyzed: 04/19119						
Cyanide, Total	2.09	0.565	mg/kg dry	2.82	<0.565	74	80-120	0	20	M2

Pima County RWRD CRAO Lab	Project: socs	
2955 W Calle Agua Nueva	Project Number: Tres Rios WRF	Reported:
Tucson, AZ 85745	Project Manager: Joe Doranski	00/27/19 14:48

Notes and Definitions

T4	Tentatively identified compound. Concentration is estimated and based on the closest internal standard.
ND	ND
N4	The Minimum Reporting Limit (MRL) verification check did not meet the laboratory acceptance limit.
M2	Matrix spike recovery was low; the associated blank spike recovery was acceptable.
E8b	Analyte reported to the MDL per project specification. Target analyte was not detected in the sample.
E8a	Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
E♦	Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
E4	Concentration estimated. Analyte was detected below labora♦ory minimum reporting level (MRL), but above the MDL.
06	Minimum Reporting Limit (MRL) adjusted due to an automatic 10X dilution performed on this sample for the purpose of reporting traditional drinking water analytes for wastewater requirements.
01	Sample required dilution due to matrix.
<	<
BLK	Method Blank
LCS/Oup	Laboratory Control Sampie/Laboratory Fortified Blank/Duplicate
MS/Dup	Matrix Spike/Duplicate
Dry	Sample results reported on a dry weight basis
RPO	Relative Percent Difference

Pima County RWRD CRAO Lab 2955 W Calle Agua Nueva Tucson, AZ 85745	Project: SOCs Project Number: Tres Rios WRF Project Manager: Joe Doranski	Reported: 06/27/19 14:48

19D1608

CHAIN OF CUSTODY RECORD

LEGEND Technical Services, Inc.

017831 N.2slh"""""""""o""""-AZll5023•(!D2l 12....,10,Mu<902l32""101
045855.◊-Rd,Sm4◊•T"""."'·AZU714•(!20)32M234•◊(521J!327-o5_18

Page-l._a1J,_

Please Print Clearly

Client N....	•••••••	City	State	Zip	Phone	Fax Number or Email Address
Pima County CRAO Lab	2956 W. Calle Agua Nueva	Tucson	AZ	85745	520-724-6016	joseph.doranski@pima.gov

Project Name	Project Number	Contact	P.O. No.	
socs	Tres Rios WRF	Joe Doranski	19-027740	Fax Results ☐ Email Results X QC Report ☐ EDD ☑ Special Detection Limits ☐

DW=Drinking Water S=Soil/Solid T=Travel Blank F=Food G=Sludge/Biosolids GW= O=Other

Laboratory Authorization Required for Rush ,1!1-10-150., D Oilw

Clienrs Sample Identification	Date	Time	Sample Location	COCpos		Type	Containers	No. of Containers		504	515	*625.1	531	547	548	**549	***608.3	8141	1613	Tributyltin (TIC)	Uranium 200.8	T. cyanide mg/kg	Total % solids			
1904091'{)1	0012119	eco	Tres RiosWRF -final effluent #3	X		WW	X	23		x	x	x	x	x	x	x	x	x	x	x						01
Travel Blank						D		1		x																02
1904090-03	0012110	eco	Tree Rios WRF - dewatered cake	x		G	X	2													X	X				03
			WEEKEND/HOLIDAY SAMPLES																							

TO ENSURE COMPLETION OF ANALYSIS, SAMPLES MUST BE RECEIVED AT LEAST 2 HOURS PRIOR TO THE HOLD TIME EXPIRATION

Comments / Special Instructions: '1251 ext ndude Permellvln -5411-Paraquat & Dlqual -SOB.3 ext Include Mlrex

SAMPLE CONDITION UPON RECEIPT (LAB USE)		
Total # of Containers	27	
Temperature	5.7 °C	
Custody Seals	Y	N
Seals Intact	Y	N
Preservation	Y	N

	RELINQUISHED BY	Date	Time	RECEIVED BY	Date	Time
①	Greg Spence	4/12/19	1215	Brian Merritt	4/12/19	1215
②	Brian Merritt	4/12/19	1600	courier	4/12/19	1600
③	C Lab	4/13/19	0820	Michelle Yoblich	4/13/19	0820

@lab 4/12/19 1245 4/12/19

WHYTE-IAB YELLOW ..IENT

FORM CS-016.2 (07118)

PIMA COUNTY
WATER RECLAMATION
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office (CRAO) Laboratory
2955 W. Calle Agua Nueva, Tucson Arizona 85745-9750, Phone (520), 724-6200

Report Date: 09/29/2019
Laboratory License: AZO159

Sample Analysis Report

Tres Rios WRF

July 2019

Sample Integrity

SAMPLE RECEIPT: Samples were received intact at the required temperature, unless otherwise noted with a data qualifier below. Please refer to the Chain of Custody for sample receipt details.

HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the Pima County CRAO Laboratory Quality Manual.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

QNQC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS:

Notes and Definitions:

See attached

Case Narratives:

See attached

All results on this report intended for compliance submission must have the associated chain(s) of custody attached for the results to meet reporting requirements as per ADHS Laboratory licensure rules. If you have received this report for compliance purposes and it is not complete, please contact the Compliance and Regulatory Affairs Office for a final report in its entirty.

Reviewed By:

Jenelle Knight

Laboratory Director or Designee
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office Laboratory

10-/J1//.1
Date

Laboratory License: AZ0159

Sample Qualifiers

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Sample Qualifiers
Dewatered Cake Biosolids	1907087-03	Biosolids	7/12/2019 6:00:00	7/12/2019 9:00:00	Q6

Laboratory License # **AZOI59**

Lab ID:	Sample Type	Parameter	Sample Date/fime	Analysis Method	Analysis Date/fime	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
1907087-01	C	Dibenzo(a,h)anthracene	07/12/19 6:00	EPA 625	7/29/19 15:10	**ND**	ug/L	3.07	24.00	DI, D7	SJM
i 907087-01	C	Diethyl phthalate	07/12/19 600	EPA 625	7/29/19 15 : 10	**ND**	ug/L	2.24	24.00	D7, DI	SJM
I907087-01	C	Dimethyl phthalate	07/12/19 6:00	EPA 625	7/29/19 15 : 10	**ND**	ug/L	0.58	8.00	DI, D7	SJM
1907087-01	C	Di-n-butyl phthalate	07/12/19 6:00	EPA 625	7/29/19 15:10	**22.1**	ug/L	2.50	24.00	DI, D7, J	SJM
I907087-01	C	Di-n-octyl phthalate	07/12/19 600	EPA 625	7/29/19 15 : 10	**ND**	ug/L	2.55	24.00	DI, D7	SJM
1907087-01	C	Fluoranthene	07/12/19 6:00	EPA 625	7/29/19 15:10	**ND**	ug/L	1.32	8.00	DI, D7	SJM
I907087-01	C	Fluorene	07/12/19 6:00	EPA 625	7/29/19 15:10	**ND**	ug/L	1.54	8.00	DI, D7	SJM
1907087-01	C	Hexachlorobenzene	07/12/19 6:00	EPA 625	7/29/19 15:10	**ND**	ug/L	0.62	8.00	D1, D7	SJM
1907087-01	C	Hexachlorobutadiene	07/12/19 6:00	EPA 625	7/29/19 15: 10	**ND**	ug/L	1.0!	8.00	DI, D7	SJM
I907087-01	C	Hexachlorocyclopentadiene	07/12/19 6:00	EPA 625	7/29/19 15:10	**ND**	ug/L	4.23	24.00	DI. D7	SJM
1907087-01	C	Hexachloroethane	07/12/19 6:00	EPA 625	7/29/19 15:10	**ND**	ug/L	1.26	8.00	DI, D7	SJM
1907087-01	C	Indeno(1,2,3-cd)pyrene	07/12/19 6:00	EPA 625	7/29/19 15:10	**ND**	ug/L	2.83	24.00	DI, D7	SJM
I907087-01	C	lsophorone	07/12/19 6:00	EPA 625	7/29/19 15:10	**ND**	ug/L	1.66	8.00	DI, D7	SJM
1907087-01	C	Naphthalene	07/12/19 6:00	EPA 625	7/29/19 15:10	**ND**	ug/L	1.77	8.00	DI, D7	SJM
1907087-01	C	n-Decane	07/12/19 6:00	EPA 625	7/29/19 15 : 10	**ND**	ug/L	1.95	8.00	DI, D7	SJM
I907087-01	C	Nitrobenzene	07/12/19 600	EPA 625	7/29/19 15:10	**ND**	ug/L	2.10	24.00	DI, D7	SJM
I907087-0 I	C	N-Nitrosodimethylamine	07/12/19 6:00	EPA 625	7/29/19 15:10	**ND**	ug/L	209	24.00	DI, D7	SJM
I907087-01	C	N-Nitrosodi-n-propylamine	07/12/19 600	EPA 625	7/29/19 15 : 10	**ND**	ug/L	2:43	24.00	DI, D7	SJM
1907087-01	C	N-Nitrosodiphenylamine	07/12/19 600	EPA 625	7/29/19 1510	**ND**	ug/L	6.08	40.00	D1, D7	SJM
I907087-01	C	n-Octadeeane	07/12/!9 6:00	EPA 625	7/29/19 15:10	**4.11**	ug/L	2.18	24.00	DI,D7,J	SJM
1907087-01	C	Pentachlorophenol	07/12/19 6:00	EPA 625	7/29/19 15:10	**ND**	ug/L	4.02	24.00	DI, D7	SJM
1907087-01	C	Phenanthrene	07/12/19 6:00	EPA 625	7/29/19 1510	**ND**	ug/L	1.63	8.00	DI, D7	SJM
I907087-01	C	Phenol	07/12/19 6:00	EPA 625	7/29/19 15: 10	**15.2**	ug/L	2.59	24.00	DI, D7, J	SJM
1907087-01	C	Pyrene	07/12/19 600	EPA 625	7/29/19 1510	**ND**	ug/L	1.38	8.00	DI, D7	SJM
1907087-01	C	1,2-Diphenylhydrazine	07/12/19 6:00	EPA 8270C	7/29/19 15:10	**ND**	ug/L	0.98	8.00	DI, D7	SJM
I907087-01 REI	C	Lead	07/12/19 6:00	EPA 200.8	7/17/19 1852	**1.44**	ug/L	0. 10	2.00	DI, J	JB
1907087-0IREI	C	Thallium	07/12/19 600	EPA 200.8	7/17/19 1852	**ND**	ug/L	0.09	2.00	Dl	JB
1907087-0IREI	C	Zinc	07/12/19 6:00	EPA 200.8	7/17/19 18:52	**175**	ug/L	0.86	2.00	D2	JB
Dcwatered Cake Biosolids (20001-5703)											
1907087-03	C	Antimony	07/12/19 6:00	EPA 60!0D	7/30/19 12:17	**ND**	mg/kg dry		8.25		MLB
1907087-03	C	Arsenic	07/12/19 6:00	EPA 60!0D	7/26/19 16:24	**10.9**	mg/kg dry		8.25		MLB
1907087-03	C	Beryllium	07/12/19 6:00	EPA 60!0D	7/26/19 16:24	**ND**	mg/kg dry		1.65		MLB
1907087-03	C	Cadmium	07/12/19 6:00	EPA 60!0D	7/26/19 1624	**ND**	mg/kg dry		3.30		MLB
1907087-03	C	Chromium	07/12/19 6:00	EPA 60!0D	7/26/19 1624	**31.9**	mg/kg dry		8.25		MLB
1907087-03	C	Copper	07/12/19 6:00	EPA 60!0D	7/26/19 16:24	**402**	mg/kg dry		8.25		MLB
1907087-03	C	Lead	07/12/19 6:00	EPA 60!0D	7/30/19 1348	**10.2**	mg/kg dry		8.25		MLB
1907087-03	C	Mercury	07/12/19 600	EPA 747IB	8/7/19 15:48	**1.00**	mg/kg dry		0.37		MJC
1907087-03	C	Molybdenum	07/12/19 600	EPA 60!0D	7/26/19 1624	**16.5**	mg/kg dry		3.30		MLB
1907087-03	C	Nickel	07/12/19 600	EPA 60!0D	7/26/19 16:24	**26.0**	mg/kg dry		8.25		MLB
1907087-03	C	Selenium	07/12/19 600	EPA 6010D	7/26/19 16 : 24	**ND**	mg/kg dry		16.50		MLB
1907087-03	C	Silver	07/12/19 6:00	EPA 60!0D	7/26/19 16:24	**4.31**	mg/kg dry		0.83		MLB
1907087-03	C	Arsenic	07/12/19 600	TCLP/EPA 60!0D	8/22/19 13:55	**ND**	mg/L		003		MLB
I907087-03	C	Barium	07/12/19 600	TCLP/EPA 60!0D	8/22/!9 !3:55	**ND**	mg/L		0.03		MLB
1907087-03	C	Cadmium	07/12/19 600	TCLP/EPA 60!0D	8/22/19 13:55	**ND**	mg/L		0.01		MLB
1907087-03	C	Chromium	07/12/19 6:00	TCLP/EPA 6010D	8/22/19 13:55	**ND**	mg/L		0.03		MLB
1907087-03	C	Lead	07/12/19 600	TCLP/EPA 6010D	8/22/19 15: 16	**ND**	mg/L		0.03		MLB
1907087-03	C	Mercury	07/12/19 6:00	TC LP/EPA 7470A	8/8/1 9 10:48	**NA**	mg/L		0.00	N7	MJC
1907087-03	C	Selenium	07/12/19 600	TCLP/EPA 6010D	8/22/19 13:55	**ND**	mg/L		0.05		MLB
1907087-03	C	Silver	07/12/19 600	TCLP/EPA6010D	8/22/!9 13:55	**ND**	mg/L		0.0025		MLB
1907087-03	C	Thallium	07/12/19 6:00	EPA 60!0D	7/30/!9 10:32	**ND**	mg/kg dry		8.25		MLB
1907087-03	C	Zinc	07/12/19 6:00	EPA 60!0D	7/26/19 16:24	**736**	mg/kg dry		8.25		MLB
J907087-03	C	% Solids	07/12/19 600	SM 2540G	7/14/19 1030	**13.29**	%		0.01		LAH
1907087-03	C	Acrolein	07/12/19 6:00	EPA 624	7/24/19 18 : 12	**ND**	mg/kg dry	0.0271	0.04		JEL
1907087-03	C	Acrylonitrile	07/12/19 6:00	EPA 624	7/24/19 18:12	**ND**	mg/kg dry	0.0211	0.04	NI	JEL
1907087-03	C	4,4-DDD	07/12/19 600	EPA 625	7/24/19 22 : 52	**ND**	mg/kg dry	0.04518	0.11	D1,D7,NI	IIAV
1907087-03	C	4,4-DDE	07/12/19 600	EPA 625	7/24/19 22:52	**ND**	mg/kg dry	0.07139	0.1 1	DI,D7	HAY
1907087-03	C	4,4-DDT	07/12/19 6:00	EPA 625	7/24/19 22:52	**ND**	mg/kg dry	0.06235	0.23	D1,D7, NI	HAY
1907087-03	C	Aldrin	07/12/19 600	EPA 625	7/24/1 9 22 : 52	**ND**	mg/kg dry	0.07320	0.11	DI, D7, NI	HAY

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Lab ID:	Sample Type	Parameter	Sample Daterfime	Analysis Method	Analysis Daterrime	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
1907087-03	C	alpha-BHC	07/12/19 6:00	EPA 625	7/24/19 22:52	ND	mg/kg dry	0.07681	0.11	DI, D7, I2	HAY
I907087-03	C	beta-BHC	07/12/19 6:00	EPA 625	7/24/19 22:52	ND	mg/kg dry	0.16266	0.23	D1,D7	HAY
1907087-03	C	Chlordane	07/12/19 600	EPA 625	7/24/19 22:52	ND	mg/kg dry	0.17170	0.90	D1,D7	HAY
1907087-03	C	delta-BHC	07/12/19 600	EPA 625	7/24/19 2252	ND	mg/kg dry	0.03253	0.11	DI, D7	HAY
1907087-03	C	Dieldrin	07/12/19 6:00	EPA 625	7/24/19 22:52	ND	mg/kg dry	0.07500	0.11	DI, D7	HAY
I907087-03	C	Endosulfan I	07/12/19 6:00	EPA 625	7/24/19 22:52	ND	mg/kg dry	0.04880	0.11	DI, D7, L2, NI	HAY
1907087-03	C	Endosulfan II	07/12/19 600	EPA 625	7/24/19 22:52	ND	mg/kg dry	0.06597	0.11	D1,D7, NI	HAY
1907087-03	C	Endosulfan sulfate	07/12/19 6:00	EPA 625	7/24/19 22:52	ND	mg/kg dry	0.05151	0.11	D7,N1,D1	HAY
!907087-03	C	Endrin	07/12/19 6:00	EPA 625	7/24/19 22:52	ND	mg/kg dry	0.12019	0.23	DI, D7	HAY
1907087-03	C	Endrin aldehyde	07/12/19 6:00	EPA 625	7/24/19 22:52	ND	mg/kg dry	0.10844	0.11	D1,D7, NI	HAY
!907087-03	C	gamma-BHC (Lindane)	07/12/19 600	EPA 625	7/24/19 22:52	ND	mg/kg dry	0.12470	0.23	D1,D7	HAY
!907087-03	C	Heptachlor	07/12/19 600	EPA 625	7/24/19 22:52	ND	mg/kg dry	0.04518	0.11	D1,07	HAY
!907087-03	C	Heptachlor Epoxide	07/12/19 600	EPA 625	7/24/19 22:52	ND	mg/kg dry	0.07681	0.11	D1,D7	HAY
I907087-03	C	PCB 1016	07/12/19 6:00	EPA 625	7/24/19 22:52	ND	mg/kg dry	0.09940	0.23	DI, D7	HAY
I907087-03	C	PCB 1221	07/12/19 6:00	EPA 625	7/24/19 22:52	ND	mg/kg dry	0.15362	0.23	DI, D7	HAY
I907087-03	C	PCB 1232	07/12/19 6:00	EPA 625	7/24/19 22:52	ND	mg/kg dry	0.06326	0.23	D1,D7	HAY
I907087-03	C	PCB 1242	07/12/19 600	EPA 625	7/24/19 22:52	ND	mg/kg dry	0.11748	0.23	DI, D7	HAY
I907087-03	C	PCB 1248	07/12/19 600	EPA 625	7/24/19 22:52	ND	mg/kg dry	0.09488	0.23	DI, D7	HAY
1907087-03	C	PCB 1254	07/12/19 6:00	EPA 625	7/24/19 22:52	ND	mg/kg dry	0.17170	0.23	D1,D7	HAY
1907087-03	C	PCB 1260	07/12/19 6:00	EPA 625	7/24/19 22:52	ND	mg/kg dry	0.07229	0.23	D1,D7	HAY
I907087-03	C	Total PCBs	07/12/19 6:00	EPA 625	7/24/19 22:52	ND	mg/kg dry	0.17170	0.23	D1, D7	HAY
1907087-03	C	Toxaphene	07/12/19 600	EPA 625	7/24/19 22:52	ND	mg/kg dry	1.5995	1.81	DI, D7	HAY
1907087-03	C	Methoxychlor	07/12/19 600	EPA 8270C	7/24/19 22:52	ND	mg/kg dry	0.0188	0.05	D1,D7,N1	HAY
1907087-03	C	U , I-Trichloroethane	07/12/19 600	EPA 624	7/24/19 1812	ND	mg/kg dry	0.03	0.08		ADP
!907087-03	C	I, I,2,2-Tetrachloroethane	07/12/19 600	EPA 624	7/24/19 18:12	ND	mg/kg dry	0.009	0.08		ADP
1907087-03	C	I, I,2-Trichloroethane	07/12/19 6:00	EPA 624	7/24/19 18:12	ND	mg/kg dry	0.01	0.08		ADP
1907087-03	C	I, 1-Dichloroethane	07/12/19 600	EPA 624	7/24/19 18:12	ND	mg/kg dry	0.03	0.08		ADP
1907087-03	C	I, 1-Dichloroethene	07/12/19 600	EPA 624	7/24/19 1812	ND	mg/kg dry	0.02	0.08		ADP
I907087-03	C	1,2-Dichlorobenzene	07/12/19 6:00	EPA 624	7/24/19 18:12	ND	mg/kg dry	0.01	0.08		ADP
1907087-03	C	1,2-Dichloroethane	07/12/19 600	EPA 624	7/24/19 18:12	ND	mg/kg dry	0.01	0.08		ADP
1907087-03	C	1,2-Dichloropropane	07/12/19 6:00	EPA 624	7/24/19 1812	ND	mg/kg dry	0.02	0.08		ADP
1907087-03	C	1,3-Dichlorobenzene	07/12/19 600	EPA 624	7/24/19 18:12	ND	mg/kg dry	0.01	0.08		ADP
1907087-03	C	1,4-Dichlorobenzene	07/12/19 6:00	EPA 624	7/24/19 18:12	ND	mg/kg dry	0.03	0.08		ADP
!907087-03	C	2-Chloroethyl vinyl ether	07/12/19 6:00	EPA 624	7/24/19 18:12	ND	mg/kg dry	0.04	0.08		ADP
!907087-03	C	**Benzene**	07/12/19 6:00	EPA 624	7/24/19 1812	ND	mg/kg dry	0.02	'0.08		ADP
1907087-03	C	**Bromodichloromethane**	07/12/19 600	EPA 624	7/24/19 18:12	ND	mg/kg dry	0.04	0.08		ADP
1907087-03	C	Bromofonn	07/12/19 6:00	EPA 624	7/24/19 18:12	ND	mg/kg dry	0.05	0.08		ADP
1907087-03	C	**Bromomethane**	07/12/19 6:00	EPA 624	7/24/19 18:12	ND	mg/kg dry	0.02	0.08		ADP
1907087-03	C	Carbon Tetrachloride	07/12/19 600	EPA 624	7/24/19 1812	ND	mg/kg dry	0.05	0.08		ADP
1907087-03	C	Chlorobenzene	07/12/19 600	EPA 624	7/24/19 I8 I2	ND	mg/kg dry	0.009	0.08		ADP
1907087-03	C	Chloroethane	07/12/19 6:00	EPA 624	7/24/19 18:12	ND	mg/kg dry	0.03	0.08		ADP
I907087-03	C	Chloroform	07/12/19 600	EPA 624	7/24/19 18: 12	ND	mg/kg dry	0.02	0.08		ADP
1907087-03	C	Chloromethane	07/12/19 6:00	EPA 624	7/24/19 18:12	ND	mg/kg dry	003	0.08		ADP
!907087-03	C	cis-1,3-Dichloropropene	07/12/19 600	EPA 624	7/24/19 18: 12	ND	mg/kg dry	0.01	0.08		ADP
1907087-03	C	Dibromochloromethane	07/12/19 6:00	EPA 624	7/24/19 18:12	ND	mg/kg dry	0.009	0.08		ADP
I907087-03	C	Ethyl Benzene	07/12/19 600	EPA 624	7/24/19 18:12	ND	mg/kg dry	0.01	0.08		ADP
I907087-03	C	Methylene Chloride	07/12/19 600	EPA 624	7/24/19 1812	ND	mg/kg dry	003	0.08		ADP
1907087-03	C	Tetrachloroethene	07/12/19 600	EPA 624	7/24/19 18:12	ND	mg/kg dry	0.03	0.08		ADP
I907087-03	C	Toluene	07/12/19 6:00	EPA 624	7/24/19 18:12	0.03	mg/kg dry	0.02	0.08	J	ADP
I907087-03	C	Total Trihalomethanes	07/12/19 6:00	EPA 624	7/24/19 18:12	ND	mg/kg dry	0.05	0.08		ADP
1907087-03	C	trans-1,2-Dichloroethene	07/12/19 6:00	EPA 624	7/24/19 18: 12	ND	mg/kg dry	0.02	0.08		ADP
1907087-03	C	trans-1,3-Dichloropropene	07/12/19 6:00	EPA 624	7/24/19 1812	ND	mg/kg dry	0.02	0.08		ADP
!907087-03	C	Trichloroethene	07/12/19 6:00	EPA 624	7/24/19 1812	ND	mg/kg dry	0.02	0.08		ADP
1907087-03	C	Trichlorofluoromethane	07/12/19 600	EPA 624	7/24/19 1812	ND	mg/kg dry	0.04	0.08		ADP
I907087-03	C	Vinyl chloride	07/12/19 6:00	EPA 624	7/24/19 1812	ND	mg/kg dry	0.03	0.08		ADP
I907087-03	C	1,2,4-Trichlorobenzene	07/12/19 6:00	EPA 8260	7/24/19 18:12	ND	mg/kg dry	0.017	0.08		ADP
I907087-03	C	1,2-Dibromo-3-chloropropane	07/12/19 6:00	EPA 8260	7/24/19 1812	ND	mg/kg dry	0.014	0.15		ADP
1907087-03	C	1,2-Dibromoethane	07/12/19 6:00	EPA 8260	7/24/19 1812	ND	mg/kg dry	0.015	0.08		ADP
I907087-03	C	cis-1,2-Dichloroethene	07/12/19 6:00	EPA 8260	7/24/19 18:12	ND	mg/kg dry	0.030	0.08		ADP
1907087-03	C	m,p-Xylenes	07/12/19 6:00	EPA 8260	7/24/19 1812	ND	mg/kg dry	0.024	0.15		ADP

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Lab ID:	Sample Type	Parameter	Sample Dateffime	Analysis Method	Analysis Dateffime	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
1907087-03	C	o-Xylene	07/12/19 6:00	EPA 8260	7/24/19 18:12	**ND**	mg/kg dry	0.012	0.08		ADP
1907087-03	C	Styrene	07/12/19 6:00	EPA 8260	7/24/19 18:12	**ND**	mg/kg dry	0.012	0.08		ADP
1907087-03	C	Xylenes, total	07/12/19 6:00	EPA 8260	7/24/19 18:12	**ND**	mg/kg dry	0.024	0.15		ADP
1907087-03	C	2,3,7,8-TCDD-Dioxin Scan	07/12/19 6:00	EPA 625	8/9/19 16:49	**ND**	ug/kg dry		0.19		SJM
1907087-03	C	1,2,4-Trichlorobenzene	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.45	0.60	DI, D7	SJM
1907087-03	C	2,3-Dichloroaniline	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.64	1.81	D1,D7	SJM
1907087-03	C	2,4,6-Trichlorophenol	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.41	0.60	DI, D7	SJM
1907087-03	C	2,4-Dichlorophenol	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.54	0.60	DI, D7	SJM
1907087-03	C	2,4-Dimethylphenol	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	1.07	1.81	D1,D7	SJM
1907087-03	C	2,4-Dinitrophenol	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	2.59	6.02	D1,D7	SJM
1907087-03	C	2,4-Dinitrotoluene	07/12/19 6:00	EPA625	7/23/19 20:02	**ND**	mg/kg dry	0.70	1.81	DI, D7	SJM
1907087-03	C	2,6-Dinitrotoluene	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.42	0.60	D1,D7	SJM
1907087-03	C	2-Chloronaphthalene	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.44	0.60	DI, D7	SJM
1907087-03	C	2-Chlorophenol	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.39	0.60	D1,D7	SJM
1907087-03	C	2-Methyl-4,6-dinitrophenol	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	1.62	1.81	D1,D7	SJM
1907087-03	C	2-Methylphenol	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.35	0.60	DI, D7	SJM
1907087-03	C	2-Nitrophenol	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.86	1.81	D7, DI	SJM
1907087-03	C	3,3-Dichlorobenzidine	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.67	1.51	Dl, D7	SJM
1907087-03	C	4-Bromophenyl phenyl ether	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.36	0.60	DI, D7	SJM
1907087-03	C	4-Chloro-3-methylphenol	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.65	1.81	D1,D7	SJM
1907087-03	C	4-Chlorophenyl phenyl ether	07/12/19 6:00	EPA 625	7/23/19 20:02	**NO**	mg/kg dry	0.37	0.60	01, D7	SJM
1907087-03	C	4-Methylphenol	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.51	0.60	D1,D7	SJM
1907087-03	C	4-Nitrophenol	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	142	1.81	D1,D7	SJM
1907087-03	C	Acenaphthene	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.46	0.60	D1,D7	SJM
1907087-03	C	Acenaphthylene	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.48	0.60	DI, 07	SJM
1907087-03	C	Anthracene	07/12/19 6:00	EPA625	7/23/19 20:02	**ND**	mg/kg dry	0.60	0.60	DI, 07	SJM
1907087-03	C	Benzidine	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	1.96	3.01	DI, 07	SJM
1907087-03	C	Benzo[a]anthracene	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.38	0.60	D7, Dl	SJM
1907087-03	C	Benzo[a]pyrene	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.59	0.60	DI, D7	SJM
1907087-03	C	Benzo[b]fluoranthene	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.48	0.60	DI, D7	SJM
1907087-03	C	Benzo[ghi]pe$_{ry}$lene	07112/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.89	1.81	D1,07	SJM
1907087-03	C	Benzo[k]fluoranthene	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.69	1.81	DI, D7	SJM
1907087-03	C	bis(2-chloroethoxy)methane	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.60	0.60	DI, 07	SJM
1907087-03	C	bis(2-chloroethyl)ether	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.64	1.81	DI, 07	SJM
1907087-03	C	bis(2-chloroisopropyl)ether	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.54	0.60	DI, 07	SJM
1907087-03	C	bis(2-ethylhexyl)phthalate	07/12/19 6:00	EPA 625	7/23/19 20:02	**7,13**	mg/kg dry	0.85	1.81	DI, 07	SJM
1907087-03	C	Butylbenzylphthalate	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.57	0.60	01,D7	SJM
1907087-03	C	Carbazole	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.80	1.81	01,D7	SJM
1907087-03	C	Ch$_{ry}$sene	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.34	0.60	DI, 07	SJM
1907087-03	C	Dibenzo{a,h)anthracene	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.92	1.81	DI, 07	SJM
1907087-03	C	Diethyl phthalate	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.67	1.81	DI, 07	SJM
1907087-03	C	Dimethyl phthalate	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.17	0.60	DI, D7	SJM
1907087-03	C	Di-n-butyl phthalate	07/12/19 6:00	EPA 625	7/23/19 20:02	**2.17**	mg/kg dry	0.75	1.81	DI, D7	SJM
1907087-03	C	Di-n-octyl phthalate	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.77	1.81	DI, D7	SJM
1907087-03	C	Fluoranthene	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.40	0.60	01,D7	SJM
1907087-03	C	Fluorene	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.46	0.60	D1,D7	SJM
1907087-03	C	Hexachlorobenzene	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.19	0.60	DI, D7	SJM
1907087-03	C	Hexachlorobutadiene	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.10	0.60	Dl, 07	SJM
1907087-03	C	Hexachlorocyclopentadiene	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	1.27	1.81	Dl, 07	SJM
1907087-03	C	Hexachloroethane	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.38	0.60	D1,D7	SJM
1907087-03	C	Indeno(1,2,3-cd)pyrene	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.85	1.81	D1,D7	SJM
1907087-03	C	Isophorone	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.50	0.60	01, 07	SJM
1907087-03	C	Naphthalene	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.53	0.60	Dl, 07	SJM
1907087-03	C	n-Decane	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.59	0.60	DI, 07	SJM
1907087-03	C	Nitrobenzene	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.63	1.81	01,D7	SJM
1907087-03	C	N-Nitrosodimethylamine	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.63	1.81	D1,D7	SJM
1907087-03	C	N-Nitrosodi-n-propylamine	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.73	1.81	D1,D7	SJM
1907087-03	C	N-Nitrosodiphenylamine	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	1.83	3.01	D1, D7, PC3	SJM
1907087-03	C	n-Octadecane	07112/19 6:00	EPA 625	7/23/19 20:02	**2,70**	mg/kg dry	0.66	1.81	Dl, D7	SJM
1907087-03	C	Pentachlorophenol	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	1.21	1.81	Dl, D7	SJM

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Lab ID:	Sample Type	Parameter	Sample Dateffime	Analysis Method	Analysis Dateffime	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst	
]907087-03	C	Phenanthrene	07/12/19 600	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.49	0.60	DI, 07	SJM	
I907087-03	C	Phenol	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.78	1.81	DI, 07	SJM	
I907087-03	C	Pyrene	07/12/19 6:00	EPA 625	7/23/19 20:02	**ND**	mg/kg dry	0.42	0.60	DL 07	SJM	
\907087-03	C	1,2-Diphenylhydrazine	07/12/19 600	EPA 8270C	7/23/19 20:02	**ND**	mg/kg dry	0.35	0.60	DI, 07, NI	SJM	
1907087-03	C	1,4-Dich\orobenzene	07/12/19 6:00	EPA 8270C	7/23/19 20:02	**ND**	mg/kg dry	1.63	1.81		SJM	
1907087-03	C	2,4,S-Trich\oropheno\	07/12/19 6:00	EPA 8270C	7/23/19 20:02	**ND**	mg/kg dry	0.78	1.81		SJM	
\907087-03	C	3 & 4-Methylpheno\	07/12/19 6:00	EPA 8270C	7/23/19 20:02	**ND**	mg/kg dry	0.37	1.81		SJM	
I907087-03	C	Pyridine	07/12/19 6:00	EPA 8270C	7/23/19 20:02	**ND**	mg/kg dry	0.47	0.60		SJM	
1907087-03	C	Chlordane	07/12/19 6:00	TCLP/EPA 8270C	8/13/19 1621	**NA**	ug/L	1.38	3.00	N7	HAY	
1907087-03	C	Endrin	07/12/19 6:00	TCLP/EPA 8270C	8/13/19 16:21	**NA**	ug/L	0.200	0.50	N7	HAY	
I907087-03	C	gamma-BHC (Lindane)	07/12/19 6:00	TCLP/EPA 8270C	8/13/19 16:21	**NA**	ug/L	0.270	0.50	N7	HAY	
1907087-03	C	Heptach\or	07/12/19 6:00	TCLP/EPA 8270C	8/13/19 1621	**NA**	ug/L	0.270	0.50	N7	HAY	
I907087-03	C	Heptach\or Epoxide	07/12/19 6:00	TCLP/EPA 8270C	8/13/19 1621	**NA**	ug/L	0.290	0.50	N7	HAY	
I907087-03	C	Methoxychlor	07/12/19 6:00	TCLP/EPA 8270C	8/13/19 1621	**NA**	ug/L	0.270	0.50	N7	HAY	
1907087-03	C	Toxaphene	07/12/19 6:00	TCLP/EPA 8270C	8/13/19 1621	**NA**	ug/L	3.79	6.00	N7	HAY	
1907087-03	C	I, 1-Dichloroethene	07/12/19 6:00	TCLP/EPA 82608	7/25/19 15 3 6	**NA**	ug/L	0.110	0.50	N7	ADP	
\907087-03	C	1,2-Dichloroethane	07/12/19 6:00	TCLP/EPA 82608	7/25/19 I53 6	**NA**	ug/L	0.0900	0.50	N7	ADP	
1907087-03	C	1,4-Dichlorobenzene	07/12/19 6:00	TCLP/EPA 82608	7/25/19 15:36	**NA**	ug/L	0.170	0.50	N7	ADP	
1907087-03	C	**Benzene**	07/12/19 6:00	TCLP/EPA 82608	7/25/19 15:36	**NA**	ug/L	0.110	0.50	N7	ADP	
1907087-03	C	Carbon Tetrachloride	07/12/19 6:00	TCLP/EPA82608	7/25/19 15:36	**NA**	ug/L	0.340	0.50	N7	ADP	
!907087-03	C	Chlorobenzene	07/12/19 6:00	TCLP/EPA 82608	7/25/19 1536	**NA**	ug/L	0.0600	0.50	N7	ADP	
1907087-03	C	Chlorofonn	07/12/19 6:00	TCLP/EPA 82608	7/25/19 15:36	**NA**	ug/L	0.140	0.50	N7	ADP	
1907087-03	C	Hexachlorobutadiene	07/12/19 6:00	TCLP/EPA 82608	7/25/19 15 :36	**NA**	ug/L	0.230	0.50	N7	ADP	
\907087-03	C	Methyl Ethyl Ketone	07/12/19 6:00	TCLP/EPA 82608	7/25/19 15:36	**NA**	ug/L	0.290	0.50	N7	ADP	
I907087-03	C	Tetrachloroethene	07/12/19 6:00	TCLP/EPA 82608	7/25/19 15:36	**NA**	ug/L	0.180	0.50	N7	ADP	
]907087-03	C	Trich\oroethene	07/12/19 6:00	TCLP/EPA 82608	7/25/19 15:36	**NA**	ug/L	0.130	0.50	N7	ADP	
!907087-03	C	Vinyl chloride	07/12/19 6:00	TCI.P/EPA82608	7/25/19]536	**NA**	ug/L	0.210	0.50	N7	ADP	
1907087-03	C	1,4-Dichlorobenzene	07/12/19 6:00	TCLP/EPA 8270C	8/27/19 10:05	**NA**	ug/L dry	1.37	2.00	N7	SJM	
1907087-03	C	2,4,S-Trich\oropheno\	07/12/19 6:00	TCLP/EPA 8270C	8/27/19 10:05	**NA**	ug/L dry	2.46	1000	N7	SJM	
1907087-03	C	2,4,6-Trichlorophenol	07/12/19 6:00	TCLP/EPA 8270C	8/27/19 10:05	**NA**	ug/L dry	1.14	5.00	N7	SJM	
]907087-03	C	2,4-Dinitrotoluene	07/12/19 6:00	TCLP!EPA 8270C	8/27/19 10:05	**NA**	ug/L dry	1.44	5.00	N7	SJM	
1907087-03	C	2-Methylphenol	07/12/19 6:00	TCLP/EPA 8270C	8/27/19 I0:05	**NA**	ug/L dry	1.09	2.00	N7	SJM	
\907087-03	C	3 & 4-Methylphenol	07/12/19 6:00	TCLP/EPA 8270C	8/27/19 I0:05	**NA**	ug/L dry	1.07	4.00	N7	SJM	
\907087-03	C	Hexachlorobenzene	07/12/19 6:00	TCLP/EPA 8270C	8/27/19 I0:05	**NA**	ug/L dry	0.610	2.00	N7	SJM	
I907087-03	C	Hexachlorobutadiene	07/12/19 6:00	TCLP/EPA 8270C	8/27/19 I0:05	**NA**	ug/L dry	0.880	2.00	N7	SJM	
I907087-03	C	Hexachloroethane	07/12/19 600	TCLP/EPA8270C	8/27/19 10:05	**NA**	ug/L dry	1.09	2.00	N7	SJM	
1907087-03	C	Nitrobenzene	07/12/19 600	TCLP/EPA8270C	8/27/19 10:05	**NA**	ug/L dry	1.84	5.00	N7	SJM	
1907087-03	C	Pentachlorophenol	07/12/19 6:00	TCLP/EPA 8270C	8/27/19 10:05	**NA**	ug/L dry	6.10	10.00	N7	SJM	
1907087-03	C	Pyridine	07/12/19 600	TCLP/EPA8270C	8/27/19 10:05	**NA**	ug/L dry	1.55	2.00	N7	SJM	
1907087-04	C	Total Solids	07/12/19 600	2540 G-2011	7/22/19 18:00	**13.2**	%				KBC	•
• Analysis Performed by:ESC AZ0612 - See attached contract lab report for official results.												
I907087-04	C	2,4,5-TP (Silvex)	07/12/19 6:00	815 IA	7/23/19 00:10	**ND**	mg/I	0.000667	0.00200	E8	LEL	*
1907087-04	C	2,4-D	07/12/19 600	8151A	7/23/19 00:10	**ND**	mg/I	0.000667	0.00200	E8	LEL	•
• Analysis Performed by:ESC AZ06 I2 - See attached contract lab report for official results.												
I907087-04	C	Sulfide	07/12/19 6:00	90308	7/23/19 15:53	**ND**	mg/kg dry	57.8	189	ES	BAM	•
• Analysis Performed by:ESC AZ06 I2 - See attached contract lab report for official results.												
1907087-04	C	Sulfate	07/12/19 6:00	9056A	7/19/1904:10	**3230**	mg/kg dry	4.32	379		ELN	•
• Analysis Performed by:ESC AZ0612 - See attached contract lab report for official results.												
1907087-04	C	Flashpoint	07/12/19 6:00	EPA I0IOA(Mod.)	7/18/19 1815	**No Flash**	Of			T6	CGP	•
• Analysis Performed by:Legend Technical Services of Arizona, Inc. - See attached contract lab report for official results.												
1907087-04	C	Cyanide, Total	07/12/19 6:00	EPA9014	7/19/19 15:14	**1.12**	mg/kg dry	0.224	0.746		KB	*
• Analysis Performed by:Legend Technical Services of Arizona, Inc. - See attached contract lab report for official results.												
1907087-04	C	pH	07/12/19 600	EPA 9045 *D*	7/23/19 14:00	**7.8**	pH Units			HS	BG	•
• Analysis Performed by:Legend Technical Services of Arizona, Inc. - See attached contract lab report for official results.												
I907087-04	C	Temperature	07/12/19 600	pH Temperature	7/23/19 14:00	**19.7**	OC			HS	BG	*
• Analysis Performed by:Legend Technical Services of Arizona, Inc. - See attached contract lab report for official results.												
1907087-04	C	%Solids	07/12/19 600	SM2540G	7/18/19 15:50	**13**	%		1		SLL	*
• Analysis Performed by:Legend Technical Services of Arizona, Inc. - See attached contract lab report for official results.												

Qualifier Definitions

A	Absence
DI	Sample required dilution due to matrix.
D2	Sample required dilution due to high concentration of target analyte.
D4	Minimum Reporting Limit (MRL) adjusted to reflect sample amount received and analyzed.
D7	Minimum Reporting Limit adjusted to reflect sample dilution.
E4	Concentration estimated. Analyte was detected below laboratory minimum reporting level (MRL), but above the MDL.
ES	Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
HS	This test is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.
J	Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
L2	The associated blank spike recovery was below laboratory acceptance limits.
u	The associated blank spike recovery was below method acceptance limits.
NI	See case narrative.
N7	Additional analysis was not performed based on the "Total" result which was below the requested analyte's MCUAction Level/frigger Level.
NA	Not Analyzed
PC3	Semi-quantitation is included in the case narrative.
Q6	Sample was received above recommended temperature.
R4	MS/MSD RPD exceeded the method acceptance limit. Recovery met acceptance criteria.
T6	The reported result cannot be used for compliance purposes.
V2	CCV recovery was above method acceptance limits. This target analyte was detected in the sample. i;tie sample could not be reanalyzed due to insufficient sample.

General Notes and Definitions

J	Equivalent to E4 Qualifier - Concentration estimated. Analyte was detected below lab9ratory minimum reporting limit (MRL) but above MDL.
ND	Analyte NOT DETECTED at or above reporting limit (MDL). Equivalent to ES Qualifier - Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
C	Sample Type - Composite
CD	Sample Type - Composite Duplicate
D	Sample Type - Discrete
DD	Sample Type - Discrete Duplicate
NR	Not Reported
DET	Analyte DETECTED
DRY	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
Analysis Date	Analysis Date represents the final reading date.
Field Results	Field Results performed by "SMPLR" (Sampler), are not subject to approval of Laboratory Director.

Solids, Total Volatile	Used for process control samples only.
RE	Re-Analysis has been performed.
FD	Field Duplicate
FB	Field Blank
UC	Under Construction
EB	Equipment Blank
NA	Not Analyzed

Case Narrative(s)

Semi-Quantitation
Method: 625
1907087-02

Compound Name	Concentration-ug/L
Palmitic Acid	133

SJM 08/06/19

1907087-02, -03
EPA Method 625 Semi-volatiles: Target analytes flagged with NI failed the Matrix Spike from the same extraction batch but the spike was performed on a different sample. SJM 08/07/19

Semi-Quantitation
Method: 625
1907087-03

Compound Name	Concentration-mg/Kg
N,N-Dimethyl-1-dodecanamine	43
Palmitic Acid	5022
Oleic Acid	2241
Stearic Acid	1046

SJM 08/07/19

1907087-03
EPA Method 625 Pesticides: Target analytes flagged with NI failed the MS Recovery and/or MS/MSD RPD. Blank Spike Recovery was also low. CCV recovery was acceptable. HAV 08/14/2019

Semi-Quantitation
Method: 625
1907087-01

Compound Name	Concentration-ug/L
2-Butoxyethanol	370
N,N-Dimethyl-1-dodecanamine	751
Dodecnanoic Acid	113
Tetradecanoic Acid	215
Palmitic Acid	47703
OleicAcid	55714
Stearic Acid	20091
Squalene	201

SJM 08/21/19

1907087-01, -02, -03
EPA Method 625/8270C Pesticides: Target analytes flagged with N1 failed the MS Recovery and/or MS/MSD RPD from the same extraction batch but the spike was performed on a different sample. The associated Blank Spike recoveries were acceptable. HAV 08/22/2019. Edited by MCD 08/22/2019.

1907087-03
EPA Method 624 Acrylonitrile: Target analytes flagged with N1 failed the Matrix Spike from the same extraction batch but the spike was performed on a different sample. JEL 08/26/201. Edited by MCD 09/23/2019.

1907087-01,-02
SM 4500-CN E Contract lab results are expressed in fewer than three significant figures due to the fact that the contract lab normally reports total cyanide results in mg/L, not ug/L. ABR 8-28-19

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Phone: 520-724-6200 · Fax: 520-724-6071

FINAL LABORATORY GROUP REPORTS

LIMS #: 1907087, 1907018, 1907062, 1907088, 1907165, 1907113; 1907039
Parameters: Mercury, Molybdenum, PPMs, Total Cyanide, Acrolein and Acrylonitrile, Dioxin Scan, Pestricides & PCBs, Purgeable Organics, Semivolatile Organics, Nitrate/Nitrite, Total Nitrogen, Sulfide

QA/QC Review

Copy of Coe included with Lab Report.	Yes
Sample IDs verified against CoC.	Yes
Sample dates/times are correct.	Yes
Analyses and methods verified against CoC.	Yes
Sample holding times not exceeded.	Yes
Data Qualifiers included if necessary.	Yes
Data Qualifier Definitions included.	Yes
Case Narratives correctly reference data qualifiers with analyst initials and date.	Yes
NA and N7 Qualifiers included for Amenable Cyanide/ TCLP Analysis /Hexavalent Chromium.	Yes
Are there exceedences/Not Analyzed/No Results. 116	
Is there a notification form attached for exceedences/Not Analyzed/No Results.	No
Correct units (mg/l or µg/1, mg/kg).	Yes
If there are Contract Lab Results, Is there a Contract Lab Checksheet.	Yes
Sample Receipt Checklist Completed on COC.	Yes
Correct Methods.	Yes
MDLS/MRLS	Yes

QA/QC Review date and initials: lo/tu.//4 **Final Review date and initials:** 30-4-ft

Comments:

This is a CONTROLLED Document. Unless Numbered, Any copy of this Report appearing in paper form is not controlled.
Completed by: Joseph Doran ski Final Report Packet Copy Copy#: 1

Form QA-22 Effective date 11/06/2018 Rev. 7 Page 1 of 1

Pima County Regional Wastewater Reclamation Department
COfllllianc and Regulatory Affairs Office lAboratory

CHAIN OF CUSTODY

RK ORDER & SAMPLE(S): 1'1070 7-03

PROJECT & LOCATION: Tres Rios WRF - Dewatered Cake Biosolids (Annual)
PROJECT-LOCATION NUMBER: .20001-5703 (XXXXX-XXXX)

SAMPLE START DATE: 01--11- S>L'i (MM/DD/YY OR MM/DD/YYYY)
SAMPLE START TIME: t9LROO
CLIENT: IWC

SAMPLE END DATE: 07-12-2019 (MM/DD/YY OR MM/DD/YYYY)
SAMPLE END TIME: Ou,Oo
SAMPLER: ,"/vt, 70 ,;J,4e&<J/11 ,;, & -4,,f

Pennit Type: DAPP; AZPDES; ,we; D Investigative; Reuse; Air; 0503; Process Control; Other

Matrix: ■ Biosolids; Groundwater; Industrial; Soil; Stormwater; Surface Water; wastewater; Air; Other

INORGANIC CHEMISTRY

METALS	Tot	Diss	D	C
Aluminum	☐	☐	☐	☐
Antimony	☐	D	☐	☐
Arsenic	☐	☐	☐	☐
Barium	☐	☐	☐	☐
Beryllium	☐	☐	☐	☐
Boron	☐	☐	☐	☐
Cadmium	☐	☐	☐	☐
Calcium	☐	☐	☐	☐
Chromium	☐	☐	☐	☐
Cobalt	☐	☐	☐	☐
Copper	☐	☐	☐	☐
Hardness	☐	☐	☐	☐
Iron	☐	☐	☐	☐
Lead	☐	☐	☐	☐
Magnesium	☐	☐	☐	☐
Manganese	☐	☐	☐	☐
Mercury	x		☐	
Mercury LL	☐	☐	☐	☐
Molybdenum	☐	☐	☐	☐
Nickel	☐	☐	☐	☐
Potassium	☐	☐	☐	☐
Selenium	☐	☐	☐	☐
Silver	☐	☐	☐	☐
Sodium	☐	☐	☐	☐
Thallium	☐	☐	☐	☐
Tin	☐	☐	☐	☐

METALS	Tot	Diss	D	C
Titanium	☐	☐	☐	☐
Vanadium	☐	☐	☐	☐
Zinc	☐	☐	☐	☐
PPMs*	x		☐	
TCLP Metals			☐	
503 Metals-			☐	
Dissolved Cr+6			D	D

WET METHODS	D	C
Ammonia as N (@ 7-12-19)	☐	☐
Chloride	☐	☐
~~Cyanide, Total~~	☐	■
Cyanide, Amenable	☐	☐
Fluoride	☐	☐
Ignitability	☐	☐
Nitrate as N	☐	☐
Nitrite as N	☐	☐
Nitrate/Nitrite as N	☐	☐
Nitrogen, Total Kjeldahl	☐	☐
Nitrogen, Total as N	☐	☐
Orthophosphate as P	☐	☐
Phosphorus, Total as P	☐	☐
Sulfate	☐	☐
Sulfide	☐	☐
Other	☐	☐
Other	☐	☐

ORGANIC CHEMISTRY

	D	C
Acrolein and Acrylonitrile	☐	
Dioxin GC/SIM/MS Scan	☐	
Organochlorine Pesticides & PCBs	☐	
Purgeable Organics (GCMS)	☐	
Semivolatile Organics (GCMS)	☐	
Bis(2-ethylhexyl) phthalate	☐	☐
Digester Gas	☐	☐
Oil and Grease	☐	☐
Organic Carbon, Total	☐	☐
Organic Carbon, Dissolved	☐	☐
TCLP Herbicides (Contract Lab)	☐	☐
TCLP Pesticides	☐	
TCLP Semivolatile Organics	☐	
TCLP Volatile Organics	☐	
TTHM	☐	☐
Total Petroleum Hydrocarbons	D	D
Volatile Acids	D	D
Other C,z,'ft·	☐	
Other 6Z r	D	I!!!

EFFLUENT TOXICITY TESTING

	D	C
Chronic *P. promel&$*	☐	☐
Chronic *C. dubia*	☐	☐
Chronic *Se/ena$1rum capricornutum*	D	D
Other	D	D

MICROBIOLOGY - WET CHEM

	D	C
Alkalinity	D	D
BOD	O	O
COD	D	D
Coliform, Fecal	O	O
Coliform, Total	D	D
Specific Conductance	D	D
E. coli	☐	☐
Oxygen, Dissolved	O	O
pH	D	D
Solids, Total	O	
Solids, Total Dissolved	O	O
Solids, Total Suspended	D	D
Solids, Total Volatile	☐	☐
Solids, Volatile Suspended	D	D
Other	D	O

OTHER

	D	C
Paint Filter	☐	☐
-------	☐	☐
-------	☐	☐
-------	☐	☐
	D	D

COMPLIANCE FIELD MEASUREMENTS

	Result	Units
D Chlorine *Hedi 10014*		1191.
D Specific Conductance *SM 2510 B*	----	1,11'11hos/em
D Oxygen, Dissolved *SM 4 G*		mg/l..
☐ PH @ pH Temp *SM 4600-H 8*	@	pH'Unttao•c
D Temperature *S112650B*		•C
☐ Total Depth of Well		feet
☐ Depth to Water		feet

aDO th, r

Comments/Instructions: The Lab shen composiB the Purgeeble Organic, TCLP Volatile Organics and Acrolein/Acrylonitrile aamples.

61-4 Co:, tr? 11-r>

Septum Blank Prep Data & Initials: 104 30-.1 11 srs

Chain of Custody Record (Signature Only)

Relinquished by	Received by	Date	Time (Military time)
[signature] (Sampler)	[signature]	07-11-19	1500
[signature]	Refrigerator	7/12/19	0130
Refrigerator	[signature]	07-12-19	0600
[signature]	[signature]	07/12/19	0900

Sample Integrity/Preservation:

of Bottles Delivered: 1 (10)
Transported on Ice: ☒ YES ☐ NO KLW (1) KLW

Lab Receipt
Temperature: 8.4 °C
Initials: KLW
Q6 qualifier? ☒ YES ☐ NO

LAB USE ONLY

Sample Inspection:	Yes	No	NA
Chain of Custody Record completed appropriately?	☒	☐	☐
Sample labels match Chain of Custody?	☒	☐	☐
Correct number of sample bottles were delivered?	☒	☐	☐
Custody seals intact?	☐	☐	☒
Within holding time?	☒	☐	☐
Sufficient sample volume for analysis?	☒	☐	☐
Samples are in properly preserved containers?	☒	☐	☐
Sample containers damaged/leaking/frozen?	☐	☒	☐
40 ml vials headspace, > pea-sized air bubble?	☒	☐	☐
Received from a refrigerator?	☐	☒	☐

* Sb, Al, &,, Cd, Cr, Cu, Pb, Ni, Se, Ag, Tl, Zn, IIM:ury(CddVepo,j
- As, Cd, Cr, Cu, Pb, Mercury, Mo, Ni, Se, Zn

COC-Single Revision 2 — Revised: 03/16/2015

KLW 7/12/19

PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT
WATER QUALITY
SAMPLE COLLECTION REPORT

SAMPLE LOCATION: Tres Rios WRF - Dewatered Cake Biosolids LIMS: I q 07o 7-63 ,r0'l
LOCATION ID: 20001-5703 SAMPLERS: S;l.Jc.., To ,,..,J.,,[<.. SAMPLE DATE: Dj- -/ ;;-/5
Last names only, primary umpler first
trc.c,.bo,i; , M11tL./i,Hz

Sample Dore	Parameter	Frequency	AUTO MAN	Volume Submitted	Bottle/Preservation
C	Semivolatile Organics	Hand Composite 4 Aliquots for the duration of the discharge	Man	1000ml	Amber Glass/None/Ice
C	Organochlorine Pest & PCB's		Man	1000 ml	Amber Glass/None/Ice
C	Dioxin		Man	1000 ml	Amber Glass/None/Ice
C	Priority Pollutant & 503 Metals		Man	1000 ml	Dissolved Metals/None/Ice
C	Cyanide (T)		Man	1000 ml	Dissolved Metals/None/Ice
C	Total Solids (for outside lab)		Man	1000 ml	General Purpose/None/Ice
C	Total Solids		Man	1000 ml	General Purpose/None/Ice
C	TCLP Metals		Man	1000 ml	Dissolved Metals/None/Ice
C	TCLP Pesticides		Man	1000 ml	Amber Glass/None/Ice
C	TCLP Semivolatile organics		Man	1000 ml	Amber Glass/None/Ice
To be Composited by the Laboratory					
D	Purgeable Organics	4 Discrete aliquots for the duration of the discharge	Man	4X40	None/Ice
D	Acrolein/Acrylonitrile		Man	4X40	None/Ice
D	TCLP Volatile Organics		Man	4X40	None/Ice
To be Submitted to an outside Laboratory					
C	Corrosivity pH & Total Solids	Hand Composite 4 Aliquots for the duration of the discharge	Man	1000 ml	General Purpose/None/Ice
C	Sulfide (T}		Man	1000 ml	Dissolved Metals/None/Ice
C	Ignitability		Man	1000 ml.	Amber Glass/None/Ice
C	TCLP Herbicides		Man	1000 ml	Amber Glass/None/Ice
			Man	1000ml	

	Date	Time
Aliquot#l	07-11-19	0725
Aliquot #2	07-11-19	1300
Aliquot #3	7-11-19	1900
Aliquot#4	7-11-19	1230

Comments:	Dewatered Cake Biosolids samples are not preserved.
	All Composites including Cyanide can be poured off at the end of the sampling event

Pima County Regional Wastewater Reclamation Department

Compliance and Rtgulatory Affairs Office Laboratory

CHAIN OF CUSTODY

WORK ORDER & SAMPLE(S): 11 D7-&-ro 7 - ol{

PROJECT & LOCATION: Tres Rios WRF - Dewatered Cake Biosolids (Annual)

PROJECT-LoE°kr♦N NJt!1 fuR 20001-5703

SAMPLE START DATE: 07/11/2019 (MM/DD/YYYY)

SAMPLE START TIME: 0600 (Military time)

CLIENT: IWC

SAMPLE END DATE: 07/12/2019 (MM/DD/YYYY)

SAMPLEENDTIME: 0600 (♦ -)

SAMPLER(s): (Print Gd Name(s) °Ti)

Permit Type: 0 APP ■ AZPDES 01\NC 0 Investigative 0 Reuse OAir 0503 D Process Control 00ther

Matrix: ■ Biosolids ☐ Soil D Wastewater ☐ Groundwater ☐ Stormwater OAir ☐ Industrial ☐ Surface Water 00lher

INORGANIC CHEMISTRY

METALS	Tot	Diss	D	C
Aluminum	☐	☐	☐	☐
Antimony	☐	☐	☐	☐
Arsenic	☐	☐	☐	☐
Barium	☐	☐	☐	☐
Beryllium	☐	☐	☐	☐
Boron	☐	☐	☐	☐
Cadmium	☐	☐	☐	☐
Calcium	☐	☐	☐	☐
Chromium	☐	☐	☐	☐
Cobalt	☐	☐	☐	☐
Copper	☐	☐	☐	☐
Hardness	☐	☐	☐	☐
Iron	☐	☐	☐	☐
Lead	☐	☐	☐	☐
Magnesium	☐	☐	☐	☐
Manganese	☐	☐	☐	☐
Mercury			D	L
Mercury LL	☐	☐	☐	☐
Molybdenum	☐	☐	☐	☐
Nickel	☐	☐	☐	☐
Potassium	☐	☐	☐	☐
Selenium	☐	☐	☐	☐
Silver	☐	☐	☐	☐
Sodium	☐	☐	☐	☐
Thallium	☐	☐	☐	☐
Tin	☐	☐	☐	☐

METALS	Tot	Diss	D	C
Titanium	☐	☐	☐	☐
Vanadium	☐	☐	☐	☐
Zinc	☐	☐	☐	☐
PPMs •			☐	☐
TCLP Metals			☐	☐
503 Metals ••			☐	☐
Dissolved Cr+6			☐	☐

WET METHODS	D	C
Ammonia as N	D	D
Chloride	O	O
Cyanide, Total		■
Cyanide, Amenable	D	D
Fluoride	D	D
Ignitability	D	■
Nitrate as N	D	D
Nitrite as N	D	D
Nitrate/Nitrite as N	D	D
Nitrogen, Total Kjeldahl	D	D
Nitrogen, Total as N	D	D
Orthophosphate as P	D	D
Phosphorus, Total as P	D	D
Sulfate		■
Sulfide	D	■
Other		O
Other		

ORGANIC CHEMISTRY

	D	C
Acrolein and Acrylonitrile	L	O
Dioxin GC/SIM/MS Scan	O	O
Organochlorine Pesticides & PCBs	D	D
Purgeable Organics (GCMS)	O	O
Semivolatile Organics (GCMS)	O	C
Bis(2-ethylhexyl) phthalate	O	O
Digester Gas	D	D
Oil and Grease	D	D
Organic Carbon, Total	D	D
Organic Carbon, Dissolved	D	D
TCLP Herbicide1 (Contract Lab)	O	■
TCLP Pesticides	O	O
TCLP Semivolatile Organics	D	D
TCLP Volatile Organics	D	D
TTHM	O	O
Total Petroleum Hydrocarbons	D	D
Volatile Acids	D	D
Other		D
Other		

EFFLUENT TOXICITY TESTING

	D	C
Chronic *P. promelas*		
Chronic *C. dubia*		
Chronic *Selenastrum capricomutum*		
Other		

MICROBIOLOGY - WET CHEM

	D	C
Alkalinity		
BOD		
COD		
Coliform, Fecal	D	D
Coliform, Total	D	D
Specific Conductance	D	D
E.coli	O	O
Oxygen, Dissolved	D	D
pH	O	O
Solid1, Total	O	■
Solids, Total Dissolved		D
Solids, Total Suspended	D	D
Solids, Total Volatile	O	O
Solids, Volatile Suspended	D	
other		D

OTHER

	D	C
Paint Filter		
Corrosivity pH		■
	O	

COMPLIANCE FIELD MEASUREMENTS

	Result	Units
☐ Chlorine *Hach 10014*		µg/L
D Specific Conductance *SM 2510 B*		µmhos/cm
☐ Oxygen, Dissolved *SM4500-OG*		mg/L
0PH@pHTemp *SM4500-HB*	@	pH Units@ °C
D Temperature *SM2550B*		°C
☐ Total Depth of Well		feet
D Depth to Water		feet
☐ Other		

Comments/Instructions: To be sent to an outside lab

All sent to Legend TS, GOS 07-12-19 DO# 20-001380

Septum Blank Prep Date & Initials:

Chain of Custody Record (Signatures Only)

Relinquished by Sampler:	Received by:	Date:	Time: (Military time)
		07-11-19	1500
Relinquished by:	Received by:	Date:	Time: (Military time)
	Refrigerator	7/12/19	0130
Relinquished by:	Received by:	Date:	Time: (Military time)
Refrigerator		07-12-19	0100
Relinquished by:	Received by:	Date:	Time: (Military time)
		07/12/19	0900
Relinquished by:	Received by:	Date:	Time: (Military time)

Sample Integrity/Preservation:

# of Bottles Delivered

Temperature on Ice: [X] YES D NO

Lab Receipt

Temperature: °C

Initials:

06 qualifier?

DS YES O NO

LAB USE ONLY

Sample Inspection:	Yes	No	NA
Chain of Custody Record completed appropriately?	18	O	D
Sample labels match Chain of Custody?	♦	D	O
Correct number of sample bottles were delivered?	121	O	O
Custody seals intact?	O	D	g)
Within holding time?	fil	O	O
Sufficient sample volume for analysis?	fil	O	O
Samples are in properly preserved containers?	♦	D	0
Sample containers damaged/cracking/frozen?	O		O
40 ml vials headspace, > pea-sized air bubble?	O	O	gJ
Received from a refrigerator?	O	KJ	D

• Sb, As, Be, Cd, Cr, Cu, Pb, Ni, Se, Ag, Tl, Zn, Mercury (Cold Vapor)
"As, Cd, Cr, Cu, Pb, Mercury, Mo, Se, Zn

COG-Single Revision 2

Revised: 03/12/2015

CHAIN OF CUSTODY RECORD

LEGEND Technical Services, Inc.

D 17631 N 25th Avenue • Phoenix, AZ 85023 • (602) 324-6100 • Fax (602) 324-6101
D4585 S. Palo Verde Rd, Ste 423 • Tucson, AZ 85714 • (520) 327-1234 • Fax (520) 327-0518

Page 1 of 1

Please Print Clearly

Client Name	Address	City	State	Zip	Phone	Fax Number or Email Address
Pima County CRAO Lab	2955 W Calle Agua Nueva	Tucson	AZ	85745	520-724-6016	joseph.doranski@pima.gov

Project Name	Project Number	Contact	P.O. No.	Fax Results ☐	QC Report ☐	EDD ☒
Quarterlies		Joe Doranski	20-001380	Email Results ☒	Special Detection Limits ☐	

DW=Drinking Water, WW=Wastewater, SW=Surface Water, GW=Groundwater, O=Other, S=Soil/Solid, T=Travel Blank, F=Food, G=Sludge/Biosolids

Laboratory Authorization Required for Rush
♦ Standard 10-15 Day
D Other _____

Client's Sample Identification	Date	Time	Sample Location	Composite	Grab	Sample &	Compliance	No. of Containers	TCLP herbicides	Total cyanide mg/kg	Total % solids dry weight	pH	Total cyanide	Sulfide mg/kg	Ignitability	Sulfate mg/kg	
1907086-01	07/12/19	600	Agua Nueva WRF - plant influent	X		WW	X	1					X				01
1907086-02	07/12/19	600	Agua Nueva WRF - plant effluent	X		WW	X	1					X				02
1907086-04	07/12/19	600	Agua Nueva WRF - thickened sludge	X		G	X	6	X	X	X	X		X	X		03
1907087-01	07/12/19	600	Tres Rios WRF - raw influent	X		WW	X	1					X				04
1907087-02	07/12/19	600	Tres Rios WRF - final effluent #3	X		WW	X	1					X				05
1907087-04	07/12/19	600	Tres Rios WRF - dewatered cake	X		S	X	7	X	X	X	X		X	X	X	

Comments / Special Instructions: Please report results from the sludge and cake cyanide, sulfate, sulfide samples in mg/kg dry weight.

Sample Condition Upon Receipt (Lab Use)		
No. of Containers		
Temperature	°C	
Custody Seals	y	N
Seals Intact	y	N
Preserved	y	N

	Relinquished By	Date	Time	Received By	Date	Time
①	Sampler Signature: [signature] / Sampler Printed Name: Greg Spence	7/12/19	1311	Signature: [signature] / Printed Name: Cuse Sos	7/12/19	1311
②	Signature / Printed Name			Signature / Printed Name		
③	Signature / Printed Name			Signature / Printed Name		

WHITE-LAB YELLOW-CLIENT

FORM CS-016.2 (07/18)

PIMA COUNTY
WASTEWATER RECLAMATION
COMPLIANCE AND REGULATORY AFFAIRS OFFICE LABORATORY
2955 W Agua Nueva, Tucson, AZ 85745
Telephone: (520) 724-6200

LIMS CHECKLIST FOR SUBCONTRACT DATA

LIMS ID	**1907086-01,-02,-04 1907087-01,-02,-04**	**DO**	**20-001380**
CONTRACT LAB	**Legend Technical Services, Inc.-· Phoenix**	**SAMPLE GROUP**	**Quarterlies**
ANALYSES	**TCLP Herbicdes, CN (mg/kg), CN, Sulfide (mg/kg), %TS, pH, Sulfate (mg/kg)**	**REPORT ID**	**19G1581**

TRANSFER & CONVERT FILES:	
Was the contract lab spreadsheet file saved to \\Snlimsapp\elementshare\TransferIn ?	y
Was the above-mentioned file converted from a .xis file to a .mdb file for each WO#-, and further, for each subcontract location, or separate analysis (as applicable), on the contract lab report? (Element>Project Management>Reports)	y
Was the converted file attached to the sample in LIMS?	y
VALIDATING CONTRACT LAB REPORT, CHAIN OF CUSTODY(S), AND DO#:	
Is contract lab report signed and dated?	y
Is copy of contract lab COC included with contract lab report?	y
Do the contract lab COC and CRAO COC(s) list the same sample ID,· sample date, and analysis requested?	y
Do the sample dates and received dates on the CL report match the CL COC?	y
Does the CL report include all requested analysis?	y
Is the CL licensed in AZ for reported methods?	y
Does the DO match COC in types and number of tests?	NIA
CONTRACT LAB REPORT, EXCEL SPREADSHEET, and QC:	
Do CL report and CL spreadsheet report the same sample result(s), sample date(s), and analysis date(s)?	y
Was a case narrative included in contract lab report?	y
Does the data packet include a QC report from the primary lab and anv secondary subcontract labs?	y
Did the CL report list aoolicable AZ data qualifiers?	y
Were any dilutions made?	y
Were any results from diluted samples reported as ND?	y
Were the results from any diluted samples qualified accordingly?	y
Was QC included for every analysis method (e.g. Blk, LCS, MS, MSD)?	y
Did QC pass stated acceptance limits? If not, was it qualified?	y
Were samples analyzed within required holding times?	y
SOCs: Are MDLs below water quality standards? (If not, notify Belinda Gamboa-Felix.)	NIA
Semivolatiles & Volatiles: Were all anatvtes delivered?	NIA
COMPLIANCE LIMIT REVIEW	
Were results compared to the discharge permit?	NIA
Was Belinda Gamboa-Felix notified of any exceedences?	NIA
WET TESTING SPECIFIC REQUIREMENTS	
Is statement of Pass/Fail reflected in endpoints?	NIA
Ceriodaphnia: Survival and reproduction data included?	N/A
P. Promelas: Survival and growth data included?	NIA

Se/enastrum: Growth data included?	N/A
Was chemistry data included?	N/A
Are Reference Toxicant Test results and Control Charts within limits?	N/A
Was PMSD Determination included and within acceptable range? (minimum acceptable= 13)	N/A
Do endpoints include TUc, NOEC, LOEC, and IC25?	N/A
Do statistics verify endpoints?	N/A
Were Control Charts updated to include month of analysis?	N/A
Reviewer Initials: JD/ABR **Review Date:** 8-26-19	

PEER/FINAL REVIEW:	PR	FR
LIMS/Excel data matches printed CL report?	✓	
Analysis dates are correct?	✓	
Correct data qualifiers included, if necessary?	✓	
CRAO report shows result is from contract lab?	✓	
CRAO report shows correct Contract"Lab (e.g. Legend Technical Services of Arizona, Phoenix)?	✓	
DO received in Pima Core?	✓	
Analysis set to Reported?		✓
Peer Reviewer Initials: JD **Review Date:** 8-26-19		
Final Reviewer Initials: JEC **Review Date:** 8.27.19		

CORRECTIVE ACTION REPORT:			
Preliminary Review:		Date:	
QNQC Review:		Date:	
Data Entry:		Date:	
Peer Review:		Date:	
Lab Supervisor:		Date:	

LIMS #:	**DEVIATION:**	**CORRECTIVE ACTION:**
1907086-01,-02	Removed Case narrative	Per BGF
1907087-01,-02	Removed Case Narrative	Per BGF
1907086-01,-02	Added Case Narrative	Per JEC
1907087-01,-02	Added Case Narrative	Per JEC

DEVIATIONS FROM ACCEPTABLE QA/QC:

Missing QC Report/Data
Holding Time for analysis exceeded.
Inappropriate dilution performed.
Missing COC.
Missing Data Qualifiers.
Incorrect Analysis Method.
Incorrect Sample IDs.
Other.

CORRECTIVE ACTION:

Request report correction from Subcontract Lab project manager.
Add missing Data Qualifiers.
Notify data end-user of deviation.
Arrange for resampling.
Other.

QA-18 SubcontractDataCheciist-Reports Rev 18
Effective 01-23-2019

Page 2 of 2

LEGEND
Technical Services, Inc.

4585 S. Palo Verde Rd., Ste. 423 • Tucson, AZ 85714
P (520) 327-1234 • F (520) 327-0518
www.legend-group.com

21 August 2019

Greg Spence
Pima County RWRD CRAO Lab
2955 W Calle Agua Nueva
Tucson, AZ 85745
Fax: (520) 579-6002

RE: Environmental Analysis & Testing
Laboratory Work Order No.: 19G1581

Legend Technical Services of Arizona, Inc. is pleased to provide the enclosed analytical results for the aforementioned project. These results relate only to the items tested. This cover letter and the accompanying pages represent the full report for these analyses and should only be reproduced in full. Samples for this project were received by the laboratory on 07112/19 13:35.

The samples were processed in accordance with the Chain of Custody document and the results presented relate only to the samples tested. The Chain of Custody is considered part of this report.

All samples will be retained by LEGEND for 30 days from the date of this report and then discarded unless other arrangements are made. Due to hold-time and method sample volume requirements, microbiological samples are not retained unless other arrangements are made.

This entire report was reviewed and approved for release by the undersigned. If you have any questions concerning this report, please feel free to contact me.

Sincerely,
LEGEND TECHNICAL SERVICES OF ARIZONA, INC.

,?.IJ.,..:.4I

P. Brian Merritt For Alyssa Mazza
Client Services Representative
(602) 324-6100

This laboratory report is confidential and is intended for the sole use of LEGEND and it's client.

Pima County RWRD CRAO Lab 2955 W Calle Agua Nueva Tucson, AZ 85745	Project: Environmental Analysis & Testing Project Number: Environmental Analysis & Testing Project Manager: Greg Spence	Reported: 08/21/1911:47

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
1907086-01	19G1581-01	Wastewater	Composite	07/12/19 06:00	07/12/19 13:35
1907086-02	19G1581-02	Wastewater	Composite	07/12/19 06:00	07/12/1913:35
1907086-04	19G1581-03	Solid (Dry Weight)	Composite	07/12/19 06:00	07/12/19 13:35
1907087-01	19G1581-04	Wastewater	Composite	07/12/19 06:00	07/12/1913:35
1907087-02	19G1581-05	Wastewater	Composite	07/12/19 06:00	07/12/19 13:35
1907087-04	19G1581-06	Solid (Dry Weight)	Composite	07/12/19 06:00	07/12/19 13:35
1907086-04	19G1581-07	Solid	Composite	07/12/19 06:00	07/12/19 13:35
1907087-04	19G1581-08	Solid	Composite	07/12/19 06:00	07/12/19 13:35

Sample Condition Upon Receipt:

Temperature: 6.00 C

All samples were received in acceptable condition unless noted otherwise in the case narrative.

Case Narrative:

Holding Times: All holding times were met unless otherwise qualified.

QA/QC Criteria: All analyses met method requirements unless otherwise qualified.

Certifications: AZ(PHX)0004, AZ(TUC)OOO4, AIHA#102982, CDC ELITE Member.

Accreditation is applicable only to the test methods specified on the scope of accreditation held by LEGEND.

Comments: All reporting limits utilized in this report are from the approved method with the lowest possible levels of detection. All samples were analyzed on a "wer basis unless designated as "dry weight".

8151 TCLP required login as a separate sample due to login matrix/report units as wet wet.

This report contains data that were produced by a subcontracted laboratory certified for the fields of testing performed.

Pace National (fka ESC) AZ0612
Daphne Richards
800.767.5859

Pima County RWRD CRAO Lab
2955 W Calle Agua Nueva
Tucson, AZ 85745

Project: Environmental Analysis & Testing
Project Number: Environmental Analysis & Testing
Project Manager: Greg Spence

Reported:
08/21/19 11 :47

1907086-01 (19G1581-01) Wastewater (Composite) Sampled: 07/12/19 06:00 Received: 07/12/19 13:35

Analyte	Result	MDL	RL	Units	Dilution	Batch	Prepared	Analyzed	Metho<l	Notes
Legend Technical Services of Arizona, Inc.										
Inorganic Chemistry										
Cyanide, Total	<	0.003	0.010	mg/l	1	B9G1470	07/16/19 14:45	07/1 &19 17:01	SM4500 CN E	E8a

1907086-02 (19G1581-02) Wastewater (Composite) Sampled: 07/12/19 06:00 Received: 07/12/19 13:35

Analyte	Result	MDL	RL	Units	Dilution	Batch	Prepared	Analyzed	Method.	Notes
Legend Technical Services of Arizona, Inc.										
Inorganic Chemistry										
Cyanide, Total	0.003	0.003	0.010	mg/L	1	B9G1470	07/16/19 14:45	07/16/1917:01	SM 4500CN E	E4

1907086-04 (19G1581-03) Solid (Dry Weight) (Composite) Sampled: 07/12/19 06:00 Received: 07/12/19 13:35

Analyte	Result	MDL	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Legend Technical Services of Arizona, Inc.										
Inorganic Chemistry										
Cyanide, Total	<	1.42	4.72	mg/kg dry	S	B9G1778	07/22/1911:33	07/22/1914:38	EPA9014	D1, E8a
Flashpoint	No Flash			°F	1	B9G1588	07/18/19 18:15	07/18/1918:15	EPA 1010A (Mod.)	T6
Temperature	12.6			°C	1	B9G1718	07/23/1914:00	07/23/19 14:00	pH Temperature	H6
pH	1.2			pH Units	1	B9G1718	07/23/1914:00	07/23/1914:00	EPA904S D	H6
% Solids	1		1	%	1	B9G1548	07/18/19 15:50	07/18/1915:50	SM 2540G	
ESCAZ0612										
2540 G-2011										
Total Solids	4.25			%	1	NG131S30E07122/1914:36		07/2211918:00	2540 G-2011	
9030B										
Sulfide	13200	179	588	mg/kg dry	1	NG131763::07/24/1912:59		07/24N917:49	9030B	

1907087-01 (19G1581-04) Wastewater (Composite) Sampled: 07/12/19 06:00 Received: 07/12/19 13:35

Analyte	Result	MDL	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Legend Technical Services of Arizona, Inc.										
Inorganic Chemistry										
Cyanide, Total	0.003	0.003	0.010	mg/L	1	B9G1S75	07/19/19 12:14	07/19/1915:14	SM 4500 CN E	E4

1907087-02 (19G1581-05) Wastewater (Composite) Sampled: 07/12/19 06:00 Received: 07/12/19 13:35

Analyte	Result	MDL	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Legend Technical Services of Arizona, Inc.										
Inorganic Chemistry										
Cyanide, Total	0.005	0.003	0.010	mg/L	1	B9G1575	07/19/19 12:14	07/19/1915:14	SM 4500 CN E	E4

1907087-04 (19G1581-06) Solid (Dry Weight) (Composite) Sampled: 07/12/19 06:00 Received: 07/12/19 13:35

Analyte	Result	MDL	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Legend Technical Services of Arizona, Inc.										
Inorganic Chemistry										

Legend Technical Services of Arizona, Inc.

Laboratory Work Order No.: 19G1581

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Pima County RWRD CRAO Lab 2955 W Calle Agua Nueva Tucson, AZ 85745	Project: Environmental Analysis & Testing Project Number: Environmental Analysis & Testing Project Manager: Greg Spence	Reported: 08/21/19 11:47

1907087-04 (19G1581-06) Solid (Dry Weight) (Composite) Sampled: 07/12/19 06:00 Received: 07/12/19 13:35

Analyte	Result	MDL	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
				Legend Technical Services of Arizona, Inc.						
Inorganic Chemistry										
Cyanide, Total	1.12	0.224	0.746	mg/kg dry	1	B9G1572	07/19/19 12:14	07/19/1915:14	EPA9014	
Flashpoint	No Flash			•F	1	B9G1588	07/18/19 18:15	07/18/19 18:15	EPA 1010A (Mod.)	T6
Temperature	19.7			·C	1	B9G1718	07/23/19 14:00	07/23/19 14:00	pH Temperature	HS
pH	7.8			pH Units	1	B9G1718	07/23/19 14:00	07/23/1914:00	EPA9045 D	HS
% Solids	13		1	%	1	B9G1548	07/18/19 15:50	07/18/19 15:50	SM 2540 G	
				ESCAZ0612						
2540 G-2011										
Total Solids	13.2			%	1	NG131530E	07/22/1914:36	07/22/1918:00	2540 G-2011	
9030B										
Sulfide	ND	57.8	189	mg/kg dry	1	NG131617	407/23/19 07:30	07/23/1915:53	9030B	EB
9056A										
Sulfate	3230	4.32	379	mg/kg dry	1	NG131263€	07/19/19 00:10	07/19/19 04:10	9056A	

1907086-04 (19G1581-07) Solid (Composite) Sampled: 07/12/19 06:00 Received: 07/12/19 13:35

Analyte	Result	MDL	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
				ESCAZ0612						
8151A										
2,4,5-TP (Silvex)	ND	0.000667	0.00200	mg,1	1	NG131520	107/22/19 08:02	07/22/19 23:57	8151A	EB
2,4-D	ND	0.000667	0.00200	mg,1	1	NG131520	107/22/19 08:02	07/22/19 23:57	8151A	EB
Surrogate: 2, 4-Dichlorophenyl Acetic Acid			*79.0%*		*14.0-158*	*WG13152 01*	*07122119*	*07122119*	*8151A*	

1907087-04 (19G1581-08) Solid (Composite) Sampled: 07/12/19 06:00 Received: 07/12/19 13:35

Analyte	Result	MDL	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
				ESCAZ0612						
8151A										
2,4,5-TP (Silvex)	ND	0.000667	0.00200	mg,1	1	NG131520	107/22/19 08:02	07/23/19 00:10	8151A	EB
2,4-0	ND	0.000667	0.00200	mg,1	1	NG131520	107/22/19 08:02	07/23/19 00:10	8151A	EB
Surrogate: 2,4-Dichlorophenyl Acetic Acid			*77.0%*		*14.0-158*	*WG13152 01*	*07122119*	*07123119*	*8151A*	

Pima County RWRD CRAO Lab 2955 W Calle Agua Nueva Tucson, AZ 85745	Project: Environmental Analysis & Testing Project Number: Environmental Analysis & Testing Project Manager: Greg Spence	Reported: 08/21/19 11:47

Notes and Definitions

T6	The reported result cannot be used for compliance purposes.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated blank spike recovery was acceptable
M2	Matrix spike recovery was low; the associated blank spike recovery was acceptable.
H5	This test is specified to be perfonned in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.
E8a	Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
EB	[Undefined]
E4	Concentration estimated. Analyte was detected below laboratory minimum reporting level (MRL), but above the MDL.
E1	Concentration estimated. Analyte exceeded calibration range. Reanalysis not possible due to insufficient sample.
D1	Sample required dilution due to matrix.
_FX	No Flash
BLK	Method Blank
LCS/Dup	Laboratory Control Sample/Laboratory Fortified Blank/Duplicate
MS/Dup	Matrix Spike/Duplicate
Dry	Sample results reported on a dry weight basis
RPO	Relative Percent Difference

Pima County RWRD CRAO Lab
2955 W Calle Agua Nueva
Tucson, AZ 85745

Project: Environmental Analysis & Testing
Project Number: Environmental Analysis & Testing
Project Manager: Greg Spence

Reported:
08/21/1911 :47

19G1581

CHAIN OF CUSTODY RECORD

LEGEND
Technical Services, Inc.

017D1k---AZI002:I•(I02)324-f10II•Fa\'I02)324-e101
0'81SS. Polo-Rd, Sloffl •r,.._,,AZ 16714 • (520) :127-1334 • Fa(al) 127-1111

Pogo L d 1

Company	Project Name	City	State	Zip	Phone	Fax Number or Email Address
Pima County CRAO Lab	2955 W Calle Agua Nueva	Tucson	AZ	85746	520-724-6016	joseph.doranski@pima.gov

Quarterli•

Project Number:

Contact: Joe Doranski

P.O. No.: 20-001380

Fax Results ☐ Email Results ☒ QC Report ☐ EDD ☒ Special Detection Limits ☐

Laboratory Authorization Required for Ruah
II!-••-15-
o –

Wol,r SW GW-G1t1undlker O=Other
S=Soil/Solid T=Travel Blank F=Food G=Sludge/Biosolids

Client's Sample Identification	Date	Time	Sample Location	Grab	Sample Type	Compliance	No. of Containers	TCLP herbicides	Total cyanide mg/kg	Total % solids dry weight	Total cyanide	Sulfide mg/kg	Ignitability	Sulfate mg/kg	
1907086-01	07/12/19	100	Agua Nueva WRF - plant influent	X	WW	X	1				X				01
1907086-02	07/12/19	600	Agua Nueva WRF - plant effluent	X	WW	X	1				X				02
1907086-04	07/12/19	000	Agua Nueva WRF - thickened sludge	X	G	X	6	X	X	X	X	X	X		03/07
1907087-01	07/12/19	000	Tres Rios WRF - raw influent	X	WW	X	1				X				04
1907087-02	07112/19	000	Tres Rios WRF - final effluent #3	X	WW	X	1				X				05
1907087-01	07/12/19	000	Tres Rios WRF - dewatenad cake	X	S	X	7	X	X	X	X	X	X	X	~~01~~ 06/08 3/12/19

Please report results from the sludge and cake cyanide, sulfate, sulfide samples in mg/kg dry weight.

Comments / Special Instructions: SKT TCLP required for in as separate samples due to high matrix / interferences

Temperature	6.0 °C	
Custody Seal	Y	(N)
Cooler Intact	Y	N
Preservation	(Y)	N

	Relinquished by	Date	Time	Received by	Date	Time
①	Sampler Signature / Sampler Printed Name: Greg Spence	7/12/19	1311	Signature / Printed Name: Cindy Sos	7/12/19	1311
②	Signature / Printed Name: Alyssa Marza	7/15/19	1600	Signature / Printed Name: Carter	7/15/19	1600
③	Signature / Printed Name: Colin	7/16/19	730	Signature / Printed Name: Michael	7/16/19	730

WHITE-LAB YELLOW-CLIENT

FORM CS-1116-2 (07/18)

Pima County RWRD CRAO Lab 2955 W Calle Agua Nueva Tucson, AZ 85745	Project: Environmental Analysis & Testing Project Number: Environmental Analysis & Testing Project Manager: Greg Spence	Reported: 08/21/19 11:47

Leg•nd T.chnlcal S.rvic-of Arizona. Inc.

LEGEND
Technical Services. Inc.

PO Number:

SUBCONTRA.CTORQER
19G1581

REVISED 7/16/19 LT

SENDING U.BORATOBY:
• Legend Technical Servlcsea, of Arizona, fna.
17631 North 25th Avenue
Phoenbc, AZ 85023
Phone: 802-324-6100
Fax: 602-324-6101
Projeet Menager.: Alyssa Mezza

RECEIVINO k'BORATOBY:
Pace National (tka ESC Lab Sciences)
12065 Lebanon Rd.
Mt. Juliet. TN 37122
Phone :(800) 787-5858
Faw: (615) 758-i,g

Analysis	Due	Expires	Sample Type (circle one)	S.mpl• Commenta
llamp.. ID: 19G11181G3	trolld (Dty Wt	07112/18 CN00	Grab Composite N/A	
8olkla. 75 &A>contnct	07123119 1o:oo	0fl1 wl a oe:oo		
Sulll, Total	07123119 18:00	07/1Q/19 06:00		Added % Solids (dry weight)
03,1000mL Coal to•• C (A)				
23--1000fll_Afflttw-at_Oc;tiolto-4•C(II)				
8amplelD:19011W11.oe	Solld(Dn,WI 07/1211909:00		Grab Composite N/A	
Solkla. Total- s.1coi.....	w,a-y1 a 1a:00	07/19/1 e oe:oo		
SuNkla. 1Ubl	07/231Hit H5:00	07/1tlf19 cie:oo		
Suttate Solid (&b-contr.a712311tl	15:oo	08/0W19 oe:oo		Added % Solids (dry weight)
oa-1000mL Cod D 4 C				
.1000m1 Cod D 4 C (9)				
p-1000mL.....m... Cod••• C(P)				
Sample ID: 19G1581-07	Solid	Sampled: 07/12/19 06:00	Grab Campoetta N/A	
8151A- TCLP &Ab:oi• - . t	OtJ2S/18 1L-00	07120'18 00:00		
Contal,,,,,,.. Suppfled:				Same as 19G1581-03 (TCLP)
02 1000mLAmba' Glw 00fl1ID 4 C (A)				
Sample ID: 1eG1U1-o8	Solld	07/12/1e Ol:00	Grab Composite N/A	
8151,.. TCLP Subcontract	07123119 15:00	07/28119 00:00		
Contal,,,,.. Suppjled:				Same•• 19G1581-06 (TCLP)
. _ *1000lnL — Coal =a• C (Al				

™ GIPiinii.si,...5 X	Date	Time	Received By (Print & Sign) X	b i..	Time
Ril....a..;;(Print .AA	Date	Time	..,, (Print. . _ . . .	Date	n.,,

Paga 1 of1

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

July 26, 2019

Cp
Tc
Ss
Cn
Sr
Qc
Gl
Al
Sc

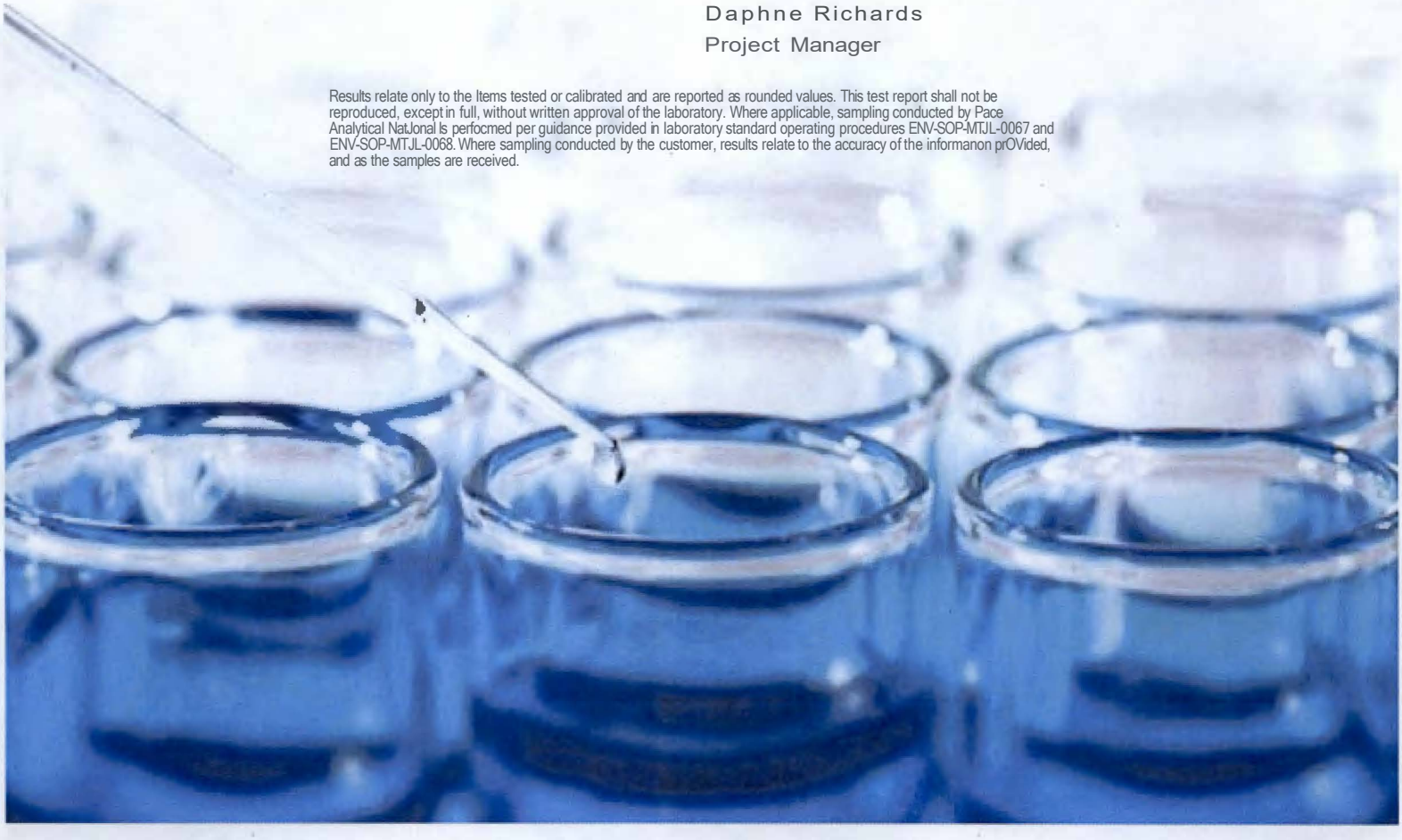
Legend Technical Services of Arizona,Inc

Sample Delivery Group:	L1119018
Samples Received:	07/16/2019··
Project Number:	19G1581
Description:	
Report To:	Alyssa Mazza 17631 N. 25th Avenue Phoenix, AZ 85023

Entire Report Reviewed By: N t iCMrd-1

Daphne Richards
Project Manager

Results relate only to the Items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical NatJonal Is perfocmed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the informanon prOVided, and as the samples are received.



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SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

	Collected by	Collected date/time	Received date/tlm
19G1581-03 L1119018-01 Solid		07n2/19 06:00	07n6/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1315308	1	07/22/1914:36	07/22/1918:00	KBC	Mt. Juliet, TN
Wet Chemistry by Method 91)308	WG1317633	1	07/24/1912:59	07/24/1917:49	JD	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151	WG1314051	5	07/19/19 07:21	07/22/1911:07	LEL	Mt. Juliet, TN

	Collected by	Collected date/time	Received date/time
19G1581-06 L1119018-02 Solid		07/12/19 06:00	07/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1315308	1	07/21/1914:36	07/22/1918:00	KBC	Mt.Juliet, TN
Wet Chemistry by Method 90308	WG1316174	1	07/23119 07:30	07/23/1915:53	BAM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1312638	1	07/19/19 00:10	07/19/19 04:10	ELN	Mt. Juliet, TN

	Collected by	Collected date/time	Received date/time
.19G1581-06 L1119018-03 Waste		07/12/19 06:00	07/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1312962	1	07/17/1914:50	07/17/1914:50	CGD	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151A	WG1315201	1	07/22/19 08:02	07/22/19 23:57	LEL	Mt. Juliet, TN

	Collected by	Collected date/time	Received date/time
19G1581-03 L1119018-04 Waste		07/12/19 06:00	07/16/19 08:45

Method	Batch	Dilution	Pr.eparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1312962	1	07/17/1914:50	07/17/1914:50	CGD	Mt. Juliet. TN
Chlorinated Acid Herbicides (GC) by Method 8151A	WG1315201	1	07/22/19 08:02	07/23/19 00:10	LEL	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable. all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative. a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne R Richards

Daphne Richards
Project Manager

19G1581-03
Collected date/time: 07/12/19 06:00

SAMPLE RESULTS - 01

L1119018

ONE LAB. NATIONWIDE.

Total Solids by Method 2540 G-201-1

Analyte	Result %	Dilution	Analysis date/time	
Total Solids	4.25	1	07/22/201918:00	WG1315308

Wet Chemistry by Method 9030B

Analyte	Result {dry) mg/kg	RDL {dry) mg/kg	Dilution	Analysis date/time	
Sulfide	13200	588	1	07/24/201917:49	WG1317633

Chlorinated Acid Herbicides (GC) by Method 8151

Analyte	Result(dry) mg/kg		RDL{dry) mg/kg	Dilution	Analysis date/time	
2,4-0	ND		8.23	5	07/22/201911:07	WG1314051
Dalapon	ND		8.23	5	07/22/201911:07	WG1314051
2,4-0B	ND		8.23	5	07/22/201911:07	WG1314051
Dicamba	ND		8.23	5	07/22/201911:07	WG1314051
Dichloroprop	ND		8.23	5	07/22/201911:07	WG1314051
Dinoseb	ND	!d	8.23	5	07/22/201911:07	WG1314051
MCPA	ND	!!	765	5	07/22/201911:07	WG1314051
MCPP	ND		765	5	0112212019 n:01	WG1314051
2,4,5-T	ND		8.23	5	07/22/201911:07	WG1314051
2.4,5-TP (Silvex)	ND		8.23	5	07/22/201911:07	WG1314051
(S)2,4-Dichlorophenyl Acetic Acid	***54.1***		*22.0-132*		*07/22/2019 11:07*	WG1314051

19G1581-06 SAMPLE RESULTS - 02 ONE LAB. NATIONWIDE.

Collected date/time: 07/12/19 06:00 L1119018

Total Solids by Method 2540 G-2011

Analyte	Result %	Dilution	Analysis date /time	Batch
Total Solids	13.2	1	07/22/201918:00	WG1315308

Wet Chemistry by Method 9030B

Analyte	Result(dry) mg/kg	Qualifier	RDL(dry) mg/kg	Dilution	Analysis date /time	Batch
Sulfide	ND		189	1	07/23/201915:53	WG1316174

Wet Chemistry by Method 9056A

Analyte	Result (dry) mg/kg	–	RDL(dry) mg/kg	Dilution	Analysis date/time	Batch
Sulfate	3230		379	1	07/19/2019 04:10	WG1312638

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

19G1581-06
Collected date/time: 07/12/19 06:00

SAMPLE RESULTS - 03

L1119018

ONELAB. NATIONWIDE.

Preparation by. Method 1311

Analyte	Result	Prep date/time	
TCLP Extraction	-	7/17/2019 2:50:58 PM	WG1312962
Fluid	1	7/17/2019 2:50:58 PM	WG1312962
Initial pH	7.42	7/17/2019 2:50:58 PM	WG1312962
Final pH	5.24	7/17/2019 2:50:58 PM	WG1312962

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result mg/l	RDL mg/l	Limit mg/l	Dilution	Analysis date /time	Batch
2,4,5-TP (Silvex)	ND	0.00200	1	1	07/22/2019 23:57	WG1315201
2,4-D	ND	0.00200	10	1	07/22/2019 23:57	WG1315201
(S) 2,4-Dichlorophenyl Acetic Acid	79.0	14.0-158			07/22/2019 23:57	WG1315201

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

19G1581-03 SAMPLE RESULTS - 04 ONE LAB. NATIONWIDE.

Collected date/time: 07/12/19 06:00 L1119018

Preparation by Method 1311

Analyte	Result	Prep date/time	
TCLP Extraction	-	7/17/2019 2:50:58 PM	WG1312962
Fluid	1	7/17/2019 2:50:58 PM	WG1312962
Initial pH	7.58	7/17/2019 2:50:58 PM	WG1312962
Final pH	5.01	7/17/2019 2:50:58 PM	WG1312962

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result mg/l	RDL mg/l	Limit mg/l	Dilution	Analysis date/lime	Batch
2.4,5-TP (Silvex)	ND	0.00200	1	1 .	07/23/2019 00:10	WG1315201
2,4-D	ND	0.00200	10	1	07/23/2019 00:10	WG1315201
(SJ 2,4-Dich/oropheny/Acetic Acid	**77.0**	*14.0-158*			**07/23/20190:10**	WG1315201

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

GLOSSARY OF TERMS

ONE LAB. NATIONWIDE.

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation. and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer. and contained within this report. include Permit Limits. Project Name. Sample ID. Sample **Matrix,** Sample Preservation. Field Blanks. Field Spikes. Field Duplicates. On-Site Data. Sampling Collection Dates/Times. and Sampling Location. Results relate to the accuracy of this information provided. and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. (this will only be present on a dry report basis for soils].
MDL	Method Detection Limit
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit
RDL(dry)	Reported Detection Limit
Rec.	Recovery.
RPO	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank. sample. Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report. the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target% recovery ranges or% difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPO) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. Ifthere was no measurable result returned for a specific analyte. the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results. including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples. and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
EI	Concentration estimated. Analyte exceeded calibration range. Reanalysis not possible due to insufficient sample.
L1	The associated blank spike recovery was above laboratory acceptance limits.
L2	The associated blank spike recovery was below laboratory acceptance limits.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated blank spike recovery was acceptable.
M6	Matrix spike recovery was high. Data reported per ADEQ policy 0154.000. Matrix Interference was confirmed.
M7	Matrix spike recovery was low. Data reported per ADEQ policy 0154.000. Matrix interference was confirmed.
R2	RPD/RSD exceeded the laboratory acceptance limit.
RS	MS/MSD RPO exceeded the laboratory accep ance limit. Recovery met acceptance criteria.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

- Not all certifications held by the laboratory are applicable to the results reported in the attached report
- Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

State Accreditations

Alabama	40660	Nebraska	NE-05-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina'	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky"	90010	South Carolina	84004
Kentucky'	16	South Dakota	n/a
Louisiana	AI30792	Tennessee· · -	2006
Louisiana [1]	LA180010	Texas	1104704245-18-15
Maine	TN0002	Texas•	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
MisSissippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

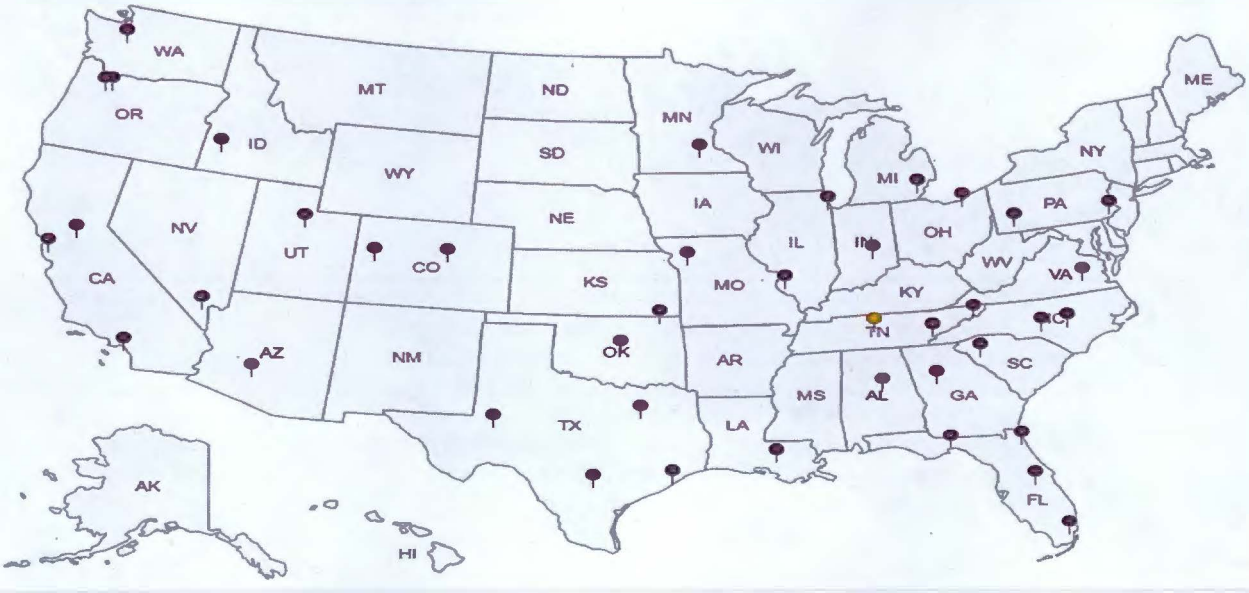
Third Party Federal Accreditations

A2LA- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA- ISO 17025'	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks 'Aquatic Toxicity • Chemical/Microbiological 'Mold 'Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/orthe delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Legend Technical Services of Arizona, Inc.

PO Number: 19G1581

LEGEND
Technical Services, Inc.

SUBCONTRACT ORDER

19G1581

i./IY/0f8

SENDING LABORATORY:

Legend Technical Services of Arizona,• Inc.
17631 North 25th Avenue
Phoenix, AZ 85023
Phone:602-324-6100
Fax: 602-324-6101
Project Manager: Alyssa Mazza

RECEIVING LABORATORY:

Pace National (fka ESC)
12065 Lebanon Rd.
Mt. Juliet, TN 37122
Phone :(602) 377-2696
Fax: (615) 758-5859

Project: Environmental Analysis & Testing

Client: Pima County RWRD CRAO Lab% Tucson

Analysis	Due	Expires	leach Date & Time	Sample Comments
Sample 10: 1961581.03 Solid (Dry WE Sampled:07/12/19 06:00				., O\
6151- Subcontract	07/23/1915:00	07126/19 06:00		
Sulfide, Total	07123/19 15:00	07/19/19 06:00		

Containers Supplied:
03_1000ml Plastic Cool to 4° C (A)
02_1000mLAmber Glass Cool to 4• C (E)

For method 608: ___ p H check _ . _ C l 2 check
Special Instructions/Comments:

Sample ID: 19G1581-G6 Solid (DIY WE Sampled:07/12/19 06:00				.,o7„
6151A-TCLP Subcontract	07/23/19 15:00	07/26/19 06:00		
Sulfate- Solid (9056- Sub-co	07/23/19 15:00	06/09/19 06:00		
Sulfide, Total	07123/1915:00	07/19/19 06:00		

Containers Supplied:
03_1000mL Plastic Cool to 4• C (A)
03_1000ml Plastic Cool to 4° C (B)
02JOOOmLAmbet Gian Cool to 4• C (F)

For method 608: _____p.H. check __ C12 check
Special Instructions/Comments:

• The sample matrix for leachates supplied to the MN laboratory reflects the matrix of the original sample received by LEGEND AZ.
..For matrices other than Drinking Water requiring drinking water methods (such as EPA 505, etc.), a 10x dilution is acceptable. Appropriate data qualifiers are to be used.

Released By (Print & Sign)	Date	Time	Received By (Print & Sign)	Date	iime
Alyssa Mazza x Alyssa Mazza	7/15/19	J6()0	Fedex x	7/15/19	, 00
Released By(Pr1nt&' n)	bate'	Time	♦&x;gh)	7/16 Date	8:45 Time

ok

Page 1 of 1

PIMA COUNTY
WASTEWATER RECLAMATION

COMPLIANCE AND REGULATORY AFFAIRS OFFICE LABORATORY
2955 W Agua Nueva, Tucson, AZ 85745
Telephone: (520) 724-6200

LIMS CHECKLIST FOR SUBCONTRACT DATA

LIMS ID	**1907088-01**	**DO**	**20-001131**
CONTRACT LAB	**Pace Analytical National, Mt. Juliet (ESC)**	**SAMPLE GROUP**	**SOCS**
ANALYSES	**EPA8141B**	**REPORT ID**	**19D1577**

TRANSFER & CONVERT FILES:	
Was the contract lab spreadsheet file saved to \\Solimsann\elementshare\TransferIn ?	y
Was the above-mentioned file converted from a .xis file to a .mdb file for each WO#, and further, for each subcontract location, or separate analysis (as applicable), on the contract lab report? (Element>Project Management>Reoorts)	y
Was the converted file attached to the sample in LIMS?	y
VALIDATING CONTRACT LAB REPORT, CHAIN OF CUSTODY($), AND DO#:	
Is contract lab report signed and dated?	y
Is copy of contract lab COC included with contract lab report?	y
Do the contract lab COC and CRAO COC(s) list the same sample ID, sample date, and analysis requested?	y
Do the sample dates and received dates on the CL report match the CL COC?	y
Does the CL report include all requested analysis?	y
Is the CL licensed in AZ for reported methods?	y
Does the DO match COC in types and number of tests?	NIA
CONTRACT LAB REPORT, EXCEL SPREADSHEET, and QC:	
Do CL report and CL spreadsheet report the same sample result(s), sample date(s), and analysis date(s)?	y
Was a case narrative included in contract lab report?	y
Does the data packet include a QC report from the primary lab and any secondary subcontract labs?	y
Did the CL report list applicable AZ data qualifiers?	y
Were any dilutions made?	N
Were any results from diluted samples reported as ND?	NIA
Were the results from any diluted samples qualified accordinQly?	NIA
Was QC included for every analysis method (e.Q. Blk, LCS, MS, MSD)?	y
Did QC pass stated acceptance limits? If not, was it qualified?	y
Were samples analyzed within required holdinQ times?	y
SOCs: Are MDLs below water quality standards? (If not, notify Belinda Gamboa-Felix.)	N
Semivolatiles & Volatiles: Were all analvtes delivered?	y
COMPLIANCE LIMIT REVIEW	
Were results compared to the discharge permit?.	NIA
Was Belinda Gamboa-Felix notified of any exceedences?	NIA
WET TESTING SPECIFIC REQUIREMENTS	
Is statement of Pass/Fail reflected in endpoints?	NIA
Ceriodaphnia: Survival and reproduction data included?	NIA
P. Promelas: Survival and growth data included?	NIA
Se/enastrum: Growth data included?	NIA
Was chemistry data included?	NIA

Are Reference Toxicant Test results and Control Charts within limits?	N/A
Was PMSD Determination included and within acceptable range? (minimum acceptable= 13)	N/A
Do endpoints include TUc, NOEC, LOEC, and IC25?	N/A
Do statistics verify endpoints?	N/A
Were Control Charts updated to include month of analysis?	N/A
Reviewer Initials: **ABR**	Review **Date:** **8-27-19**

PcERIFINAL REVIEW:	PR	FR
LIMS/Excel data matches printed CL report?	✓	
Analysis dates are correct?	✓	
Correct data qualifiers included, if necessary?	✓	
CRAO report shows result is from contract lab?	✓	
CRAO report shows correct Contract Lab (e.g. Legend Technical Services of Arizona, Phoenix)?	✓	
DO received in Pima Core?	✓	
Analysis set to Reported?		✓

Peer Reviewer Initials:	KD	**Review Date:**	9-05-19
Final Reviewer Initials:	JEC	**Review Date:**	9.10.19

CORRECTIVE ACTION REPORT:			
Preliminary Review:		Date:	
QA/QC Review:		Date:	
Data Entry:		Date:	
Peer Review:		Date:	
Lab Supervisor:		Date:	

LIMS #:	DEVIATION:	CORRECTIVE ACTION:

DEVIATIONS FROM ACCEPTABLE QA/QC:

Missing QC Report/Data
Holding Time for analysis exceeded.
Inappropriate dilution performed.
Missing CQC.
Missing Data Qualifiers.
Incorrect Analysis Method.
Incorrect Sample IDs.
Other.

CORRECTIVE ACTION:

Request report correction from Su◆contract Lab project manager.
Add missing Data Qualifiers.
Notify data end-user of deviation.
Arrange for resampling.

Other.

OA-18 SubcontractDataChecfist-Reports Rev 18
Effective 01-23-2019

Page 2 of2

LEGEND
Technical Services, Inc.

4585 S. Palo Verde Rd., Ste. 423 • Tucson, AZ 85714
P (520) 327-1234 • F (520) 327-0518
www.legend-group.com

22 August 2019

Joe Doranski
Pima County RWRD CRAO Lab
2955 W Calle Agua Nueva
Tucson, AZ 85745
Fax (520) 579-6002

RE: SOCs

Laboratory Work Order No.: 19G1577

Legend Technical Services of Arizona, Inc. is pleased to provide the enclosed analytical results for the aforementioned project. These results relate only to the items tested. This cover letter and the accompanying pages represent the full report for these analyses and should only be reproduced in full. Samples for this project were received by the laboratory on 07/12/19 13:35.

The samples were processed in accordance with the Chain of Custody document and the results presented relate only to the samples tested. The Chain of Custody is considered part of this report.

All samples will be retained by LEGEND for 30 days from the date of this report and then discarded unless other arrangements are made. Due to hold-time and method sample volume requirements, microbiological samples are not retained unless other arrangements are made.

This entire report was reviewed and approved for release by the undersigned. If you have any que_stions concerning this report, please feel free to contact me.

Sincerely,
LEGEND TECHNICAL SERVICES OF ARIZONA, INC.

P. Brian Merritt For Alyssa Mazza
Client Services Representative
(602) 324-6100

This laboratory report is confidential and is intended for the sole use of LEGEND and it's client.

Pima County RWRD CRAO Lab 2955 W Calle Agua Nueva Tucson, AZ 85745	Project: SOCs Project Number: Tres Rios WRF Project Manager: Joe Doranski	Reported: 08/22/19 15:19

ANALYTICAL REPORT FOR SAMPLES

Sample D	Laboratory D	Matrix	Type	Date Sampled	Date Received
1907088-01	19G1577-01	Wastewater	Composite	07/12/19 06:00	07/12/19 13:35

Sample Condition Upon Receipt:

Temperature: 6.00 C

All samples were received in acceptable condition unless noted otherwise in the case narrative.

Case Narrative:

Holding Times: All holding times were met unless otherwise qualified.

QA/QC Criteria: All analyses met method requirements unless otherwise qualified.

Certifications: AZ(PHX)0004, AZ(TUC)OO04, AIHA#102982, CDC ELITE Member.

Accreditation is applicable only to the test methods specified on the scope of accreditation held by LEGEND.

Comments: All reporting limits utilized in this report are from the approved method with the lowest possible levels of detection. All samples were analyzed on a "wer basis unless designated as "dry weight".

This report contains data that were produced by a subcontracted laboratory certified for the fields of testing performed.

Pace National (flea ESC) AZ0612
Daphne Richards
800.767.5859

Pima County RWRD CRAO Lab 2955 W Calle Agua Nueva Tucson, AZ 85745	Project: SOCs Project Number: Tres Rios WRF Project Manager: Joe Doranski	Reported: 08/22/19 15:19

Notes and Definitions

M7	Matrix spike recovery was low. Data reported per ADEQ policy 0154.000.
M1	Matrix spike recovery was high; the associated blank spike recovery was acceptable.
L2	The associated blank spike recovery was below laboratory acceptance limits.
ES	Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
BLK	Method Blank
LCS/Dup	Laboratory Control Sample/laboratory Fortified Blank/Duplicate
MS/Oup	Matrix Spike/Duplicate
Dry	Sample results reported on a dry weight basis
RPO	Relative Percent Difference

PIMA COUNTY
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office (CRAO) Laboratory
12955 W. Calle Agua Nueva, Tucson Arizona 85745-9750, Phone (520) 724-6200

Report Date: 01/30/2020
Laboratory License: AZO159

Sample Analysis Report

Tres Rios WRF

October 2019

Sample Integrity

SAMPLE RECEIPT: Samples were received intact at the required temperature, unless otherwise noted with a data qualifier below. Please refer to the Chain of Custody for sample receipt details.

HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the Pima County CRAO Laboratory Quality Manual.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS:

Notes and Definitions:

See attached

Case Narratives:

See attached

All results on this report intended for compliance submission must have the associated chain(s) of custody attached for the results to meet reporting requirements as per ADHS Laboratory licensure rules. If you have received this report for compliance purposes and it is not complete, please contact the Compliance and Regulatory Affairs Office for a final report in its entirety.

Reviewed By:

Laboratory Director or Designee
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office Laboratory

2i7fJ.02D
Date

Laboratory License# AZOl59

Lab ID:	Sample Type	Parameter	Sample Date/Time	Analysis Method	Analysis Date/Time	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
1910137-01	C	Dimethyl phthalate	I0/18/19 6:00	EPA62S	I1n/19 16:43	ND	ug/L	0.58	4.00	DI, D7	SJM
1910137-01	C	Di-n-butyl phthalate	10/18/19 6:00	EPA62S	1ln/19 16:43	ND	ug/L	2.50	12.00	DI, D7	SJM
1910137-01	C	Di-n-octyl phthalate	10/18/19 6:00	EPA62S	1ln/19 16:43	ND	ug/L	2.55	12.00	DI, D7	SJM
1910137-01	C	Fluoranthene	10/18119 6:00	EPA62S	1ln/19 16:43	ND	ug/L	1.32	4.00	DI, D7	SJM
·1910137-01	C	Fluorene	10/18/19 6:00	EPA62S	1ln/19 16:43	ND	ug/L	1.54	4.00	DI, D7, NI	SJM
1910137-01	C	Hexachlorobenzene	I0/18/19 6:00	EPA62S	1ln/19 16:43	ND	ug/L	0.62	4.00	DI, D7	SJM
1910137-01	C	Hexachlorobutadiene	10/18/19 6:00	EPA62S	1ln/19 16:43	ND	ug/L	1.01	4.00	DI, D7	SJM
1910137-01	C	Hexachlorocyclopentadiene	10/18/19 6:00	EPA62S	1ln/19 16:43	ND	ug/L	4.23	12.00	DI, D7, NI	SJM
1910137-01	C	Hexachloroethane	10/18/19 6:00	EPA62S	I1n/19 16:43	ND	ug/L	1.26	4.00	D7, NI, DI	SJM
1910137-01	C	lndeno(1,2,3-cd)pyrene	10/18/19 6:00	EPA62S	1ln/19 16:43	ND	ug/L	2.83	12.00	DI, D7	SJM
1910137-01	C	lsophorone	10/18/19 6:00	EPA62S	1ln/19 16:43	ND	ug/L	1.66	4.00	DI, D7.	SJM
1910137-01	C	Naphthalene	10/18/19 6:00	EPA62S	1ln/19 16:43	ND	ug/L	1.77	4.00	DI, D7	SJM
1910137-01	C	n-Decane	10/18/19 6:00	EPA62S	1ln/19 16:43	ND	ug/L	1.95	4.00	DI, D7	SJM
1910137-01	C	Nitrobenzene	10/18/19 6:00	EPA62S	1ln/19 16:43	ND	ug/L	2.10	12.00	DI, D7	SJM
1910137-01	C	N-Nitrosodimethylamine	10/18/19 6:00	EPA62S	1ln/19 16:43	ND	ug/L	2.09	12.00	Dl,D7,PC3	SJM
1910137-01	C	N-Nitrosodi-n-propylamine	10/18/19 6:00	EPA62S	1ln/19 16:43	ND	ug/L	2.43	12.00	DI, D7	SJM
1910137-01	C	N-Nitrosodiphenylamine	10/18/19 6:00	EPA62S	1ln/19 16:43	ND	ug/L	6.08	20.00	DI, D7	SJM
1910137-01	C	n-Octadecane	10/18/19 6:00	EPA62S	1ln/19 16:43	ND	ug/L	2.18	12.00	DI, D7, NI	SJM
1910137-01	C	Pentachlorophenol	10/18/19 6:00	EPA62S	1ln/19 16:43	ND	ug/L	4.02	12.00	DI, D7	SJM
1910137-01	C	Phenanthrene	10/18/19 6:00	EPA62S	1ln/19 16:43	ND	ug/L	1.63	4.00	DI, D7	SJM
1910137-01	C	Phenol	I0/18/19 6:00	EPA62S	1ln/19 16:43	13.7	ug/L	2.59	12.00	DI, D7	SJM
1910137-01	C	Pyrcne	10/18/19 6:00	EPA62S	1ln/19 16:43	ND	ug/L	1.38	4.00	DI, D7	SJM
1910137-01	C	1,2-Diphenylhydrazine	10/18/19 6:00	EPA8270C	11ntl9 16:43	ND	ug/L	0.98	4.00	DI, D7	SJM
1910137-0IREI	C	Copper	10/18/19 6:00	EPA200.8	10/31/19 18:29	6S.3	ug/L	0.94	2.00.	DI	JB
1910137-0IREI	C	Lead	10/18/19 6:00	EPA200.8	10/31/19 18:29	1.48	ug/L	0.10	2.00	D1,J	JB
1910137-0IREI	C	Thallium	10/18/19 6:00	EPA200.8	10/31/19 18:29	ND	ug/L	0.15	2.00	DI	JB
1910137-0IRE2	C	Zinc	-10/18/19 6:00	EPA200.8	I0/31/19 18:35	197	ug/L	0.62	20.00	D2	JB

Dewatered Cake Biosolids (20001-5703)

1910137-03	C	Antimony	10/18/19 6:00	EPA6010D	10/30/19 13:55	ND	mg/kg dry		7.94		MLB
1910137-03	C	Arsenic	10/18/19 6:00	EPA6010D	10/30/19 12:39	8.61	mg/kg dry		7.94		MLB
1910137-03	C	Beryllium	10/18/19 6:00	EPA6010D	10/30/19 12:39	ND	mg/kg dry		1.59		MLB
1910137-03	C	Cadmium	10/18/19 6:00	EPA6010D	10/30/19 12:39	ND	mg/kg dry		3.18		MLB
1910137-03	C	Chromium	10/18/19 6:00	EPA6010D	10/30/19 12:39	30.7	mg/kg dry		7.94		MLB
1910137-03	C	Copper	10/18/19 6:00	EPA6010D	10/30/19 12:39	393	mg/kg dry		7.94		MLB
1910137-03	C	Lead	10/18/19 6:00	EPA6010D	10/30/19 12:39	12.4	mg/kg dry		7.94		MLB
1910137-03	C	Mercwy	10/18/19 6:00	EPA 74718	11/1/19 16:06	OS9	mg/kg dry		0.31		MJC
1910137-03	C	Molybdenum	10/18/19 6:00	EPA6010D	10/30/19 12:39	15.8	mg/kg dry		3.18		MLB
1910137-03	C	Nickel	10/18/19 6:00	EPA6010D	10/30/19 12:39	21.0	mg/kg dry		7.94		MLB
1910137-03	C	Selenium	10/18/19 6:00	EPA6010D	10/30/19 12:39	ND	mg/kg dry		15.88		MLB
·1910137-03	C	Silver	10/18/19 6:00	EPA6010D	10/30/19 13:55	3.07	mg/kg dry		0.79		MLB
1910137-03	C	Thallium	10/18/19 6:00	EPA6010D	10/30/19 12:39	ND	mg/kg dry		7.94		MLB
1910137-03	C	Zinc	10/18/19 6:00	EPA6010D	I0/30/19 12:39	762	mg/kg dry		7.94		MLB
1910137-03	C	Cyanide, Total	10/18/19 6:00	EPA9014	10/25/19 14:25	0.705	mg/kg dry	0.192	0.641		CGP •
• Analysis Performed by:Legend Technical Services of Arizona, Inc. - See attached contract lab report for official results.											
1910137-03	C	%Solids	10/18/19 6:00	SM2S40G	10/23/19 13:40	16	%		1		CGP •
• Analysis Performed by:Legend Technical Services of Arizona, Inc. • See attached contract lab report for official results.											
1910137-03	C	¾Solids	10/18/19 6:00	SM2S40G	10/21/19 13:36	IS.SO	%		0.01		1LG
1910137-03	C	Acrolein	10/18/19 6:00	EPA624	10/29/19 17:53	ND	mg/kg dry	0.128	0.63		JEL
1910137-03	C	Acrylonitrile	10/18/19 6:00	EPA624	10/29/19 17:53	ND	mg/kg dry	0.222	0.63		JEL
1910137-03	C	4,4-DDD	10/18/19 6:00	EPA62S	11/8/19 23:47	ND	mg/kg dry	0.01266	0.15	Dl,D7	HAY
1910137 03	C	4,4-DDE	10/18/19 6:00	EPA62S	11/8/19 23:47	ND	mg/kg dry	0.02000	0.15	Dl,D7	HAY
1910137-03	C	4,4-DDT	10/18/19 6:00	EPA62S	11/8/19 23:47	ND	mg/kg dry	0.01747	0.15	Dl,D7	HAY
1910137-03	C	Aldrin	I0/18/19 6:00	EPA 62S	11/8/19 23:47	ND	mg/kg dry	0.02051	0.15	Dl,D7	HAY
1910137-03	C	alpha-BHC	10/18/19 6:00	EPA 62S	11/8/19 23:47	ND	mg/kg dry	0.02152	0.15	Dl,D7	HAY
!910137-03	C	beta-BHC	10/18/19 6:00	EPA62S	11/8/19 23:47	ND	mg/kg dry	0.04557	0.30	Dl,D7	HAV
1910137-03	C	Chlordane	10/18/19 6:00	EPA62S	11/8/19 23:47	ND	mg/kg dry	0.04810	1.20	Dl,D7	HAV
1910137-03	C	delta-BHC	10/18/19 6:00	EPA62S	11/8/19 23:47	ND	mg/kg dry	0.00911	0.15	Dl,D7	HAY

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Lab ID:	Sample Type	Parameter	Sample Datcffimc	Analysis Method	Analysis Datcffime	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
1910137-03	C	Dieldrin	10/18/19 6:00	EPA625	11/8/19 23:47	ND	mg/kg dry	0.02101	0.15	D1,D7	HAY
1910137-03	C	Endosulfan I	1.0/18/19 6:00	EPA625	11/8/19 23:47	ND	mg/kg dry	0.01367	0.15	Dl,D7	HAY
1910137-03	C	Endosulfan II	10/18/19 6:00	EPA625	11/8/19 23:47	ND	mg/kg dry	0.01848	0.15	Dl,D7	HAY
1910137-03	C	Endosulfan sulfate	10/18/19 6:00	EPA625	11/8/19 23:47	ND	mg/kg dry	0.01443	0.15	D1,D7	HAY
1910137-03	C	Endrin	10/18/19 6:00	EPA625	11/8/19 23:47	ND	mg/kg dry	0.03367	0.30	Dl,D7	HAY
1910137-03	C	Endrin aldehyde	10/18/19 6:00	EPA625	11/8/19 23:47	ND	mg/kg dry	0.03038	0.15	Dl,D7	HAY
1910137-03	C	gamma-BHC (Lindane)	10/18/19 6:00	EPA625	11/8/19 23:47	ND	mg/kg dry	0.03494	0.30	Dl,D7	HAY
1910137-03	C	Heptachlor	I0/18/19 6:00	EPA625	11/8/19 23:47	ND	mg/kg dry	0.01266	0.15	Dl,D7	HAY
1910137-03	C	Heptachlor Epoxide	10/18/19 6:00	EPA625	11/8/19 23:47	ND	mg/kg dry	0.02152	0. 15	Dl,D7	HAY
1910137-03	C	PCB 1016	I0/18/19 6:00	EPA625	11/8/19 23:47	ND	mg/kg dry	0.02785	0.30	D1,D7	HAY
1910137-03	C	PCB 1221	10/18il9 6:00	EPA625	11/8/19 23 :47	ND	mg/kg dry	0.04304	0.30	Dl,D7	HAY
1910137-03	C	PCB 1232	10/18/19 6:00	EPA625	11/8/19 23:47	ND	mg/kg dry	0.01772	0.30	Dl,D7	HAY
1910137-03	C	PCB 1242	10/18/19 6:00	EPA625	11/8/19 23:47	ND	mg/kg dry	0.03291	.0.30	Dl,D7	HAY
1910137-03	C	PCB 1248	10/18/19 6:00	EPA625	11/8/19 23:47	ND	mg/kg dry	0.02658	0.30	Dl,D7	HAY
1910137-03	C	PCB 1254	10/18/19 6:00	EPA625	11/8/19 23:47	ND	mg/kgdry	0.04810	0.30	D1,D7	HAY
1910137-03	C	PCB 1260	I0/18/19 6:00	EPA625	11/8/19 23 :47	ND	mg/kg dry	0.02025	0.30	Dl,D7	HAY
1910137-03	C	TotalPCBs	10/18/19 6:00	EPA625	11/8/19 23:47	ND	mg/kg dry	0.04810	0.30	D1,D7	HAY
1910137-03	C	Toxaphcne	10/18/19 6:00	EPA625	11/8/19 23:47	ND	mg/kg dry	0.44810	2.39	Dl,D7	HAY
1910137-03	C	Mcthoxychlor	10/18/19 6:00	EPA8270C	11/8/19 23:47	ND	mg/kg dry	0.0127	0.15	D1,D7	HAY
1910137-03	C	l,l, 1-Trichlorocthane	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.02	0.06		ADP
1910137-03	C	I,I).,2-Tetrachloroethane	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.008	0.06		ADP
1910137-03	C	I,I).-Trichloroethane	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.01	0.06		.ADP
1910137-03	C	l, 1-Dichlorocthane	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.02	0.06		ADP
1910137-03	C	I, 1-Dichlorocthene	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.01	0.06		ADP
1910137-03	C	1,2-Dichlorobenzene	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.01	0.06		ADP
1910137-03	C	1,2-Dichlorocthane	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.01	0.06		ADP
1910137-03	C	1,2-Dichloropropane	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.01	0.06		ADP
1910137-03	C	1,3-Dichlorobenzene	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.01	0.06		ADP
1910137-03	C	1,4-Dichlorobenzene	10/18/19 6:00	EPA624	10/30/19 16:44	0.04	mg/kg dry	0.02	0.06	J	ADP
1910137-03	C	2-Chlorocthyl vinyl ether	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.03	0.06		ADP
1910137-03	C	Benzene	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.01	0.06		ADP
1910137-03	C	Bromodichloromethanc	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.03	0.06		ADP
1910137-03	C	Bromoform	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.04	0.06		ADP
1910137-03	C	Bromomethane	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.02	0.06		ADP
1910137-03	C	Carbon Tetrachloride	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.05	0.06		ADP
1910137-03	C	Chlorobenzenc	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.008	0.06		ADP
1910137-03	C	Chlorocthane	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.02	0.06		ADP
1910137-03	C	Chloroform	10/18/19 6:00	EPA624	19/30/19 16:44	ND	mg/kg dry	0.02	0.06		ADP
1910137-03	C	Chloromethane	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.03	0.06		ADP
1910137-03	C	cis-1,3-Dichloropropene	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.01	0.06		ADP
1910137-03	C	Dibromochloromethane	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.008	0.06		ADP
1910137-03	C	Ethyl Benzene	10/18/19 6:00	EPA624	10/30/19 16:44	0.15	mg/kg dry	0.01	0.06		ADP
1910137-03	C	Methylene Chloride	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.03	0.06		ADP
1910137-03	C	Tetrachloroethene	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.02	0.06		ADP
1910137-03	C	Toluene	10/18/19 6:00	EPA624	10/30/19 16:44	0.04	mg/kg dry	0.02	0.06	J	ADP
1910137-03	C	Total Trihalomethanes	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.04	0.06		ADP
1910137-03	C	trans-1,2-Dichloroethene	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.02	0.06		ADP
1910137-03	C	trans-1,3-Dichloropropene	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.01	0.06		ADP
1910137-03	C	Trichlorocthene	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kgdry	0.02	0.06		ADP
1910137-03	C	Trichlorofluoromethane	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.03	0.06		ADP
1910137-03	C	Vinyl chloride	10/18/19 6:00	EPA624	10/30/19 16:44	ND	mg/kg dry	0.03	0.06		ADP
1910137-03	C	1,2,4-Trichlorobenzene	10/18/19 6:00	EPA8260	10/30/19 16:44	ND	mg/kg dry	0.014	0.06		ADP
1910137-03	C	1,2-Dibromo-3-chloropropane	I0/18/19 6:00	EPA8260	10/30/19 16:44	ND	mg/kg dry	0.011	0.06		ADP
1910137-03	C	1,2-Dibromoethane	10/18/19 6:00	EPA8260	10/30/19 16:44	ND	mg/kg dry	0.030	0.06		ADP
1910137-03	C	cis-1,2-Dichloroethene	10/18/19 6:00	EPA8260	10/30/19 16:44	ND	mg/kg dry	0.025	0.06		ADP
1910137-03	C	m,p-Xylenes	10/18/19 6:00	EPA8260	10/30/19 16:44	ND	mg/kg dry	0.020	0.13		ADP
1910137-03	C	o-Xylene	10/18/19 6:00	EPA8260	10/30/19 16:44	ND	mg/kgdry	0.010	0.06		ADP
1910137-03	C	Styrene	10/18/19 6:00	EPA8260	10/30/19 16:44	ND	mg/kg dry	0.010	0.06		ADP
1910137-03	C	Xylencs, total	10/18/19 6:00	EPA8260	10/30/19 16:44	ND	mg/kg dry	0.020	0.13		ADP
1910137-03	C	2,3,7,8-TCDD- Dioxin Scan	10/18/19 6:00	EPA625	11/1/19 12:25	ND	ug/kgdry		0.16		SJM

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Lab ID:	Sample Type	Parameter	Sample Dateffime	,\nalysis Method	A.nalysis Date/Time	A.nalysis Value	Units	MDL	MRL	Sample/Data Qualifiers	A.nalyst
1910137-03	C	1,2,4-Trichloroberizene	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.76	5.06	DI, D7, NI	SJM
1910137-03	C	2,3-Dichloroaniline	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	1.08	15.19	DI, D7, L4, NI	SJM
1910137-03	C	2,4,6-Trichlorophenol	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.68	5.06	DI, D7	SJM
1910137-03	C	2,4-Dichlorophenol	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.87	5.06	DI, D7	SJM
1910137-03	C	2,4-Dimethylphenol	I0/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	1.80	15.19	D1,D7	SJM
1910137-03	C	2,4-Dinitrophenol	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	4.36	25.32	D1,D7	SJM
1910137-03	C	2,4-Dinitrotoluene	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	1.17	15.19	D1,D7	SJM
1910137-03	C	2,6-Dinitrotoluene	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.71	5.06	DI, D7	SJM
1910137-03	C	2-Chloronaphthalene	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.74	5.06	DI, D7, NI	SJM
1910137-03	C	2-Chlorophenol	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.65	5.06	DI, D7	SJM
1910137-03	C	2-Methyl-4,6-dinitrophenol	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	2.72	15.19	D1,D7	SJM
1910137-03	C	2-Methylphenol	10/18/19 6:00	EPA625	//nt/9 19:19	ND	mg/kg dry	0.58	5.06	DI, D7, NI	SJM
1910137-03	C	2-Nitrophenol	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	1.44	15.19	D1,D7	SJM
1910137-03	C	3,3-Dichlorobenzidine	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	1.12	12.66	DI, D7	SJM
1910137-03	C	4-Bromophenyl phenyl ether	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.60	5.06	DI, D7	SJM
1910137-03	C	4 Chloro-3-methylphenol	I0/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	1.10	15.19	D1,D7,NI	SJM
1910137-03	C	4-Chlorophenyl phenyl ether	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.63	5.06	D7, DI	SJM
1910137-03	C	4-Methylphenol	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.87	5.06	DI, D7, L4, NI	SJM
1910137-03	C	4-Nitrophenol	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	2.39	15.19	D1,D7	SJM
1910137-03	C	Acenaphthene	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.77	5.06	D1,D7	SJM
1910137-03	C	Acenaphthylene	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.80	5.06	D1,D7	SJM
1910137-03	C	Anthracene	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	1.01	5.06	D1,D7	SJM
1910137-03	C	Benzidine	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	3.30	25.32	D1,D7,N1	SJM
1910137-03	C	Benzo[a]anthracene	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.63	5.06	D1,D7	SJM
1910137-03	C	Benzo[a]pyrene	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.99	5;06	D1,D7	SJM
1910137-03	C	Benzo[b]fluoranthene	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.80	5.06	D1,D7	SJM
1910137-03	C"	Benzo(ghi]perylene	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	1.49	15.19	D1,D7	SJM
1910137-03	C	Benzo(k]fluoranthene	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	1.16	15. 19	D1,D7	SJM
1910137-03	C	bis(2-chloroethoxy)methane	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	1.00	5.06	D1,D7	SJM
1910137-03	C	bis(2-chloroethyl)ether	I0/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	1.07	15.19	D1,D7	SJM
1910137-03	C	bis(2-chloroisopropyl)ether	10/18/19 6:00	EPA625	11/7/19 19:19	ND	mg/kg dry	0.91	5.06	D1,D7	SJM
1910137-03	C	bis(2-ethylhexyl)phthalate	10/18/19 6:00	EPA625	lln/19 19:19	22.30	mg/kg dry	1.43	15.19	D1,D7	SJM
1910137-03	C	Butylbenzylphthalate	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.96	5.06	D1,D7	SJM
1910137-03	C	Carbazole	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	1.35	15.19	D1,D7	SJM
1910137-03	C	Chrysene	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.58	5.06	D1,D7	SJM
1910137-03	C	Dibenzo(a,h)anthracene	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	1.55	15.19	D1,D7	SJM
1910137-03	C	Diethyl phthalate	I0/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	1.13	15.19	D1,D7	SJM
1910137-03	C	Dimethyl phthalate	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.29	5.06	D1,D7	SJM
1910137-03	C	Di-n-butyl phthalate	I0/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	1.27	15.19	D1,D7	SJM
1910137-03	C	Di-n-octyl phthalate	I0/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	1.29	15.19	D1,D7	SJM
1910137-03	C	Fluoranthene	10/18/19 6:00	EPA62S	lln/19 19:19	ND	mg/leg dry	0.67	5.06	D1,D7	SJM
1910137-03	C	Fluorene	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.78	5.06	N1,D1,D7	SJM
1910137-03	C	Hexachlorobenzene	I0/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.31	5.06	D1,D7	SJM
1910137-03	C	Hexachlorobutadiene	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.51	5.06	D1,D7	SJM
1910137-03	C	Hexachlorocyclopentadiene	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	2.14	15.19	D1,D7,N1	SJM
1910137-03	C	Hexachloroethane	I0/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.64	5.06	D1,D7,N1	SJM
1910137-03	C	Indeno(l,2,3-cd)pyrene	10/18/19 6:00	EPA625	lln/19.19:19	ND	mg/kg dry	1.43	15.19	D1,D7	SJM
1910137-03	C	lsophorone	I0/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.84	5.06	D1,D7	SJM
1910137-03	C	Naphthalene	10/18/19 6:00	"EPA625	lln/19 19:19	ND	mg/kg dry	0.90	5.06	D1,D7	SJM
1910137-03	C	n-Decane	I0/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.99	5.06	D1,D7	SJM
1910137-03	C	Nitrobenzene	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	1.06	15.19	D1,D7	SJM
1910137-03	C	N-Nitrosodimethylamine	I0/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	1.06	15.19	D1,D7	SJM
1910137-03	C	N-Nitrosodi-n-propylamine	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	1.23	15.19	D1,D7	SJM
1910137-03	C	N-Nitrosodiphenylamine	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	3.08	25.32	D1,D7,PC3	SJM
1910137-03	C	n-Octadecane	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	1.10	15.19	D1,D7,N1	SJM
1910137-03	C	Pentachlorophenol	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	2.04	15.19	D7,D1	SJM
1910137-03	C	Phenanthrene	10/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.83	5.06	D1,D7	SJM
1910137-03	C	Phenol	I0/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	1.31	15.19	D1,D7	SJM
1910137-03	C	Pyrene	I0/18/19 6:00	EPA625	lln/19 19:19	ND	mg/kg dry	0.70	5.06	D1,D7	SJM
1910137-03	C	1,2-Diphenylhydrazine	I0/18/19 6:00	EPA8270C	lln/19 19:19	ND	mg/kg dry	0.59	5.06	D1,D7	SJM

Qualifier Definitions

<	<I
A	Absence
DI	Sample required dilution due to matrix.
D2	Sample required dilution due to high concentration of target analyte.
D4	Minimum Reporting Limit (MRL) adjusted to reflect sample amount received and analyzed.
D7	Minimum Reporting Limit adjusted to reflect sample dilution.
E4	Concentration estimated. Analyte was detected below laboratory minimum reporting level (MRL), but above the MDL.
ES	Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
H6	The filtration was not done within the required 15 minutes of sampling, the sample was filtered in the laboratory.
J	Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL. The
L4	associated blank spike recovery was below method acceptance limits.
NI	See case narrative.
N7	Additional analysis was not performed based on the "Total" result which was below the requested analyte's MCL/Action Level/frigger Level.
NA	Not Analyzed
p	Presence
PC3	Semi-quantitation is included in the case narrative.
R4	MS/MSD RPO exceeded the method acceptance limit. Recovery met acceptance criteria.
RS	MS/MSD RPO exceeded the laboratory acceptance limit. Recovery met acceptance criteria.

General Notes and Definitions

J	Equivalent to E4 Qualifier• Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
ND	Analyte NOT DETECTED at or above reporting limit (MDL). Equivalent to ES Qualifier - Analyte reported to MDL per project specification. Target analyte *was* not detected in the sample.
C	Sample Type - Composite
CD	Sample Type - Composite Duplicate
D	Sample Type - Discrete
DD	Sample Type - Discrete Duplicate
NR	Not Reported
DET	Analyte DETECTED
DRY	Sample results reported on a dry weight basis
RPO	Relative Percent Difference
Analysis Date	Analysis Date represents the final reading date.
Field Results	Field Results performed by "SMPLR" (Sampler), are not subject to approval of Laboratory Director.
Solids, Total Volatile	Used for process control samples only.
RE	Re-Analysis has been performed.
FD	Field Duplicate
FB	Field Blank
UC	Under Construction
EB	Equipment Blank

Case Narrative(s)

1910114-01
Total Cyanide SM 4500 CN E: Contract lab results expressed in fewer than three significant figures due to the fact that the contract lab normally reports in milligrams per liter, not micrograms per liter. MLF 11-08-2019

1910137-02
SM 4500-CN E: Contract lab results expressed in fewer than three significant figures due to the fact that the contract lab normally reports cyanide results in ppm, not ppb. JGD 11-07-19

1910137-01
EPA Method 625 Pesticides: Target analytes flagged with NI failed the MS/MSD RPD from the same extraction batch but the spike was performed on a different sample. MCD 11/12/19

1910137-01,-02, -03
EPA Method 625 Semi-volatiles: Target analytes flagged with N1 failed the Matrix Spike from the same extraction batch but the spike was performed on a different sample. SJM 12/17/19

Semi-Quantitation
Method: 625
1910137-01

Compound Name	Concentration-ug/L
Benzoic Acid	134
Benzeneacetic Acid	102
N,N-Dimethyl-1-dodecanamine	579
Tetradecanoic Acid	99
Palmitic Acid	12108
OleicAcid	15803
Stearic Acid	6513

SJM 12/17/19

Semi-Quantitation
Method: 625
1910137-03

Compound Name	Concentration-mg/Kg
N,N-Dimethyl-1-dodecanamine	119
Palmitic Acid	5335
OleicAcid	2635
Stearic Acid	1486

SJM 12/18/19

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Client Name	Address	City	State	Zip	Phone	Fax Number or Email Address
Pima County CRAO Lab	2955 W Calle Agua Nueva	Tucson	AZ	85745	520-724-6016	joseph.doranski@pima.gov

Project Name	Project Number	Contact	P.O. No.	
Cyanide		Joe Doranski	20-011669	Fax Results ☐ Email Results ☒ QC Report ☐ EDD ☒ Special Detection Limits ☐

SAMPLE TYPE CODES: DW=Dnrwng Water, WW=Waateweter, SW=Surfaea Wau,r, GW=, G=Other, SsSoil/Sotid, T=TIIV81 Blank, F=FOOd, G=Sludge/Bioaohds

TURN AROUND TIME: Laboratory Authorization Required for Rush. Standard 10-15 Day. D Olher

Client's Sample Identification	Date	Time	Sample Location	Compo ♦	Grab	Sample ♦ &	Compliance	No. of Containers	Amenable cyanide	Total cyanide	Total cyanide mg/kg	T%S for mg/kg dry weig	
1910129-01	10/17/19	930	University of Arizona - PL#1A		X	WW		1		X			01
1910137-01	10/18/19	600	Tres Rios WRF • raw influent	X		WW	X	1		X			02
1910137-02	10/18/19	600	Tres Rios WRF - final effluent #3	X		WW	X	1		X			03
1910137-03	10/18/19	600	Tres Rios WRF - dewatered cake	X		G	X	2			X	X	04
1910138-01	10/18/19	600	Agua Nueve WRF - plant influent	X		WW	X	1		X			CS
1910138-02	10/18/19	600	Agua Nueva WRF - plant effluent	X		WW	X	1		X			06
1910138-03	10/18/19	600	Agua Nueva WRF • thickened sludg e	X		G	X	2			X	X	07

Comments / special Instructions:

	• C	
	y	N
	y	N
	y	N

	RELINQUISHED BY		SAMPLES RECEIVED BY	
①	Sampler Signature	Date 10/2/19	Signature	Date 10/2/19
	Sampler Printed Name Greg Spence	Time 4:11	Printed Name	Time 4:11
②	Signature	Date	Signature	o.te
		me	Printed Name	nmo
③	Signature		Signature	Dote
	Printed Name	nme	Printed Name	TiffO

WHITE4.AB YELLOW-CLIENT

Pima County Regional W astcwater Reclamation Department
Complimlcc and Rtgulatory Affairs Office

CHAIN OF CUSTODY

R< ORDER I SAMPIE(S) I'l 1)l'31-03

PR OJECT & LOCATION: Tres Rios WRF - Dewatered Cake Biosolids (Quarterly)

PR OJECT-LOCATION NUMB E R : 20001-5703

SAMPLE START DATE: 10 / 1 / 20 (MMIOOIYYORMMIDOIYYYY)

SAMPLE START TIME: 0600 (Military time)

CUENT: IWC

SAMPLE END DATE: 10 / 18 / 20 (MMIOOIYY OIi' MM/DOIYYYY)

SAMPLE END TIME: 0600 (Military time)

SAMPLE R (S): S. Vk k'.ec..-t 8 i.c.A/.IIl'Il 'MM,+;-tC.1

Permit Type: O APP O Investigative so3 AZPDES O Reuse O Process Control ,we O Air O Other

Matrix: ■ Biosolids O Groundwater O Industrial O Soil O Stormwater O Surface Water O wastewater O Air O Other

INOR GANIC CHE MISTRY

METALS	Tot	Diss	D	C
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Ch romium				
Cobalt				
Copper				
Hardness				
Iron				
Lead				
Magnesium				
Manganese				
Mercury	X			
Mercury LL				
Molybdenum				
Nickel			D	O
Potassium	D			
Selenium				
Silver				
Sodium				
Thallium				
Tin				

ME TALS	Tot	Diss	D	C
Titanium				
Vanadium				
Zinc				
PPMs*	X			
TCLP Metals				
503 Metals **				
Dissolved Cr+6				

WETMETHODS	D	C
Ammonia as N		
Ch lorid e		
Cyanide, Total ♦ ♦	D	
Cyanide, Amenable		
Fluoride		
Ignitability		
Nitrate as N		
Nitrite as N		
Nitrate/Nitrite as N		
Nitrogen, Total Kjeldahl		
Nitrogen, Total as N		
Orthophosphate as P		
Phosphorus, Total as P		
Sulfate		
Sulfide		
other		
Other		

OR GANIC CHE MISTRY

	D	C
Acrolein and Acrylonitrile		
Dioxin GC/SIM/MS Scan		
Organochlorine Pesticides & PCBs		
Purgeable Organics (GCMS)		
Semivolatile Organics (GCMS)		
Bis(2-ethylhexyl) ph th alate		
Digester Gas		
Oil and Grease		
Olvanic Carbon, Total		
°'llanic Carbon, Dissolved		
TCLP Herbicides (Contract Lab)		
TCLP Pesticides		
TCLP Semivolatile Organics		
TCLP Volatile Organics		
TTHM		
Total Petroleum Hydrocarbons	O	D
Volatile Acids		
Other		
Other		

EFFLUENT TOXICITY TESTING

	D	C
Chronic *P. promelas*		
Chronic *C. dubia*		
Chronic *Selenastrum capricornutum*	O	D
Other		

MICROBIOLOGY - WET CHEM

	D	C
Alkalinity	D	D
BOD	O	O
COD	D	D
Colifonn, Fecal	O	O
Colifonn, Total	D	D
Specific Conductance	D	D
E coli	O	O
Oxygen, Dissolved	O	O
pH		
Solids, Total	O	■
Solids, Total Dissolved	O	O
SoDds, Total Suspended	D	D
SoDds, Total Volatile	O	0
Solds. Volatile Suspended		D
Other		
Paint Filter		o
	O	D

COMPLIANCE FIELD MEASUREMENTS

	Result	Units
D Chlorine *Hach 10014*		µg/L
O Specific Conductance *SM 2510 B*	----	µmhos/cm
D Oxygen, Dissolved *SM 4500-0 G*		mg/L
O pH @ pH Temp *SM 4500-H B*	---a'---	pH-Un 110° c
D Temperature *SM 2550 B*		°c
O Total Depth of Well		feet
O Depth to Water		feet

other

Comments/Instructions: The Lab shal composite the Purgeable Organic and Acrolein/Acrylonitrile samples. C7 ....: k, J j „p l. T % S , ...I-h L.,,,,J I'5. Coii /0-18'-/') @;!'Zt>-Dr16 .

Septum Blank Pr p Data & Initials: o /,t'! I I°I | SR5

Chain of Custody Record (Signatures Only)

Relinquished by Sampler:	Received by:	Date:	Time: (Military time)
		10-17-19	1500
Relinquished by:	Received by:	Date:	Time: (Military time)
	Refrigerator	10-18-19	0130
Relinquished by:	Received by:	Date:	Time: (Military time)
Refrigerator		10-18-19	0600
Relinquished by:	Received by:	Date:	Time: (Ilslary lime)
		10-18-19	0630
Relinquished by:	Received by:	Date:	Time: (ratary time)

Sample Int grity/P r H rvation:

of Bottles Delivered: 9 GOS

Transported on Ice: ☒ YES ☐ NO

Lab Receipt

Temperature: 6 °C

Initials: GOS

Q6 qualifier? ☐ YES ♦ NO

LAB USE ONLY

Sample In1paction:	Yes	No	NA
Chain of Custody Record completad appropriately?	181		
Sample labels match Chain of Custody?	?		
Correct number of Mmple botlle were delivered?	El	D	
Custody ells Intad?			lii
Mthin holding time?	?		
Sufficient Mmple volume for nalyail?	?		
Samples are h properly preserwd containers?	18		
Sample containefs damaged/leaking/frozen?		?	
40 ml vials headlpace. > pe-ized air bubble?	?		
Received from a refrigerator?		It]	

• Sb, Al, Sa, Cd, Cr, CU, Pt, N, Se, Ag, 11, Zn, Mercury(Cold VaPUI
- As, Cd, Cr, Cu, Pb, Mercury, Mo, Ni, Se, Zn

PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT
WATER QUALITY
SAMPLE COLLECTION REPORT

SAMPLE LOCATION: Tres Rios WRF - Dewatered Cake Biosolids LIMS: 1q 10/17,03
LOCATION ID: 20001-5703 SAMPLERS:ta..f ... 1-½ : SAMPLE DATE: /O-LR"-/'i
List ... only, primary sampler flm A,{q .J•,' ... e. 2.

Sample Dore	Parameter	Frequency	AUTO MAN	Volume Submitted	Bottle/Preservation
C	Semlvolatile Organics	Hand Composite 4 Aliquots for the duration of the discharge	Man	1000 ml	Amber Glass/None/Ice
C	Organochlorine Pest & PCB's		Man	1000 ml	Amber Glass/None/Ice
C	Dioxin		Man	1000 ml	Amber Glass/None/Ice
C	Priority Pollutant & 503 Metals		Man	1000 ml	Dissolved Metals/None/Ice
C	Total Solids		Man	1000 ml	General Purpose/None/Ice
C	Total Solids (for outside lab)		Man	1000 ml	General Purpose/None/Ice
C	Cyanide		Man	1000 ml	Dissolved Metals/None/Ice
			Man	1000 ml	Amber Glass/None/Ice
			Man	1000 ml	Amber Glass/None/Ice
To be Composited by the Laboratory					
D	Purgeable Organics	Hand Composite 4 Aliquots for the duration of the discharge	Man	4X40	None/Ice
D	Acrolein/Acrylonitrile		Man	4X40	None/Ice
To be Submitted to an outside Laboratory					

	Time
Aliquot #1 10/17/19	0725
Aliquot #2 10/17/19	1310
Aliquot #3 10/17/19	1846
Aliquot#4	

2L.

Comments:	Dewatered Cake Biosolids samples are not preserved.
	All Composites including Cyanide can be poured off at the end of the sampling event

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04565 S. Palo Verde Rd, Ste 423 • Tucson, AZ 65714 • (520) 327-1234 • Fax (520) 327-0516

Page 1 of 1

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Client Name	Address	City	State	Zip	Phone	Fax Number or Email Address
Pima County CRAO Lab	2955 W Calle Agua Nueva	Tucson	AZ	85745	520-724-6016	joseph.doranski@pima.gov

Project Name	Project Number	Contact	P.O. No.	
Cyanide		Joe Doranski	20-011428	Fax Results ☐ QC Report ☐ EDD ☑ Email Results ☑ Special Detection Limits ☐

SAMPLE TYPE CODES: DW=Drinking Water, WW=Wastewater, SW=Surface Water, GW=Groundwater, S=Soil/Solid, T=Travel Blank, F=Food, G=Sludge/Biosolids

TURN AROUND TIME: Laboratory Authorization Required for Rush
☒ Standard 10- 15 Day
☐ Other

Client's Sample Identification	Date	Time	Sample Location	Comp	Grab	Sample Type	Compliance	No. of Containers	pH / Lab Use Only	Amenable cyanide	Total cyanide	Sulfate	Total cyanide mg/kg	T%S for mg/kg dry weight	Time
1910107-01	10/15/19	600	Tres Rios WRF - raw influent	X		WW	X	1				X			01
1910107-03	10/15/19	600	Tres Rios WRF - final effluent #3	X		WW	X	1				X			02
1910114-01	10/15/19	1350	Tres Rios WRF - final effluent #3		X	WW	X	1		X	X				03
1910121-01	10116/19	000	Avra Valley WRF - wet haul sludge		X	G	X	2					X	X	04
1910123-01	10116/19	121s	Learjet Inc. - PL#1		X	WW		1			X				05

TO ENSURE CONVERSION OF ANALYSIS, SAMPLES MUST BE RECEIVED AT LEAST 3 HOURS PRIOR TO THE HOLD TIME EXPIRATION

Comments / Special Instructions:

SAMPLE CONDITION UPON RECEIPT (Lab Use)		
No. of Containers		
Temperature	°C	
Seals Intact	y	N
Seals Intact	y	N
Seals Intact	y	N

	RELINQUISHED BY			SAMPLES RECEIVED BY	
①	Sampler Signature	Date 10/17/19	Signature	Date 10/17/19	
	Sampler Printed Name Greg Spence	Time 1281	Printed Name	Time 253	
②	Signature	Date	Signature	Date	
	Printed Name	Time	Printed Name	Time	
③	Signature	Date	Signature	Date	
	Printed Name	Time	Printed Name	Time	

WHITE-LAB YELLOW-CLIENT

FORM CS-016.2 (07/18)

CHAIN OF CUSTODY RECORD

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CLIENT INFORMATION

Client Name	Address	City	State	Zip	Phone	Fax Number or Email Address
Pima County CRAO Lab	2955 W Calle Agua Nueva	Tucson	AZ	85745	520-724-6016	joseph.doranski@pima.gov

Project Name	Project Number	Contact	P.O. No.	
Cyanide		Joe Doranski	20-012642	Fax Results ☐ Email Results ☒ QC Report ☐ EDD ☒ Special Detection Limits ☐

SAMPLE TYPE CODES: OW=Drinking Water; WW=Wastrwater; SW=Surface Water; GW=Groundwater; S=Soil/Solid; T=Travel Blank; F=Food; G=Sludge/Biosolids

TURN AROUND TIME: Laboratory Authorization Required for Rush; Standard 10 - 15 Day; D Other _____

REQUESTED ANALYSES

Client's Sample Identification	Date	Time	Sample Location	Biosolids	Grab	Sample Type	Compliance	No. of Containers	(Lab Use Only)	Amenable cyanide	Total cyanide	Total solids for mg/kg	Cyanide (T) mg/kg dry	
1910203-01	10128119	1120	Tres Rios WRF - well SC-05R		X	GW	X	1		X	X			01
1910203-02	10128119	1235	Tres Rios WRF - well SC-07R		X	GW	X	1		X	X			02
1910209-01	10/29119	907	Sample bottles Lot# 0114801E		X	O		1			X			03
1910212-01	10129119	918	Green Valley WRF -wet haul sludge		X	G	X	2				X	X	04
1910211-01	10/29119	1008	Green Valley WRF - BNROD final eff		X	WW	X	1		X	X			05

TO ENSURE COMPLETION OF ANALYSIS, SAMPLES MUST BE RECEIVED AT LEAST 3 HOURS PRIOR TO THE HOLD TIME EXPIRATION

Comments / Special Instructions:

SAMPLE CONDITION UPON RECEIPT (Lab Use)

No. of Containers		
Temperature	°C	
Custody Seals	y	N
Bottle Intact	Y	N
Preserved	y	N

	RELINQUISHED BY		SAMPLES RECEIVED BY	
①	Sampler Signature: JR	Date: 10/30/19	Signature: [signature]	Date: 10/30/19
	Sampler Printed Name: Greg Spence	Time: 1227	Printed Name: [signature]	Time: 1227
②	Signature	Date	Signature	Date
	Printed Name	Time	Printed Name	Time
③	Signature	Date	Signature	Date
	Printed Name	Time	Printed Name	Time

WHITE-LAB YELLOW-CLIENT

FORM CS-016.2 (07/18)

LEGEND
Technical Services, Inc.

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P (520) 327-1234 • F (520) 327-0518
www.legend-group.com

06 November 2019

Joe Doranski
Pima County RWRD CRAO Lab
2955 W Calle Agua Nueva
Tucson, AZ 85745
Fax: (520) 579-6002

RE:Cyanide

Laboratory Work Order No.: 19J2507

Legend Technical Services of Arizona, Inc. is pleased to provide the enclosed analytical results for the aforementioned project. These results relate only to the items tested. This cover letter and the accompanying pages represent the full report for these analyses and should only be reproduced in full. Samples for this project were received by the laboratory on 10/21/19 14:30.

The samples were processed in accordance with the Chain of Custody document and the results presented relate only to the samples tested. The Chain of Custody is considered part of this report.

All samples will be retained by LEGEND for 30 days from the date of this report and then discarded unless other arrangements are made. Due to hold-time and method sample volume requirements, microbiological samples are not retained unless other arrangements are made.

This entire report was reviewed and approved for release by the undersigned. If you have any questions concerning this report, please feel free to contact me.

Sincerely,
LEGEND TECHNICAL SERVICES OF ARIZONA, INC.

P. Brian Merritt For Alyssa Mazza
Client Services Representative
(602) 324-6100

This laboratory report is confidential and is intended for the sole use of LEGEND and it's client.

Pima County RWRD CRAO Lab 2955 W Calle Agua Nueva Tucson, AZ 85745	Project: Cyanide Project Number: 10/21/19 Project Manager: Joe Doranski	Reported: .11/06/19 16:37

ANALYTICAL REPORT FOR SAMPLES

Sample ID.	La◊onrtory ID	Matrix	"fype	o.t.Sampled	Date Received
1910129-01	19J2507-01	Wastewater	Grab	10/17/19 09:30	10/21/19 14:30
1910137-01	19J2507-02	Wastewater	Composite	10/18i19 06:00	10/21/1914:30
1910137-02	19J2507-03	Wastewater	Composite	10/18/19 06:00	10/21/19 14:30
1910137-03	19J2507-04	Solid (Dry Weight)	Composite	10/18/19 06:00	10/21/19 14:30
1910138-01	19J2507-05	Wastewater	Composite	10/18/19 06:00	10/21/19 14:30
1910138-02	19J2507-06	Wastewater	Composite	10/18/19 06:00	10/21/19 14:30
1910138-03	19J2507-07	Solid (Dry Weight)	Composite	10/18/19 06:00	10/21/19 14:30

Sample Condition Upon Receipt:

Temperature: 3.40 C

All samples were received in acceptable condition unless noted otherwise in the case narrative.

Case Narrative:

Holding Times: All holding times were met unless otherwise qualified.

QA/QC Criteria: All analyses met method requirements unless otherwise qualified.

Certifications: AZ(PHX)0004, AZ(TUC)OOO4, AIHA#102982, CDC ELITE Member.

Accreditation is applicable only to the test.methods specified on the scope.of accreditation held by LEGEND.

Comments: All reporting limits utilized in this report are from the approved method with the lowest possible levels of detection. All samples were analyzed on a "wet" basis unless designated as "dry weight".

Pima County RWRD CRAO Lab
2955 W Calle Agua Nueva
Tucson, AZ 85745

Project: Cyanide
Project Number: 10/21/19
Project Manager: Joe Doranski

Reported:
11/06/19 16:37

1910129-01 (19J2507-01) Wastewater (Grab) Sampled: 10/17/19 09:30 Received: 10/21/19 14:30

Legend Technical Services of ona. Inc.

Analyte	Result	MDL	RL	Units	Dilution	Balch	Prepared	Analyzed	Method	Notes
Inorganic Chemistry										
Cyanide, Total	<	3	10	ug/L	1	89J1827	10/2511908:13	10/2511914:25	SM 4500 CN E	E8

1910137-01 (19J2507-02) Wastewater (Composite) Sampled: 10/18/19 06:00 Received: 10/21/19 14:30

Legend Technical Services of ona, Inc.

Analyte	Result	MDL	RL	Units	Dilution	Batch	Prepared	Analyzed	Melhpd	Notes
Inorganic Chemistry										
Cyanide, Total	<	3	10	ug/L	1	B9J1827	10/25119 08:13	10/25119 14:25	SM 4500 CN E	E8

1910137-02 (19J2507-03) Wastewater (Composite) Sampled: 10/18/19 06:00 Received: 10/21/19 14:30

Legend Technical Services of Arizona, Inc.

Analyte	Result	MDL	R l	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Inorganic Chemistry										
Cyanide, Total	4	3	10	ug/l	1	B9J1827	10/25119 08:13	10l2511914:25	SM 4500 CN E	E4

1910137-03 (19J2507-04) Solid (Dry Weight) (Composite) Sampled: 10/18/19 06:00 Received: 10/21/19 14:30

Legend Technical Services of Arizona, Inc.

Analyte	Result	MDL	RL	Units.	Dilution	Balch	Prepared	Analyzed	Method	Notes
Inorganic Chemistry										
Cyanide, Total	0.705	0.192	0.641	mg/kg dry	1	B9J1826	10/25119 08:13	10l25119 14:25	EPA9014	
% Solids	16		1	%	1	B9J1883	10/2311913:40	10/23119 13:40	SM 2540 G	

1910138-01 (19J2507-05) Wastewater (Composite) Sampled: 10/18/19 06:00 Received: 10/21/1914:30

Legend Technical Services of Arizona, Inc.

Analyte	Result	MDL	RL	Units	Dilution	Balch	Prepared	Analyzed	Method	Notes
Inorganic Chemistry										
Cyanide, Total	<	3	10	ug/L	1	B9J1827	10125/19 08:13	10125/1914:25	SM 4500 CN E	ES

1910138-02 (19J2507-06) Wastewater (Composite) Sampled: 10/18/19 06:00 Received: 10/21/19 14:30

Legend Technical Services of Arizona, Inc.

Arialyte	Result	MOL	RL	Units	Qilution	Balch	Prepared	Analyzed	Method	Notes
Inorganic Chemistry										
Cyanide, Total	3	3	10	ug/L	1	89J1827	10/25119 08:13	10/2511914:25	SM 4500 CN E	E4

1910138-03 (19J2507-07) Solid (Dry Weight) (Composite) Sampled: 10/18/19 06:00 Received: 10/21/1914:30

Legend Technical Services of Arizona, Inc.

Analyte	Result	MDL	RL	Units	Dilution	Balch	Prepared	Analyzed	Method	Notes
Inorganic Chemistry										
Cyanide, Total	<	2.22	7.41	mg/kg dry	1	B9J1826	10/25119 08:13	10/2511914:25	EPA 9014	E8
%Solids	1		1	%	1	B9J1883	10/23/1913:40	10/23/1913:40	SM 2540 G	

Legend Technical Services of Arizona, Inc.

The results in this report apply to the samples analyzedin accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Laboratory Work Order No.: 19J2507

Pima County RWRD CRAO Lab	Project: Cyanide	
2955 W Calle Agua Nueva	Project Number: 10/21/19	Reported:
Tucson, AZ 85745	Project Manager: Joe Doranski	11/06/19 16:37

Notes and Definitions

ES	Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
E4	Concentration estimated. Analyte was detected below laboratory minimum reporting level (MRL), but above the MDL.
BLK	Method Blank
LCS/Dup	Laboratory Control Sample/Laboratory Fortified Blank/Duplicate
MS/Dup	Matrix Spike/Duplicate
Dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

1912507

CHAIN OF CUSTODY RECORD

LEGEND Technical Services, Inc.
017631 N. 25th Avenue• Phoenix, AZ B5023 • (802) 324-6100 • Fax (802) 324-6101
04585 S. Palo Verde Rd, Ste423 • TUCIICn, AZ 85714 • (520) 327-1234 • Fax (520) 327-0516

Page 1 of 1

Please

Client Name	Address	City	State	Zip	Phone	Fax Number or Email Address
Pima County CRAO Lab	2955 W Calle Agua Nueva	Tucson	AZ	85745	520-724-6016	joseph.doranski@pima.gov

Project Name	Project Number	Contact	P.O. No.	
Cyanide		Joe Doranski	20-011669	Fax Results ☐ QC Report ☐ EDD ☒ Email Results ☒ Special Detection Limits ☐

SAMPLE TYPE CODES: OW-Drinking Water; WW=Wastewater; SW=Surface Water; GW=Groundwater; S=Soil/Solid; T=Trawt Blank; F=Food; G=Sludge/Bio10lid; O=Other

TURN AROUND TIME: Laboratory Authorization Required for Rush; ig.standard 1D-15 Day; Do;;---

REQUESTED ANALYSES

Client's Sample Identification	Date	Time	Sample Location	Composite	Grab	Sample Type	Compliance	No. of Containers	pH (Lab Use Only)	Amenable cyanide	Total cyanide	Total cyanide mg/kg	T%S for mg/kg dry weight	Lab No.
1910129-01	10/17/19	930	University of Arizona - PL#1A		X	WW		1			X			01
1910137-01	10/1 B/19	800	Tres Rios WRF - raw influent	X		WW	X	1			X			02
1910137-02	10/18/19	600	Tres Rios WRF - final effluent #3	X		WW	X	1			X			03
1910137-03	1011B/19	800	Tres Rios WRF - dewatered cake	X		G	X	2				X	X	04
1910138-01	1011 B/19	600	Agua Nueva WRF - plant influent	X		WW	X	1			X			OS
1910,138-02	10/16/19	600	Agua Nueva WRF - plant ellu1:3nt	X		WW	X	1			X			06
1910138-03	10f1B/19	600	Agua Nueva WRF - thickened sludge	X		G	X	2				X	X	07

TO ENSURE CONSIDERATION OF AVAILABILITY, SAMPLES MUST BE RECEIVED AT LEAST 3 HOURS PRIOR TO THE HOLD TIME EXPIRATION

Comments/ Special Instructions:

SAMPLE CONDITION UPON RECEIPT (Lab Use)		
No. of Containers	9	
Temperature	3.4 °C	
Custody Seals	Y	N
Seals Intact	Y	N
Preserved	Y	N

	RELINQUISHED BY		SAMPLES RECEIVED BY	
①	Sampler Signature: [signature]	Date 10/21/19	Signature: [signature]	Date 10/21/19 (Plexis 1430)
	Sampler Printed Name: Greg Spence	Time 1411	Printed Name: Casey Sos	Time 1411
②	Signature: [signature]	Date 10/21/19	Signature: [signature]	Date 10/21/19
	Printed Name: Casey Sos	Time 1600	Printed Name: Lovier	Time 1600
③	Signature: [signature]	Date 10/22/19	Signature: [signature]	Date 10/22/19
	Printed Name: [signature]	Time 0700	Printed Name: Kim Peters	Time 0700

WHITE-LAB YELLOW-CLIENT

Page 7 of 7

FORM CS-016.2 (07/18)

LEGEND
Technical Services, Inc.

4585 S. Palo Verde Rd., Ste. 423 • Tucson, AZ 85714
P (520) 327-1234 • F (520) 327-0518
www.legend-group.com

06 November 2019

Joe Doranski
Pima County RWRD CRAO.Lab
2955 W Calle Agua Nueva
Tucson, AZ 85745
Fax: (520) 579-6002

RE: Cyanide

Laboratory Work Order No.: 19J2212

Legend Technical Services of Arizona, Inc. is pleased to provide the enclosed analytical results for the aforementioned project. These results relate only to the items tested. This cover letter and the accompanying pages represent the full report for these analyses and should only be reproduced in full. Samples for this project were received by the laboratory on 10/17/19 13:15.

The samples were processed in accordance with the Chain of Custody document and the results presented relate only to the samples tested. The Chain of Custody is considered part of this report.

All samples will be retained by LEGEND for 30 days from the date of this report and then discarded unless other arrangements are made. Due to hold-time and method sample volume requirements, microbiological samples are not retained unless other arrangements are made.

This entire report was reviewed and approved for release by the undersigned. If you have any questions concerning this report, please feel free to contact me.

Sincerely,
LEGEND TECHNICAL SERVICES OF ARIZONA, INC.

P. Brian Merritt For Alyssa Mazza
Client Services Representative
(602) 324-6100

This laboratory report is confidential and is intended for the sole use of LEGEND and it's client.

Pima County RWRD CRAO Lab 2955 W Calle Agua Nueva Tucson, AZ 85745	Project: Cyanide Project Number: 10/17/19 Project Manager: Joe 1?<ranski	Reported: 11/06/19 16:29

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Data Received
1910107-01	19J2212-01	Wastewater	Composite	10/15/19 06:00	10/17/19 13:15
1910107-03	19J2212-02	Wastewater	Composite	10/15/19 06:00	10/17/19 13:15
1910114-01	19J2212-03	Wastewater	Grab	10/15/19 13:50	10/17/19 13:15
1910121-01	19J2212-04	Solid (Dry Weight)	Grab	10/16/19 09:00	10/17/19 13:15
1910123-01	19J2212-05	Wastewater	Grab	10/16/19 12:15	10/17/19 13:15

Sample Condition Upon Receipt:

Temperature: 1.00 C

All samples were received in acceptable condition unless noted otherwise in the case narrative.

Case Narrative:

Holding Times: All holding times were met unless otherwise qualified.

QA/QC Criteria: All analyses met method requirements unless otherwise qualified.

Certifications: AZ(PHX)0004, AZ(TUC)OOO4, AIHA#102982, CDC ELITE Member.

Accreditation is applicable only to the test methods specified on the scope of accreditation held by LEGEND.

Comments: All reporting limits utilized in this report are from the approved method with the lowest possible levels of detection. All samples were analyzed on a "wet" basis unless designated as "dry weight".

Pima County RWRD CRAO Lab 2955 W Calle Agua Nueva Tucson, AZ 85745	Project: Cyanide Projed Number: 10/17/19 Projed Manager: Joe Doranski	Reported: 11/06/19 16:29

1910107-01 (19J2212-01) Wastewater (Composite) Sampled: 10/15/19 06:00 Received: 10/17/1913:15

Armtte	Result	MDL	fU.	Units	Dliution	Batch	Prepared	Analyzed	Method	Notes
Legend Technical Services of Arizona; Inc.										
Inorganic Chemistry										
Sulfate as S04	183	0.880	1.00	mg/l	10	B9J1645	10121119 09:00	10122/19 03:04	EPA 300.0	02

1910107-03 (19J2212-02) Wastewater (Composite) Sampled: 10/15/19 06:00 Received: 10/17/1913:15

Analyte	Result	MDL	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Noles
Legend Technical Services of Arizona, Inc.										
Inorganic Chemistry										
Sulfate as S04	174.	0.880	1.00	mg/l	10	B9J1645	10121/19 09:00	10122/19 03:31	EPA300.0	02

1910114-01 (19J2212-03) Wastewater (Grab) Sampled: 10/15/1913:50 Received: 10/17/1913:15

Armtte	Result	MDL	RL	Units	Dilution	Batch	Prepared	Analyzed	Metl'lod	Notes
Legend Technical Services of Arizona, Inc.										
Inorganic Chemistry										
Cyanide, amenable	<.	3	10	ug/L	1	B9J1782	10/23/1911:30	10/2311915:05	SM4500CN G	N7
Cyanide, Total	8	3	10	ug/L	1	B9J1782	10/23/1911:30	1003/1915:05	SM 4500CN E	E4

1910121-01 (19J2212-04) Solid (Dry Weight) (Grab) Sampled: 10/16/19 09:00 Received: 10/17/19 13:15

Analyta	Result	MDL	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Legend Technical Services of Arizona, Inc.										
Inorganic Chemistry										
Cyanide, Total	<	2.07	6.90	mg/kg dry	1	B9J1826	10/25/19 08:13	10/25119 14:25	EPA9014	EB
% Solids	. 1		1	%	1	B9J1883	10/23/1913:40	1003/1913:40	SM 2540 G	

1910123-01 (19J2212-05) Wastewater (Grab) Sampled: 10/16/1912:15 Received: 10/17/1913:15

Analyte	Result	MDL	RL	Units	DHutlon	Batch	Prepared	Analyzed	Method	Notes
Legend Technical Services of Arizona, Inc.										
Inorganlc Chemistry										
Cyanide, Total	<	3	10	ug/L.	1	B9J1782	10/2311911:30	1012311915:05	SM 4500 CN E	Ee

Pima County RWRD c;;RAo Lab	Project: Cyanide	
2955 W Calle Agua Nueva	Project Number: 10/17/19	Reported:
Tucson, AZ 85745	Project Manager: Joe Doranski	11/06/19 16:29

Notes and Definitions

N7	Additional analysis was not performed based on the "Total" result which was below the requested analyte's MCUAction LeveVTrigger Level.
M2	Matrix spike recovery was low; the associated blank spike recovery was acceptable.
ES	Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
E4	Concentration estimated. Analyte was detected below laboratory minimum reporting level (MRL), but above the MDL.
02	Sample required dilution due to high concentration oftarget analyte.
BLK	Method Blank
LCS/Dup	Laboratory Control Sample/Laboratory Fortified Blank/Duplicate
MS/Dup	Matrix Spike/Duplicate
Dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

19J2212

CHAIN OF·CUSTODY RECORD

LEGEND Technical Services, Inc.

017831 N, 25th Aven e • Phoenix, AZ 85023 • (802) 324-6100 • Fax (802) 324-8101
04585 S. Palo Verde Rd, Ste 423 • Tuceon, AZ 85714 • (520) 327-123 • Fax (520) 327-0518

Page_l_ot ___(__

Client Name	Address	City	State	Zip	Phone	Fax Number or Email Address
Pima County CRAO Lab	2955 W Calle Agua Nueva	Tucson	AZ	85745	520-724-6016	joseph.doranski@pima.gov

Project Name	Project Number	Contact	P.O No	
Cyanide		Joe Doranski	20-011428	Fax Results ☐ Email Results ☑ QC Report ☐ EDD ☑ Special Detection Limits ☐

SAMPLE TYPE CODES: DW=Drinking Water; WW=Wastewater; SW=Surface Water; GW=Groundwater; S=Soil/Solid; T=TIMIT 8010; F=Food; G=Sludge; O=Other

TURN AROUND TIME: Laboratory Authorization Required for Rush; Standard 10-15 Day ☐

REQUESTED ANALYSES

Clients Sample Identification	Date	Time	Sample Location	Composite	Grab	Sample Type	Compliance	No. of Containers	pH (Lab Use Only)	Amenable cyanide	Total cyanide	Sulfate	Total cyanide mg/kg	T%S for mg/kg dry weig	Lab No.
1910107-01	10/11/18	800	Tras Rios WRF - raw influent	X		WW	X	1				X			01
1910107-03	10/15/18	600	Tres Rios WRF - final effluent #3	X		WW	X	1				X			02
1910114-01	10/15/19	1350	Tres Rios WRF - final effluent #3		X	WW	X	1		X	X				03
1910121-01	10/16/18	800	Avra Valley WRF - wet haul sludge		X	G	X	2					X	X	04
1910123-01	10/18/18	1216	Learjet Inc. - PL#1		X	WW		1			X				05

TO ENSURE COMPLETION OF ANALYSIS, SAMPLES MUST BE RECEIVED AT LEAST 3 HOURS PRIOR TO THE HOLD TIME EXPIRATION

Comments / Special Instructions:

Sample Condition Upon Receipt (Lab Use Only)		
No. of Containers		
Temperature	1.6 °C	
Custody Seals	Y	N
Seals Intact	Y	N
Preserved	Y	N

	Relinquished By	Date/Time	Samples Received By	Date/Time
①	Sampler Signature / Sampler Printed Name: Greg Spence	10/17/18 1281	Signature / Printed Name: Cesar Sc	10/17/18 253
②	Signature / Printed Name: Cesar Sc	10/17/18 1600	Signature / Printed Name: Courier	10/17/18 1600
③	Signature / Printed Name: Courier	10/18/18 1010	Signature / Printed Name: J Sisum	10/18/18 1010

WHITE-LAB YELLOW-CLIENT

FORM CS-018.2 (07/18)

PIMA COUNTY
WASTEWATER RECLAMATION
COMPLIANCE AND REGULATORY AFFAIRS OFFICE LABORATORY
2955 W Agua Nueva, Tucson, AZ 857 5
Telephone: (520) 724-6200

LIMS CHECKLIST FOR SUBCONTRACT DATA

LIMS ID	1910203-01-02, 1910209-01, 1910212-01, 1910211-01	DO	20-012642
CONTRACT LAB	Legend Technical Services, Inc. - Phoenix	SAMPLE GROUP	\\-\'i5•1C\ 4 - GyaRides,-%=fS c\AN•i>t
ANALYSES	Cyanide SM 4500 CN (E, G), EPA 9014, % Solids SM 2540 G	REPORT ID	19J3440

TRANSFER & CONVERT FILES:	
Was the contract lab spreadsheet file saved to \\Solimsann\elementshare\TransferIn ?	y
Was the above-mentioned file converted from a .xis file to a .mdb file for each WO#-, and further, for each subcontract location, or separate analysis (as applicable), on the contract lab report? (Element>Proiect Management>Reoorts)	y
Was the converted file attached to the sample in LIMS?	y
VALIDATING CONTRACT LAB REPORT, CHAIN OF CUSTODY(S), AND DO#:	
Is contract lab report signed and dated?	y
Is coov of contract lab COC included with contract lab report?	y
Do the contract lab COC and CRAO COC(s) list the same sample ID, sample date, and analysis requested?	y
Do the sample dates and received dates on the CL report match the CL COC?	y
Does the CL report include all requested analysis?	y
Is the CL licensed in AZ for reported methods?	y
Does the DO match COC in types and number of tests?	N/A
CONTRACT LAB REPORT, EXCEL SPREADSHEET, and QC:	
Do CL report and CL spreadsheet report the same sample result(s), sample date(s), and analysis date(s)?	y
Was a case narrative included in contract lab reoort?	y
Does the data packet include a QC report from the primary lab and any secondary subcontract labs?	y
Did the CL report list aoolicable AZ data qualifiers?	y
Were any dilutions made?	N
Were any results from diluted samples reported as ND?	NA
Were the results from any diluted samples qualified accordingly?	NA
Was QC included for every analysis method (e.g. Blk, LCS, MS, MSD)?	y
Did QC pass stated acceptance limits? If not, was it qualified?	y
Were samples analyzed within required holding times?	y
SOCs: Are MDLs below water quality standards? (If not, notify Belinda Gamboa-Felix.)	N/A
Semivolatiles & Volatiles: Were all analytes delivered?	N/A
COMPLIANCE LIM!T REVIEW	
Were results compared to the discharge permit?.	y
Was Belinda Gamboa-Felix notified of any exceedences?	N/A
WET TESTING SPECIFIC REQUIREMENTS	
Is statement of Pass/Fail reflected in endpoints?	NIA
Ceriodaphnia: Survival and reproduction data included?	N/A
P. Promelas: Survival and growth data included?	NIA

Selenastrum: Growth data included?	N/A
Was chemistry data included?	N/A
Are Reference Toxicant Test results and Control Charts within limits?	N/A
Was PMSD Determination included and within acceptable ranQe? (minimum acceptable= 13)	N/A
Do endpoints include TUc, NOEC, LOEC, and IC25?	N/A
Do statistics verify endpoints?	N/A
Were Control Charts updated to include month of analysis?	N/A
Reviewer Initials: MLF	**Review Date:** 11-13-2019

PEER/FINAL REVIEW:	PR	FR
LIMS/Excel data matches printed CL report?	✓	✓
Analysis dates are correct?	✓	✓
Correct data qualifiers included, if necessary?	✓	✓
CRAO report shows result is from contract lab?	✓	✓
CRAO report shows correct Contract Lab (e.g. Legend Technical Services of Arizona, Phoenix)?	✓	✓
DO received in Pima Core?	✓	
Analysis set to Reported?		✓

Peer Reviewer Initials:	MP	**Review Date:**	11-18-19
Final Reviewer Initials:	JEC	**Review Date:**	12.4.19

CORRECTIVE ACTION REPORT:			
Preliminary Review:		Date:	
QA/QC Review:		Date:	
Data Entry:		Date:	
Peer Review:		Date:	
Lab Supervisor:		Date:	

LIMS#:	I)SVJATION:	CORRECTIVE ACTION:

DEVIATIONS FROM ACCEPTABLE QA/QC:

Missing QC Report/Data
Holding Time for analysis exceeded.
Inappropriate dilution performed.
Missing COC.
Missing Data Qualifiers.
Incorrect Analysis Method.
Incorrect Sample IDs.
Other.

CORRECTIVE ACTION:

Request report correction from Subcontract Lab project manager.
Add missing Data Quali♦ers.
Notify data end-user of deviation.
Arrange for resampling.
Other.

LEGEND
Technical Services, Inc.

4585 S. Palo Verde Rd., Ste. 423 • Tucson, AZ 85714
P (520) 32!-1234 • F (520) 327-0518
www.legend-group.com

08 November 2019

Joe Doranski
Pima County RWRD CRAO Lab
2955 W Calle Agua Nueva
Tucson, AZ 85745
Fax: (520) 579-6002

RE: Cyanide

Laboratory Work Order No.: 19J3440

Legend Technical Services of Arizona, Inc. is pleased. to provide the enclosed analytical results for the aforementioned project. These results relate only to the items tested. This cover letter and the accompanying pages represent the full report for these analyses and should only be reproduced in full. Samples for this project were received by the laboratory on 10/30/19 12:45.

The samples were processed in accordance with the Chain of custody docu♦ent and the results presented relate only to the samples tested. The Chain of Custody is considered part of this report.

All samples will be retained by LEGEND for 30 days from the date of this report and then discarded unless other arrangements are made. Due to hold-time and method sample volume requirements, microbiological samples are not retained unless other arrangements are made.

This entire report was reviewed and approved for release by the undersigned. If you have any questions concerning this report, please feel free to contact me.

Sincerely,
LEGEND TECHNICAL SERVICES OF ARIZONA, INC.

Alyssa Mazza

Alyssa Mazza
Client Services Representative
(602) 324-6100

This laboratory report is confidential and is intended for the sole use of LEGEND and it's client.

Pima County RWRD CRAO Lab 2955 W Calle Agua Nueva Tucson, AZ 85745	Project: Cyanide Project Number: 10/30/19 Project Manager: Joe Doranski	Reported: 11/08/1913:21

ANALYTICAL REPORT FOR SAMPLES

SampleID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
1910203-01	19J3440-01	Groundwater	Grab	10/28/19 11:20	10/30/19 12:45
1910203-02	19J3440-02	Groundwater	Grab	10/28/19 12:35	10/30/1912:45
1910209-01	19J3440-03	DI Water	Grab	10/29/19 09:07	10/30/19 12:45
1910212-01	19J3440-04	Solid (Dry Weight)	Grab	10/29/19 09:18	10/30/19 12:45
1910211-01	19J3440-05	Wastewater	Grab	10/29/19 10:08	10/30/19 12:45

Sample Condition Upon Receipt:

Temperature: 2.60 C

All samples were received in acceptable condition unless noted otherwise in the case narrative.

Case Narrative:

Holding Times: All holding times were met unless otherwise qualified.

QA/QC Criteria: All analyses met method requirements unless otherwise qualified.

Certifications: AZ(PHX)0004, AZ(TUC)OOO4, AIHA#102982, CDC ELITE Member.

Accreditation is applicable only to the test methods specified on the scope of accreditation held by LEGEND.

Comments: All reporting limits utilized in this report are from the approved method with the lowest possible levels of detection. All samples were analyzed on a "wer basis unless designated as "dry weight".

Pima County RWRD CRAO Lab 2955 W Calle Agua Nueva Tucson; AZ 85745	Project: Cyanide Project Number: 10/30/19 Project Manager: Joe Doranski	Reported: 11/08/19 13:21

1910203-01 (19J3440-01) Groundwater (Grab) Sampled: 10/28/1911:20 Received: 10/30/1912:45

Analyte	Result	MDL	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Legend Technical Services of Arizona, Inc.										
Inorganic Chemistry										
Cyanide, amenable	<	3	10	ug/l	1	B9K0915	11/06/19 08:30	11/06/1810:50	SM4500CNG	N7
Cyanide, Total	<	3	10	ug/L	1	B9K0915	11/06/19 08:30	11/06/1910:50	SM 4500CN E	ES

1910203-02 (19J3440-02) Groundwater (Grab) Sampled: 10/28/19 12:35 Received: 10/30/19 12:45

,Ari	Result	MDL	RL	Units	Dliution	Batch	Pref>Sted	Arlalyzed	Method	Noles
Legend Technical ·services of Arizona, Inc.										
Inorganic Chemistry										
Cyanide, amenable	<	3	10	ug/L	1	B9K0915	11/06119 08:30	11/06/19 10:50	SM4500CNG	N7
Cyanide, Total	<	3	.10	ug/L	1	B9K0915	11/06/19 08:30	11/06/1910:50	SM-4500 CN E	ES

1910209-01 (19J3440-03) DI Water (Grab) Sampled: 10/29/19 09:07 Received: 10/30/19 12:45

Analyte	Result	MDL	RL	Units	Dilullon	Batch	Prepared	Analyzed	Method	Notes
Legend Technical Services of Arizona, Inc.										
Inorganic Chemistry										
Cyanide, Total	<	3	10	ug/l	1	B9K0915	11/06119 08:30	11/06/1910:50	SM 4500 CN e	ea

1910212-01 (19J3440-04) Solid (Dry Weight) (Grab) Sampled: 10/29/19 09:18 Received: 10/30/19 12:45

Analyte	Result	MDL	RL	Units	Dilution	Batch	Pres>ared	Arlalyzed	Method	Notes
Legend Technical Services of,Arizona, Inc.										
Inorganic Chamlstry										
Cyanide, Total	<		0.274	mg/kg dry	1	B9K0920	11107/1907:55	1111)7/1910:14	ePA9014	ea
%Solids	4		1	%	1	B9KOSS5	11i05/19 14:20	11 1914:20	SM 2540G	

1910211-01 (19J3440-05) Wastewater (Grab) Sampled: 10/29/19 10:08 Received: 10/30/1912:45

Analyta	Result	MDL	RL	.Units	Dilution	Balch	Prepared	Analyzed	Method	Notes
Legend Technical Servlces of Arizona, Inc.										
Inorganic Chemistry										
Cyanide, amenable	<	3	10	ug/L	1	B9K0915	11/06/19 08:30	11/06/1910:50	SM4500CN G	N7
Cyanide, Total	<	3	10	ug/L	1	B9K0915	11/06/19 08:30	11/06/1910:50	SM4500CNE	ES

Pima County RWRD CRAO Lab	Project: Cyanide	
2955 W Calle Agua Nueva	Project Number: 10/30/19	Reported:
Tucson, Iv.. 85745	Project Manager. Joe Doranski	11/08/19 13:21

Notes and Definitions

R9	Sample RPD exceeded the laboratory acceptance limit.
N7	Additional analysis was not performed based on the "Total" result which was below the requested analyte's MCUAction LeveVTrigger Level.
M2	Matrix spike recovery was low; the associated blank spike recovery was acceptable.
ES	Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
BLK	Method Blank
LCS/Dup	Laboratory Control Sample/Laboratory Fortified Blank/Duplicate
MS/Dup	Matrix Spike/Duplicate
Dry	Sample results reported on a dry weight basis_
RPO	Relative Percent Difference

19]3440

CHAIN OF CUSTODY RECORD

LEGEND Technical Services, Inc.

D 17931 N. 25th Awnue •Phoenix.AZ. 65023 • (602) 324-8100 • Fax (602) 324 101
04585 S. PelO Verde Rd, Ste 423 • Tuceon, AZ 85714 • (520) 327-1234 • Fax (520) 327..0511!

Page_l_ot __I__

Client Name	Address	City	State	Zip	Phone	Fax Number or Email Address
Pima County CRAO Lab	2955 W Calle Agua Nueva	Tucson	AZ	85745	520-724-6016	joseph.doranski@pima.gov

Project Name	Project Number	Contact	P.O. No.	
Cyanide		Joe Doranski	20-012642	Fax Results ☐ QC Report ☐ EDD ☒ Email Results ☒ Special Detection Limits ☐

SAMPLE TYPE CODES: OW,,Orinking w • WW-We,t-ier SWaSul1eoa Wela GW=G10Undwalar O=Other; 8-soll/Solld T=Travtll Blink F•Food C-SIUdgelll!lotolldll

TURN AROUND TIME: Laboratory Authorization Required for Rush; 91 Slandll'd 10-15 Day; ☐ Ohr

REQUESTED ANALYSES

Client's Sample Identification	Date	Time	Sample Location	Composite	Grab	Sample Type	Compliance	No. of Containers	pH ✓ (Lab Use Only)	Amenable cyanide	Total cyanide	Total solids for mg/kg	Cyanide (T) mg/kg dry	LAB NO.
1910203-01	10128/19	1120	Tree Rios WRF - well SC--05R		X	GW	X	1		X	X			01
1910203-02	10128/19	1235	Tree Rios WRF - well SC-07R		X	GW	X	1		X	X			D<
1910209-01	10/29119	907	Sample bottles Lot # 0114601 E		X	O		1			X			07
1910212-01	10128/19	918	Green Valley WRF - wet haul sludge		X	G	X	2				X	X	04
1910211-01	10129119	1009	Green Valley WRF • BNROO final eff		X	WW	X	1		X	X			f>J

TO ENSURE COMPLETION OF ANALYSIS, SAMPLES MUST BE RECEIVED AT LEAST 3 HOURS PRIOR TO THE HOLD TIME EXPIRATION

Comments / Special Instructions:

SAMPLE CONDITION UPON RECEIPT (Lab Use)		
No. of Containers	6	
Temperature	2.6 °C	
Custody Seals	Y	(N)
Seals Intact	Y	N
Preserved	(Y)	N

	RELINQUISHED BY		SAMPLES RECEIVED BY	
①	Sampler Signature / Sampler Printed Name: Greg Spence	Date 10/30/19 Time 1227	Signature / Printed Name	Date 10/30/19 Time 1227
②	Signature / Printed Name: Casey Sos	Date 10/30/19 Time 1600	Signature / Printed Name: Casey Sos	Date 10/30/19 Time 1600
③	Signature / Printed Name	Date 10/31/19 Time 0700	Signature / Printed Name: Kelly Peters	Date 10/31/19 Time 0700

Clab 1245

WHITE-LAB YELLOW-CLIENT

FORM CS-016.2 (07/18)

PIMA COUNTY
wAmwAm rdL:<AnoN
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office (CRAO) Laboratory
2955 W. Calle Agua Nueva, Tucson Arizona 85745-9750, Phone (520) 724-6200

Report Date: 02/26/2019
Laboratory License: AZ0159

Sample Analysis Report

Regional Biosolids Facility Management

January 2019

Sample Integrity

SAMPLE RECEIPT: Samples were received intact at the required temperature, unless otherwise noted with a data qualifier below. Please refer to the Chain of Custody for sample receipt details.

HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the Pima County CRAO Laboratory Quality Manual.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS:

Notes and Definitions:

See attached

Case Narratives:

See attached

All results on this report intended for compliance submission must have the associated chain(s) of custody attached for the results to meet reporting requirements as per ADHS Laboratory licensure rules. If you have received this report for compliance purposes and it is not complete, please contact the Compliance and Regulatory Affairs Office for a final report in its entirety.

Reviewed By:

Labi ory Director or Designee
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office Laboratory

3·8·19
Date

Laboratory License: AZO159

Sample Qualifiers

Sample ID	Laboratory ID	Matrix	Date Sampled		Date Received		Sample Qualifiers
Thickener Underflow #4	1901104-28	Water	1/15/2019	1:39:00	1/15/2019	7:35:00	Q6
Dewatered Cake Biosolids	1901108-01	Biosolids	1/14/2019	18:30:00	1/15/2019	8:56:00	Q6
Thickener Underflow #4	1901120-28	Water	1/17/2019	2:55:00	1/17/2019	7:22:00	Q6
Thickener Underflow #4	1901148-28	Water	1/22/2019	0:24:00	1/22/2019	6:36:00	Q6
Thickener Underflow #3	1901167-26	Water	1/24/2019	1:32:00	1/24/2019	7:53:00	Q6
Thickener Underflow #4	1901167-28	Water	1/24/2019	1:36:00	1/24/2019	7:53:00	Q6
Thickener Underflow# I	1901199-22	Water	1/29/2019	1:27:00	1/29/2019	8:18:00	Q6
Thickener Underflow #2	1901199-24	Water	1/29/2019	1:26:00	1/29/2019	8:18:00	Q6
Thickener Underflow #I	1901104-22	Water	1/15/2019	1:45:00	1/15/2019	7:35:00	Q6
Thickener Underflow #2	1901104-24	Water	1/15/2019	1:42:00	1/15/2019	7:35:00	Q6
Thickener Underflow #3	1901104-26	Water	1/15/2019	2:20:00	1/15/2019	7:35:00	Q6
Thickener Underflow #I	1901120-22	Water	1/17/2019	2:47:00	1/17/2019	7:22:00	Q6
Thickener Underflow #2	1901120-24	Water	1/17/2019	2:52:00	1/17/2019	7:22:00	Q6
Thickener Underflow #3	1901120-26	Water	1/17/2019	2:50:00	1/17/2019	7:22:00	Q6
Thickener Underflow #I	1901148-22	Water	1/22/2019	0:15:00	1/22/2019	6:36:00	Q6
Thickener Underflow #2	1901148-24	Water	1/22/2019	0:18:00	1/22/2019	6:36:00	Q6
Thickener Underflow #3	1901148-26	Water	1/22/2019	0:20:00	1/22/2019	6:36:00	Q6
Thickener Underflow# I	1901167-22	Water	1/24/2019	1:30:00	1/24/2019	7:53:00	Q6
Thickener Underflow #2	1901167-24	Water	1/24/2019	I:34:00	1/24/2019	7:53:00	Q6
Thickener Underflow #3	1901199-26	Water	1/29/2019	1:30:00	1/29/2019	8:18:00	Q6
Thickener Underflow #4	1901199-28	Water	1/29/2019	1:28:00	1/29/2019	8:18:00	Q6

Laboratory License #

Lab ID:	Sample Type	Parameter	Sample Dateffime	Analysis Method	Analysis Dateffime	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
Dewatered Cake Biosolids (20002-5703}											
Cross Reference 1901104-08											
1901108-01	C	Ammonia	01/14/19 18:30	EPA 350.1	1/16/19 14:50	**7970**	mg/kg dry	0.09	0.35		AJH
1901108-01	C	Arsenic	01/14/19 18:30	EPA 6010D	2/19/19 10:50	**ND**	mg/kg dry		10.80		MLB
1901108-01	C	Cadmium	01/14/19 18:30	EPA 6010D	2/19/19 10:50	**ND**	mg/kg dry		4.32		MLB
1901108-0!	C	Chromium	01/14/19 18:30	EPA 6010D	2/19/19 10:50	**30.0**	mg/kg dry		10.80		MLB
1901108-01	C	Copper	01/14/19 18:30	EPA 60!0D	2/19/19 10:50	**365**	mg/kg dry		10.80		MLB
1901108-01	C	Lead	01/14/19 18:30	EPA 6010D	2/19/19 10:50	**13.2**	mg/kg dry		10.80		MLB
1901108-01	C	Mercury	01/14/19 18:30	EPA74718	2/5/19 14:39	**0.76**	mg/kg dry		0.35	M5	MJC
1901108-01	C	Molybdenum	01/14/19 18:30	EPA 6010D	2/19/19 10:50	**13.2**	mg/kg dry		4.32		MLB
1901108-01	C	Nickel	01/14/19 18:30	EPA 6010D	2/19/19 10:50	**21.2**	mg/kg dry		10.80		MLB
1901108-01	C	Nitrite	01/14/19 18:30	SM4500-NO2	1/15/19 13:42	**4.31**	mg/kg dry	0.16	1.40		AJH
1901108-01	C	Total Kjeldahl Nitrogen	01/14/19 18:30	EPA 351.2	1/22/19 12:17	**82937**	mg/kg dry	507.03	2,787.80	D2	JGB
1901108-01	C	Nitrogen Total Biosolids	01/14/19 18:30	Calculated	1/22/19 12:17	**82941**	mg/kg d r^{y}	72.46	398.40		JGB
1901108-01	C	Selenium	01/14/19 18:30	EPA 6010D	2/19/19 10:50	**ND**	mg/kg dry		21.60		MLB
1901108-01	C	Silver	01/14/19 18:30	EPA 6010D	2/19/19 10:50	**3.46**	mg/kg dry		1.08		MLB
1901108-01	C	Zinc	01/14/19 18:30	EPA 60!0D	2/19/19 10:50	705	mg/kg dry		10.80		MLB
I901108-01	C	%Solids	01/14/19 18:30	SM 25400	1/16/19 07:45	**14.29**	%		0.01		LAH
Dewatered Cake Biosolids (20001-5703}											
Cross Reference 1901108-01											
1901104-08	C	%Solids	01/14/19 18:30	SM 2540G	1/16/19 07:45	**14.37**	%		0.01		LAH
1901104-08	C	Solids Total Grams	01/14/19 18:30	NA	1/15/19 11:20	**528.3**	g				LAH
Thickener Underflow #1 (20001-0700}											
1901018-22	D	% Solids, Total Volatile	01/03/19 0:05	SM 2540G	I/3/19 I5:59	**89.6**	%		0.01		ANM
1901055-22	D	% Solids, Total Volatile	01/08/19 1:47	SM 2540G	I/8/1 9 16:33	**88.2**	%		0.01		ESW
I901073-22	D	% Solids, Total Volatile	01/10/19 1:10	SM 2540G	1/10/19 15:38	**88.9**	%		0.01		ANM
1901104-22	D	% Solids, Total Volatile	01/15/19 I:45	SM 2540G	1/15/19 16:16	**89.4**	%		0.01		LAH
1901120-22	D	% Solids, Total Volatile	01/17/19 2:47	SM 2540G	1/17/19 16:08	**89.7**	%		0.01		ANM
1901148-22	D	% Solids. Total Volatile	01/22/19 0:15	SM 2540G	1/22/19 15:59	**89.6**	%		0.01		ANM
1901167-22	D	% Solids, Total Volatile	01/24/19 1:30	SM 2540G	1/24/19 15:38	**89.3**	%		0.01		ANM
1901199-22	D	% Solids, Total Volatile	01/29/19 I:27	SM 2540G	1/29/19 16:19	**89.9**	%		0.01		ANM
1901215-22	D	% Solids, Total Volatile	01/31/19 I:04	SM 25400	1/31/19 15:39	**87.5**	%		0.01		ANM
Thickener Underflow #2 (20001-0900}											
1901018-24	D	% Solids, Tola) Volalile	01/03/19 0:07	SM 2540G	1/3/19 15:59	**88.S**	%		0.01		ANM
1901055-24	D	% Solids, Tola! Volatile	01/08/19 1:27	SM 2540G	I/8/19 16:33	**87.3**	%		0.01		ESW
1901073-24	D	% Solids, Total Volatile	0!/10/19 1:15	SM 2540G	1/10/19 15:38	**88.9**	%		0,01		ANM
1901104-24	D	% Solids, Total Volatile	01/15/19 1:42	SM 25400	1/15/19 16:16	**89.S**	%		0.01		LAH
1901120-24	D	% Solids, Total Volatile	01/17/19 2:52	SM 25400	1/17/19 16:08	**87.9**	%		0.01		ANM
1901148-24	D	% Solids, Total Volatile	01/22/19 0:18	SM 2540G	1/22/19 I5:59	87.7	%		0.01		ANM
1901167-24	D	% Solids, Total Volatile	01/24/19 I:34	SM 2540G	1/24/19 15:38	**89.4**	%		0.01		ANM
!901199-24	D	% Solids, Total Volatile	01/29/19 I:26	SM 25400	I/29/19 16: I9	**88.3**	%		0.01		ANM
1901215-24	D	% Solids, Total Volatile	01/31/19 I:05	SM 2540G	1/31/19 15:39	**89.1**	%		0.01		ANM
Thickener Underflow #3 (20001-1100}											
1901018-26	D	% Solids, Total Volatile	01/03/19 0:09	SM 2540G	1/3/19 15:59	**89.2**	%		0.01		ANM
I901055-26	D	% Solids, Total Volatile	01/08/19 I:21	SM 25400	I/8/19 16:33	**88.5**	%		0.01		ESW
1901073-26	D	% Solids, Total Volatile	01/10/19 1:00	SM 25400	)/10/19 15:38	90.4	%		0.01		ANM
1901104-26	D	% Solids, Total Volatile	01/15/19 2:20	SM 2540G	1/15/19 16:16	**88.5**	%		0.01		LAH
1901120-26	D	% Solids, Tolal Volatile	01/17/19 2:50	SM 2540G	1/17/19 16:08	**89.7**	%		0.01		ANM
1901148-26	D	% Solids, Total Volatile	01/22/19 0:20	SM 2540G	1/22/19 15:59	**88.5**	%		0.01		ANM
1901167-26	D	% Solids, Total Volatile	01/24/19 I:32	SM 2540G	1/24/19 15:38	**89.1**	%		0.01		ANM
1901199-26	D	% Solids, Total Volatile	01/29/19 I:30	SM 2540G	1/29/19 16:19	**89.1**	%		0.01		ANM
1901215-26	D	% Solids, Total Volatile	01/31/19 1:06	SM 2540G	1/31/19 15:39	**88.6**	%		0.01		ANM
Thickener Underflow #4 (20001-1300}											
1901018-28	D	% Solids, Total Volatile	01/03/19 0:18	SM 2540G	)/3/19 15:59	**88.5**	%		0.01		**ANM**
I901055-28	D	% Solids, Total Volatile	01/08/19 I:24	SM 2540G	1/8/19 1633	**87.6**	%		0,01		ESW
1901073-28	D	% Solids, Total Volatile	0)/10/19 1:05	SM 2540G	1/10/19 15:38	**89.4**	%		0.01		ANM
1901104-28	D	% Solids, Total Volatile	01/15/19 I:39	SM 2540G	1/15/19 16:16	**88.2**	%		0.01		LAH
!901120-28	D	% Solids, Total Volatile	01/17/19 2:55	SM 25400	1/17/19 16:08	**87.5**	%		0.01		ANM

Qualifier Definitions

02	Sample required dilution due to high concentration of target analyte.
NI	See case narrative.
Q6	Sample was received above recommended temperature.
MS	Analyte concentration was determined by the method of standard addition (MSA).
NA	Not Analyzed

General Notes and Definitions

C	Sample Type - Composite
CD	Sample Type - Composite Duplicate
D	Sample Type - Discrete
DD	Sample Type - Discrete Duplicate
NR	Not Reported
DET	Analyte DETECTED
DRY	Sample results reported on a dry weight basis
RPO	Relative Percent Difference
Analysis Date	Analysis Date represents the final reading date.
Field Results	Field Results performed by "SMPLR" (Sampler), are not subject to approval of Laboratory Director.
Solids. Total Volatile	Used for process control samples only.
RE	Re-Analysis has been performed.
FD	Field Duplicate
FB	Field Blank
UC	Under Construction
EB	Equipment Blank
J	Equivalent to E4 Qualifier - Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
ND	Analyte NOT DETECTED at or above reporting limit (MDL). Equivalent to E8 Qualifier - Analytc reported to MDL per project specification. Target analyte was not detected in the sample.

Case Narrative(s)

1901081-21

Alkalinity in Digested Sludge, SM2320B. Total Solids & Total Volatile Solids, SM 2540G: Sample bottles were mislabeled (both labeled "Digester 2 to Centrifuge" and none labeled "Digester 2") and could not be positively identified. Analyses not performed. ESW 1/18/19

PIMA COUNTY
Pima County Regional Wastewater Reclamation Department
Compliance and Regulawry Affairs Office Laboratory

CHAIN OF CUSTODY

WORK ORDER & SAMPLE(S): iqO | toi o I

PROJECT & LOCATION: Regional Biosolids Facility Management - Dewatered Cake Biosolids

PROJECT-LOCATION NUMBER: 20002-5703

SAMPLE START DATE: 01/14/2019 (MM/00/YY OR MM/00/YYYY)

SAMPLE START TIME: 4036- /S95 (M, ta,y bme)

CLIENT: Deputy Director-Treatment

SAMPLE END DATE: 01/14/2019 (MM/00/YY OR MM/00/YYYY)

SAMPLE END TIME: 1830 /03S

SAMPLER(S): Vasquez, Berndt (P1rnt last Name(s) Only)

Permit Type: ☐ APP ☐ AZPDES ☐ ,we D Investigative ☐ Reuse ☐ Air ■ so3 0 Process Control o 0 ther

Matrix: ■ Biosolids O Groundwater o Industrial ☐ Soil D Stormwater D Surface Water D Wastewater ☐ Air O other

INORGANIC

METALS	Tot	DIN	D C
Aluminum			
Antimony			
Arsenic			
Barium			
Beryllium			
Boron			
Cadmium			
Calcium			
Chromium			
Cobalt			
Copper			
Hardness			
Iron			
Lead			
Magnesium			
Manganese			
Mercury	X		■
Mercury LL			
Molybdenum			
Nickel			
Potassium			
Selenium			
Silver	X	D	■
Sodium			
Thallium			
Tin			

	Tt	DIN	D C
Titanium			
Vanadium			
Zinc			
PPMs•			
TCLP Metals			
503 Metals-			■
Dissolved Cr+6			

IIETMETHOOS	D C
♦nlanN	■
Chloride	
Cyanide, Total	
Cyanide, Amenable	
Fluoride	
Ignitability	
,-i1trateasN	■
Nitrite as N	■
Nitrate/Nitrite as N	
Nitrogen, Total Kjeldahl	
Nlrt>gen . Total as N	■
Orthophosphate as P	LJ
Phosphorus, Total as P	
Sulfate	
Sulfide	
Other	
Other	

Oftn&NIr,C1!EMIS:TY

	DC
Acrolein and Acrylonitrile	
Dioxin GC/SIM/MS Scan	
Organochlorine Pesticides & PCBs	
Purgeable Organics (GCMS)	
Semivolatile Organics (GCMS)	
Bis(2-ethylhexyl) phthalate	
Digester Gas	
Oil and Grease	
Organic Carbon, Total	
Organic Carbon. Dissolved	
TCLP Herbicides (Contract Lab)	
TCLP Pesticides	
TCLP Semivolatile Organics	
TCLP Volatile Organics	
TTHM	
Total Petroleum Hydrocarbons	
Volatile Acids	
Other	
Other	

EFFLUENT TOXICITY TI:STING	h C
Chronic *P. promelas*	
Chronic *C. dubia*	
Chronic *Selenastrum capricomutum*	
Other	

MICRORIOLOGY

	n
Alkalinity	
BOD	
COD	
Coliform, Fecal	
Coliform, Total	
Specific Conductance	
E.coli	
Oxygen, Dissolved	
pH	
Solids . Total	■
Solids, Total Dissolved	
Solids, Total Suspended	
Solids, Total Volatile	
Solids, Volatile Suspended	O
Other	

OTHER	D C
Paint Filter	

COMPLIANCE FELD MEASUREMENTS

☐ Chlorine *Hach 10014*		µg/L
D Specific Conductance *SM 2510 B*		µmhos/cm
O Oxygen, Dissolved *SM4500-O G*		mg/L
0 P H @ p H Temp *SM4500-HB*	@	pH Units@ °C
O Temperature *SM 25508*		•C
0 Total Depth of		feet
O Depth to Water		feet
D Other		

Comments/Instructions:
Poured off the daily sample 1901104-08

Sefltum Blank Prell Date & Initials:

CMIn otCill

See 1901104-08 for COG

Rehnqu1shed by Sampler	Received by	Dale'	Time (M1htary time)
Rehnqu1shed by	Received by	Date	Time. (M1htary time)
Relmqu1shed by	Received by	Date	Time. (M1!1tary time)
Rehnqu1shed by	Received by	Date	r,me (M1htary time)

Sample Integrity/Preservation:

# of Bottles Delivered (V

Transported on Ice O YES @ N O

LaIIMIIIpl

Temperature: (3 •C

Initials:

Q6 qualifier? YES O NO

LABUSEONLY

Sample Inspection:	Yes	No	NA
Chain of Custody Record completed appropriately? @			
Sample labels match Chain of Custody?	O		
Correct number of sample bottles were delivered?	O		
Custody seals intact?			
Within holding time?	O		
Sufficient sample volume for analysis?	O		
Samples are in proper1y preserved containers?	O		
Sample containers damaged/leaking/frozen?		O	
40 m1 vials headspace, > pea-sized air bubble?			O
Received from a refrigerator?		O	

• Sb As, Be. Cd. Cr, Cu, Pb, Ni. Se Ag, Tl. Zn, Mercury/Cold Vapor)
•• As. Cd Cr. Cu, Pb, Mercury, Mo Ni, Se, Zn

COC-Single Revision 2 Revised: 03/12/2015

PIMA COUNTY
WAMW•RERECLAMATION
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office (CRAO) Laboratory
2955 W. Calle Agua Nueva, Tucson Arizona 85745-9750, Phone (520) 724-6200

Report Date: 03/28/2019
Laboratory License: AZ0159

Sample Analysis Report

Regional Biosolids Facility Management

February 2019

Sample Integrity

SAMPLE RECEIPT: Samples were received intact at the required temperature, unless otherwise noted with a data qualifier below. Please refer to the Chain of Custody for sample receipt details.

HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the Pima County CRAO Laboratory Quality Manual.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS:

Notes and Definitions:

See attached

Case Narratives:

See attached

All results on this report intended for compliance submission must have the associated chain(s) of custody attached for the results to meet reporting requirements as per ADHS Laboratory licensure rules. If you have received this report for compliance purposes and it is not complete, please contact the Compliance and Regulatory Affairs Office for a final report in its entirety.

Reviewed By:

Jenelle Pratt

Laboratory Director or Designee
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office Laboratory

3.29.19
Date

Laboratory License: AZO159

Sample Qualifiers

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Sample Qualifiers
Dewatered Cake Biosolids	1902086-01	Biosolids	2/11/2019 22:00:00	2/12/2019 9:50:00	Q6

Laboratory License #

Lab ID:	Sample Type	Parameter	Sample Date/flme	Analysis Method	Analysis Date/fime	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
Dewatered Cake Biosolids (20002-5703)											
Cross Reference 1902082-08											
1902086-01	C	Ammonia	02/11/19 22:00	EPA 350.1	2/14/19 14:20	9310	mg/kg dry	9.10	3S.26		MJC
1902086-01	C	Arsenic	02/11/19 22:00	EPA6010D	3/S/19 15:46	12.3	mg/kg dry		10.73		MLB
1902086-01	C	Cadmium	02/11/19 22:00	EPA6010D	3/S/19 13:32	ND	mg/kg dry		4.29		MLB
1902086-01	C	Chromium	02/11/19 22:00	EPA6010D	3/S/19 13:32	33.3	mg/kg dry		10.73		MLB
1902086-01	C	Copper	02/11/19 22:00	EPA6010D	3/S/19 13:32	371	mg/kg dry		10.73		MLB
1902086-01	C	Lead	02/11/19 22:00	EPA6010D	3/S/19 13:32	14.5	mg/kg dry		10.73		MLB
1902086-01	C	Mercury	02/11/19 22:00	EPA 74718	3/S/19 14:08	0.85	mg/kg dry		0.3S		MJC
1902086-01	C	Molybdenum	02/11/19 22:00	EPA6010D	3/S/19 I3:32	14.3	mg/kg dry		4.29		MLB
1902086–01	C	Nickel	02/11/19 22:00	EPA6010D	3/S/19 13:32	31.8	mg/kg dry		10.73		MLB
1902086–0I	C	Nitrite	02/11/19 22:00	SM4500-NO2	2/12/19 13:19	4.83	mg/kg dry	0.66	S.64	J	AJH
1902086–01	C	Total Kjeldahl Nitrogen	02/11/19 22:00	EPA 351.2	2/20/19 14:15	71624	mg/kg dry	S23.68	1,439.67		JGB
1902086-01	C	Nitrogen Total Biosolids	02/11/19 22:00	Calculated	2/20/19 14:15	71626	mg/kg dry	74.23	204.08		JGB
1902086-01	C	Selenium	02/11/19 22:00	EPA6010D	3/S/19 13:32	ND	mg/kg dry		21.47		MLB
1902086-01	C	Silver	02/11/19 22:00	EPA6010D	3/S/19 15:46	6.76	mg/kg dry		1.07		MLB
1902086–01	C	Zinc	02/11/19 22:00	EPA6010D	3/S/19 13:32	759	mg/kg dry		10.73		MLB
1902086-01	C	% Solids	02/11/19 22:00	SM 2540G	2/13/19 07:44	14.18	%		0.01		ANM
Dewatered Cake Biosolids (20001-5703)											
Cross Reference 1902086-01											
1902082–08	C	%Solids	02/11/19 22:00	SM 2S400	2/13/19 07:44	14.08	%		0.01		ANM
1902082–08	C	Solids Total Grams	02/11/19 22:00	NA	2/12/19 12:05	522.2	g				ANM
Thickener Underflow #1 (20001-0700)											
1902033-22	D	% Solids, Total Volatile	02/0S/19 0:0S	SM2S400	2/S/19 16: 12	88.4	%		0,01		ANM
19020S1-22	D	% Solids, Total Volatile	02/07/19 0:20	SM 25400	2/7/19 15:37	89.2	%		0.ot		MSM
1902082-22	D	% Solids, Total Volatile	02/12/19 1:18	SM 25400	2/12/19 16:51	89.7	%		0.ot		LAH
1902103-22	D	% Solids, Total Volatile	02/14/19 0:12	SM 25400	2/14/19 16:05	90.4	%		0.ot		MSM
1902129-22	D	% Solids, Total Volatile	02/19/19 0:30	SM 25400	2/20/19 07:05	91.7	%		0.01		ESW
1902149-22	D	% Solids, Total Volatile	02/21/19 1:00	SM2540G	2/21/19 16:07	88.2	%		0.01		ESW
1902180-22	D	% Solids, Total Volatile	02/26/19 1:00	SM 25400	2/27/19 07:07	88.5	%		0,01		ANM
I902198-22	D	% Solids, Total Volatile	02/28/19 1:34	SM 25400	2/28/19 16:02	87.2	%		0.01		MSM
Thickener Underflow #2 (20001-0900)											
1902033-24	D	% Solids, Total Volatile	02/0S/19 0:08	SM2540G	2/S/19 16: 12	88.3	%		0,01		ANM
19020S1-24	D	% Solids, Total Volatile	02/07/19 0:30	SM25400	2/7/19 15:37	88.0	%		0,01		MSM
1902082-24	D	% Solids, Total Volatile	02/12/19 1:19	SM 2S400	2/12/19 16:51	91.0	%		0.01		LAH
1902103-24	D	% Solids, Total Volatile	02/14/19 0:16	SM 25400	2/14/19 16:05	90.0	%		0.01		MSM
1902129-24	D	% Solids, Total Volatile	02/19/19 0:27	SM 25400	2/20/19 07:05	89.4	%		0,01		ESW
1902149-24	D	% Solids, Total Volatile	02/21/19 1:05	SM 25400	2/21/19 16:07	88.4	%		0,01		ESW
)902180-24	D	% Solids, Total Volatile	02/26/19 1:10	SM 25400	2/27/19 07:07	88.3	%		0.01		ANM
1902198-24	D	% Solids, Total Volatile	02/28/19 1:26	SM 25400	2/28/19 16:02	87.4	%		0.01		MSM
Thickener Underflow #3 (20001-1100)											
1902033-26	D	% Solids, Total Volatile	02/0S/19 0:10	SM 25400	2/S/19 16:12	86.8	%		0.01		ANM
19020S1-26	D	% Solids, Total Volatile	02/07/19 0:40	SM25400	2/7/19 15:37	88.8	%		0.01		MSM
1902082-26	D	% Solids, Total Volatile	02/12/19 1:20	SM2540G	2/12/19 16:51	91.3	%		0.01		LAH
1902103-26	D	% Solids, Total Volatile	02/14/19 0:18	SM25400	2/14/19 16:05	90.1	%		0.01		MSM
1902129-26	D	% Solids, Total Volatile	02/19/19 0:33	SM 25400	2/20/19 07:0S	89.8	%		0.01		ESW
1902149-26	D	% Solids, Total Volatile	02/21/19 1:10	SM 25400	2/21/19 16:07	89.0	%		0.01		ESW
1902180-26	D	% Solids, Total Volatile	02/26/19 1:1S	SM 25400	2/27/19 07:07	89.1	%		0.01		ANM
I902198-26	D	% Solids, Total Volatile	02/28/19 1:31	SM 25400	2/28/19 16:02	87.7	%		0.01		MSM
Thickener Underflow #4 (20001-1300)											
1902033-28	D	% Solids, Total Volatile	02/0S/19 0:13	SM 2540G	2/S/19 16:12	85.3	%		0.01		ANM
I9020S1-28	D	% Solids, Total Volatile	02/07/19 0:SS	SM 25400	2/7/19 15:37	87.7	%		0.01		MSM
1902082-28	D	% Solids, Total Volatile	02/12/19 1:21	SM 25400	2/12/19 16:51	89.1	%		0.01		LAH
1902103-28	D	% Solids, Total Volatile	02/14/19 0:23·	SM2S400	2/14/19 16:05	88.5	%		0.01		MSM
1902129-28	D	% Solids, Total Volatile	02/19/19 0:23	SM2S40G	2/20/19 07:05	90.0	%		0.01		ESW
1902149-28	D	% Solids, Total Volatile	02/21/19 1:1S	SM 25400	2/21/19 16:07	87.4	%		0.01		ESW
1902180-28	D	% Solids, Total Volatile	02/26/19 1:22	SM 25400	2/27/19 07:07	88.7	%		0.01		ANM
1902198-28	D	% Solids, Total Volatile	02/28/19 1:29	SM 25400	2/28/19 16:02	87.3	%		0.ot		MSM

Qualifier Definitions

J	Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
Q6	Sample was received above recommended temperature.

General Notes and Definitions

J	Equivalent to E4 Qualifier - Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
ND	Analyte NOT DETECTED at or above reporting limit (MDL). Equivalent to ES Qualifier - Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
C	Sample Type - Composite
CD	Sample Type - Composite Duplicate
D	Sample Type - Discrete
DD	Sample Type - Discrete Duplicate
NR	Not Reported
DET	Analyte DETECTED
DRY	Sample results reported on a dry weight basis
RPO	Relative Percent Difference
Analysis Date	Analysis Date represents the final reading date.
Field Results	Field Results perfonned by "SMPLR" (Sampler), are not subject to approval o f Laboratory Director.
Solids, Total Volatile	Used for process control samples only.
RE	Re-Analysis has been perfonned.
FD	Field Duplicate
FB	Field Blank
UC	Under Construction
EB	Equipment Blank

Case Narrative(s)

None

Pima County Regional Wastewater Reclamation Department

Compliance and Regulatory Affairs Office Laboratory

CHAIN OF CUSTODY

WORK ORDER & SAMPLE(S): 1902086-01

PROJECT & LOCATION: Regional Biosolids Facility Management - Dewatered Cake Biosolids

PROJECT-LOCATION NUMBER: 2_0=00=2_=5=7_0_3

SAMPLE START DATE: 02/11/2019 (MMIDOIYY OR MM/00/YYYY)

SAMPLE START TIME: 1015 (Military Ume)

CLIENT: Deputy Director-Treatment

SAMPLE END DATE: 02/11/2019 (MMIDOIYY OR MMIDDIYYYY)

SAMPLE END TIME: 2200 (MilitaryUmo)

SAMPLER(S): Vasquez, Berndt (Print Lost Nam•(•) Only)

Permit Type: ☐ APP ☐ AZPDES ☐ IWC ☐ Investigative ☐ Reuse ☐ Air ■ 503 ☐ Process Control ☐ Other

Matrix: ■ Biosolids D Groundwater D Industrial ☐ Soil D Stormwater D Surface Water D Wastewater O Air O other

INORGANIC CHEMISTRY

METALS	Tot	Diss	D	C
Aluminum	☐	☐	☐	☐
Antimony	☐	☐	☐	☐
Arsenic	☐	☐	☐	☐
Barium	☐	☐	☐	☐
Beryllium	☐	☐	☐	☐
Boron	☐	☐	☐	☐
Cadmium	☐	☐	☐	☐
Calcium	☐	☐	☐	☐
Chromium	☐	☐	☐	☐
Cobalt	☐	☐	☐	☐
Copper	☐	☐	☐	☐
Hardness	☐	☐	☐	☐
Iron	☐	☐	☐	☐
Lead	☐	☐	☐	☐
Magnesium	☐	☐	☐	☐
Manganese	☐	☐	☐	☐
Mercury	×		☐	■
Mercury LL	☐	☐	☐	☐
Molybdenum	☐	☐	☐	☐
Nickel	☐	☐	☐	☐
Potassium	☐	☐	☐	☐
Selenium	☐	☐	☐	☐
Silver	×		☐	■
Sodium	☐	☐	☐	☐
Thallium	☐	☐	☐	☐
Tin	☐	☐	☐	☐

METALS	Tot	Diss	D	C
Titanium	☐	☐	☐	☐
Vanadium	☐	☐	☐	☐
Zinc	☐	☐	☐	☐
PPMs*	☐	☐	☐	☐
TCLP Metals			☐	☐
503 Metals **			☐	■
Dissolved Cr+6			☐	☐

WET METHODS	D	C
Ammonia as N	☐	■
Chloride	☐	☐
Cyanide, Total	☐	☐
Cyanide, Amenable	☐	☐
Fluoride	☐	☐
Ignitability	☐	☐
Nitrate as N	☐	■
Nitrite as N	☐	■
Nitrate/Nitrite as N	☐	☐
Nitrogen, Total Kjeldahl	☐	☐
Nitrogen, Total as N	☐	■
Orthophosphate as P	☐	☐
Phosphorus, Total as P	☐	☐
Sulfate	☐	☐
Sulfide	☐	☐
Other	☐	☐
Other	☐	☐

ORGANIC CHEMISTRY

	D	C
Acrolein and Acrylonitrile	☐	☐
Dioxin GC/SIM/MS Scan	☐	☐
Organochlorine Pesticides & PCBs	☐	☐
Purgeable Organics (GCMS)	☐	☐
Semivolatile Organics (GCMS)	☐	☐
Bis(2-ethylhexyl) phthalate	☐	☐
Digester Gas	☐	☐
Oil and Grease	☐	☐
Organic Cart>on, Total	☐	☐
Organic Cart>on, Dissolved	☐	☐
TCLP Herbicides (Contract Lab)	☐	☐
TCLP Pesticides	☐	☐
TCLP Semivolatile Organics	☐	☐
TCLP Volatile Organics	☐	☐
TTHM	☐	☐
Totaf Petr.oleum Hydrocarbons	☐	☐
Vo1atile Acids	☐	☐
Other	☐	☐
Other	☐	☐

EFFLUENT TOXICITY TESTING

	D	C
Chronic *P. promelas*	☐	☐
Chronic *C. dubia*	☐	☐
Chronic *Selenastrum capricornutum*	☐	☐
Other	☐	☐

MICROBIOLOGY - WET CHEM

	D	C
Alkalinity	☐	☐
BOD	☐	☐
COD	☐	☐
Coliform, Fecal	☐	☐
Coliform, Total	☐	☐
Specific Conductance	☐	☐
E.coli	☐	☐
Oxygen, Dissolved	☐	☐
pH	☐	☐
Solids, Total	☐	■
Solids, Total Dissolved	☐	☐
Solids, Total Suspended	☐	☐
Solids, Total Volatile	☐	☐
Solids, Volatile Suspended	☐	D
Other	☐	☐

OTHER

	D	C
Paint Filter	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐

COMPLIANCE FIELD MEASUREMENTS

	Result	Units
☐ Chlorine *Hach 10014*		µg/L
D Specific Conductance *SM2510B*		µmhos/cm
D Oxygen, Dissolved *SM4500-OG*		mg/L
0 PH @ pH Temp *SM4500-HB*	@	pH Units(III ˚C
D Temperature *SM2550B*		˚C
0 Total Depth of Well		feet
D Depth to Water		feet
☐ Other		

Comments/Instructions: Poured off the daily sample 1902082-08

Septum Blank Prep Date & Initials:

Chain of Custody Record (Signatures Only)

See 19020♦2-08 forCOC

Relinquished by Sampler.	Received by:	Date:	Time: (Military time)
Relinquished by:	Received by:	Date:	Time: (Military time)
Relinquished by:	Received by:	Date:	Time: (Military time)
Relinquished by:	Received by:	Date:	Time: (Military time)

Sample Integrity/Preservation:

of Bottles Delivered: 2 Gos

Transported on Ice: 0 YES (B) NO

Lab Receipt

Temperature: 11' °C

Initials: {)) j

06 qualifier? ♦ YES O NO

LAB USE ONLY

Sample Inspection:	Yes	No	NA
Chain of Custody Record completed appropriately?	♦	☐	☐
Sample labels match Chain of Custody?	(B)	☐	☐
Correct number of sample bottles were delivered?	♦	☐	☐
Custody seals intact?	D	☐	18)
Within holding time?	(B)	☐	☐
Sufficient sample volume for analysis?	(B)	☐	☐
Samples are in properly preserved containers?	(B)	☐	☐
Sample containers damaged/leaking/frozen?	O		☐
40 ml vials headspace, > pea-sized air bubble?	D	☐	18)
Received from a refrigerator?	O	☐	

• *Sb, As, Be, Cd, Cr, Cu, Pb, Ni, Se, Ag, n, Zn, Mercury(Cold Vapor)*
- *As. Cd, Cr, Cu. Pb, Mercury, Mo. Ni. Se,* Zn

COG-Single Sample Form

Revised: 10/12/2015

PIMA COUNTY
WASTEWATERRECLAMAnoN
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office (CRAO) Laboratory
2955 W. Calle Agua Nueva, Tucson Arizona 85745-9750, Phone (520) 724-6200

Report Date: 05/06/2019
Laboratory License: AZO159

Sample Analysis Report

Regional Biosolids Facility Management

March 2019

Sample Integrity

SAMPLE RECEIPT: Samples were received intact at the required temperature, unless otherwise noted with a data qualifier below. Please refer to the Chain of Custody for sample receipt details.

HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the Pima County CRAO Laboratory Quality Manual.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS:

Notes and Definitions:

See attached

Case Narratives:

See attached

All results on this report intended for compliance submission must have the associated chain(s) of custody attached for the results to meet reporting requirements as per ADHS Laboratory licensure rules. If you have received this report for compliance purposes and it is not complete, please contact the Compliance and Regulatory Affairs Office for a final report in its entirety.

Reviewed By:

Jenelle Graft

Laboratory Director or Designee
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office Laboratory

o·7-tCJ
Date

Laboratory License: AZO159

Sample Qualifiers

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Sample Qualifiers
Dewatered Cake Biosolids	1903029-01	Biosolids	3/4/2019 20:45:00	3/5/2019 8:49:00	Q6
Thickener Underflow #2	1903184-24	Water	3/28/2019 1:32:00	3/28/2019 7:14:00	Q6
Thickener Underflow #4	1903184-28	Water	3/28/2019 1:35:00	3/28/2019 7:14:00	Q6
Digester #4 to Centrifuge	1903192-23	Water	3/28/2019 4:00:00	3/29/2019 8:06:00	Q6
Digester #5 to Centrifuge	1903192-24	Water	3/28/2019 7:15:00	3/29/2019 8:06:00	Q6
Digester #6 to Centrifuge	1903192-25	Water	3/28/2019 16:15:00	3/29/2019 8:06:00	Q6
Digester #1 to Centrifuge	1904001-20	Water	3/31/2019 2:45:00	4/1/2019 7:16:00	Q6
Digester #2 to Centrifuge	1904001-21	Water	3/31/2019 11:55:00	4/1/2019 7:16:00	Q6
Digester #3 to Centrifuge	1904001-22	Water	3/31/2019 14:45:00	4/1/2019 7:16:00	Q6
Digester #4 to Centrifuge	1904001-23	Water	3/31/2019 4:20:00	4/1/2019 7:16:00	Q6
Thickener Underflow #1	1903184-22	Water	3/28/2019 1:29:00	3/28/2019 7:14:00	Q6
Digester #1 to Centrifuge	1903192-20	Water	3/28/2019 1:30:00	3/29/2019 8:06:00	Q6
Digester #2 to Centrifuge	1903192-21	Water	3/28/2019 10:15:00	3/29/2019 8:06:00	Q6
Digester #3 to Centrifuge	1903192-22	Water	3/28/2019 13:15:00	3/29/2019 8:06:00	Q6
Digester #5 to Centrifuge	1904001-24	Water	3/31/2019 8:50:00	4/1/2019 7:16:00	Q6
Digester #6 to Centrifuge	1904001-25	Water	3/31/2019 16:15:00	4/1/2019 7:16:00	Q6

Laboratory License # AZ0159

Lab ID:	Sample Type	Parameter	Sample Date/Time	Analysis Method	Analysis Date/Time	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
Dewatered Cake Biosolids (20002-5703)											
Cross Reference 1903025-08											
1903029-01	C	Ammonia	03/04/19 20:45	EPA JSO.I	3n119 12:38	10900	mg/kg dry	0.66	2.80		KMT
1903029-01	C	Arsenic	03/04/19 20:45	EPA60!0D	3/29/19 I0:46	ND	mg/kg dry		8.52		MLB
1903029-01	C	Cadmium	03/04/19 20:45	EPA 60!0D	3/29/19 I0:46	ND	mg/kg dry		3.41		MLB
1903029-01	C	Chromium	03/04/19 20:45	EPA60!0D	3/29/19 I0:46	30.0	mg/kg dry		8.52		MLB
1903029-01	C	Copper	03/04/19 20:45	EPA60I0D	3/29/19 I0:46	314	mg/kg dry		8.52		MLB
1903029-01	C	Lead	03/04/19 20:45	EPA 60I0D	3/29/19 1l :54	ND	mg/kg dry		8.52		MLB
1903029-01	C	Mercury	03/04/19 20:45	EPA 747IB	3/27/19 13:56	0.52	mg/kg dry		0.28		MJC
1903029-01	C	Molybdenum	03/04/19 20:45	EPA6010D	3/29/19 10:46	12.7	mg/kg dry		3.41		MLB
1903029-01	C	Nickel	03/04/19 20:45	EPA6010D	3/29/19 10:46	19.9	mg/kg dry		8.52		MLB
1903029-01	C	Nitrite	03/04/19 20:45	SM4SOO-NO2	3/5/19 1l :29	2.35	mg/kg dry	0.13	1.12		KMT
1903029-01	C	Total Kjeldahl Nitrogen	03/04/19 20:45	EPA 3S1.2	3/8/19 I2:08	70759	mg/kg dry	393.55	6,491.62	D2	AJH
1903029-01	C	NitrOgen Total Biosolids	03/04/19 20:45	Calculated	3/8/19 I2:08	70762	mg/kg dry	70.22	1,158.30		AJH
1903029-01	C	Seleniunt	03/04/19 20:45	EPA 60!0D	3/29/19 I0:46	ND	mg/kg dry		17.05		MLB
1903029-01	C	Silver	03/04/19 20:45	EPA6010D	3/29/19 I0:46	3.06	mg/kg dry		0.85		MLB
1903029-01	C	Zinc	03/04/19 20:45	EPA6010D	3/29/19 I0:46	630	mg/kg dry		8.52		MLB
1903029-01	C	%Solids	03/04/19 20:45	SM 2S40G	3/6/19 07:42	17.84	%		0.01		ANM
Dewatered Cake Biosolids (20001-5703)											
Cross Reference 1903029-01											
1903025-08	C	% Solids	03/04/19 20:45	SM 2S40G	3/6/19 07:42	17.84	%		0.01		ANM
1903025-08	C	Solids Total Grams	03/04/19 20:45	NA	3/5/19 10:52	518.1	g				ANM
Thickener Underflow #1 (20001-0700)											
1903025-22	D	% Solids, Total Volatile	03/05/19 1:35	SM 2S40G	3/5/19 15:45	89.7	%		0.01		LAH
1903045-22	D	% Solids, Total Volatile	03/07/19 2:05	SM2S40G	3/8/19 06:38	89.1	%		0.01		ANM
1903078-22	D	% Solids, Total Volatile	03/12/19 0:05	SM2S40G	3/12/19 15:53	89.0	%		0.01		IYC
1903093-22	D	% Solids, Total Volatile	03/14/19 1:15	SM2S40G	3/14/19 16:32	87.3	%		0.01		MSM
1903123-22	D	% Solids, Total Volatile	03/19/19 1:27	SM2S40G	3/19/19 16:15	90.4	%		0.01		LAH
1903139-22	D	% Solids, Total Volatile	03/21/19 1:40	SM2S40G	3/21/19 16:42	89.7	%		0.01		MSM
1903170-22	D	% Solids, Total Volatile	03/26/19 1:24	SM2S40G	3/26/19 I6:20	89.8	%		0.01		LAH
1903184-22	D	% Solids, Total Volatile	03/28/19 1:29	SM2S40G	3/28/19 15:11	89.9	%		0.01		TLG
Thickener Underflow #2 (20001-0900)											
1903025-24	D	% Solids, Total Volatile	03,05/19 1:36	SM2S40G	3/5/19 15:45	89.6	%		0.01		LAH
1903045-24	D	% Solids, Total Volatile	03/07/19 2:07	SM2S40G	3/8/19 06:38	88.0	%		0.01		ANM
1903078-24	D	% Solids, Total Volatile	03/12/19 0:08	SM2S40G	3/12/19 15:53	88.2	%		0.01		IYC
1903093-24	D	% Solids, Total Volatile	03/14/19 1:21	SM 2S40G	3/14/19 16:32	89.3	%		0.01		MSM
1903123-24	D	% Solids, Total Volatile	03/19/19 I:25	SM 2S40G	3/19/19 16:15	91.8	%		0.01		LAH
1903139-24	D	% Solids, Total Volatile	03/21/19 1:42	SM 2S40G	3/21/19 16:42	87.6	%		0.01		MSM
1903170-24	D	% Solids, Total Volatile	03/26/19 0:58	SM2S40G	3/26/19 16:20	88.7	%		0.01		LAH
1903184-24	D	% Solids, Total Volatile	03/28/19 1:32	SM2S40G	3/28/19 15:11	88.8	%		0.01		TLG
Thickener Underflow #3 (20001-1100)											
1903025-26	D	% Solids, Total Volatile	03/05/19 1:33	SM 25400	3/.5/19 1.5:4.5	88.3	%		0.01		LAH
1903045-26	D	% Solids, Total Volatile	03/07/19 2:09	SM 25400	3/8/19 06:38	89.6	%		0.01		ANM
1903078-26	D	% Solids, Total Volatile	03/12/19 0:10	SM2S40G	3/12/19 15:53	87.9	%		O.ot		IYC
1903093-26	D	% Solids, Total Volatile	03/14/19 1:26	SM2S40G	3/14/19 16:32	88.7	%		0.01		MSM
1903123-26	D	% Solids, Total Volatile	03/19/19 1:21	SM 2S40G	3/19/19 16:15	93.0	%		0.01		LAH
1903139-26	D	% Solids, Total Volatile	03/21/19 1:44	SM 2S40G	3/21/19 16:42	89.4	%		0.01		MSM
1903170-26	D	% Solids, Total Volatile	03/26/19 0:55	SM2S40G	3/26/19 I6:20	90.3	%		0.01		LAH
Thickener Underflow #4 (20001-1300)											
1903025-28	D	% Solids, Total Volatile	03/05/19 1:38	SM 2S40G	3/5/19 15:45	88.5	%		0.01		LAH
1903045-28	D	% Solids, Total Volatile	03/07/19 2:11	SM2S40G	3/8/19 06:38	90.0	%		0.01		ANM
1903078-28	D	% Solids, Total Volatile	03/12/19 0:12	SM2S40G	3/12/19 15:53	88.7	%		0.01		IYC
1903093-28	D	% Solids, Total Volatile	03/14/19 1:33	SM 25400	3/14/19 16:32	90.4	%		0.01		MSM
1903123-28	D	% Solids, Total Volatile	03/19/19 1:23	SM 2S400	3/19/19 16:15	88.0	%		0.01		LAH
1903139-28	D	% Solids, Total Volatile	03/21/19 1:46	SM2S40G	3/21/19 16:42	89.0	%		0.01		MSM
1903170-28	D	% Solids, Total Volatile	03/26/19 0:.57	SM2S40G	3/26/19 16:20	89.1	%		0.01		LAH
1903184-28	D	% Solids, Total Volatile	03/28/19 1:35	SM 2S40G	3/28/19 15:11	84.5	%		0.01		TLG

PIMA COUNTY WMaWAtDIIICUJUTI011

Pima County Regional Wastewater Reclamation Department

Compliance and Regulatory Affairs Office Laboratory

CHAIN OF CUSTODY

WORK ORDER & SAMPLE(S): 190302't..Ol

PROJECT & LOCATION: Regional Biosolids Facility Management - Dewatered Cake Biosolids

PROJECT-LOCATION NUMBER: 20002-5703

SAMPLE START DATE: 03/04/2019 (MM/DD/YY OR MM/00/YYTT)

SAMPLE START TIME: 0915 (Miitaly time)

CLIENT: Deputy Director-Treatment

SAMPLE END DATE: 03/04/2019 (MM/DD/YY OR MM/OD/YYYY)

SAMPLE END TIME: 2045 (Military &no)

SAMPLER(S): Vasquez, Berndt (Print Lost N<lmo(s) Only)

Permit Type: O APP; 0 AZPDES; ☐ 1wc; D Investigative; ☐ Reuse; OAir; ■ so3; D Process Control; OOther

Matrix: ■ Biosolids; ☐ Soil; D Wastewater; D Groundwater; D Stormwater; OAir; D Industrial; D Surface Water; ☐ Other

INORGANIC CHEMISTRY

METALS	Tot	Diss	D	C
Aluminum	☐	☐	☐	☐
Antimony	☐	☐	☐	☐
Arsenic	☐	☐	☐	☐
Barium	☐	☐	☐	☐
Beryllium	☐	☐	☐	☐
Boron	☐	☐	☐	☐
Cadmium	☐	☐	☐	☐
Calcium	☐	☐	☐	☐
Chromium	☐	☐	☐	☐
Cobalt	☐	☐	☐	☐
Copper	☐	☐	☐	☐
Hardness	☐	☐	☐	☐
Iron	☐	☐	☐	☐
Lead	☐	☐	☐	☐
Magnesium	☐	☐	☐	☐
Manganese	☐	☐	☐	☐
Mercury	×		☐	■
Mercury LL	☐	☐	☐	☐
Molybdenum	☐	☐	☐	☐
Nickel	☐	☐	☐	☐
Potassium	☐	☐	☐	☐
Selenium	☐	☐	☐	☐
Silver	×		☐	■
Sodium	☐	☐	☐	☐
Thallium	☐	☐	☐	☐
Tin	☐	☐	☐	☐

METALS	Tot	Diss	D	C
Titanium	☐	☐	☐	☐
Vanadium	☐	☐	☐	☐
Zinc	☐	☐	☐	☐
PPMs*	☐	☐	☐	☐
TCLP Metals			☐	☐
503 Metals **			☐	■
Dissolved Cr+6			☐	☐

WET METHODS	D	C
Ammonia as N	☐	■
Chloride	☐	☐
Cyanide, Total	☐	☐
Cyanide, Amenable	☐	☐
Fluoride	☐	☐
Ignitability	☐	☐
Nitrate as N	☐	■
Nitrite as N	☐	■
Nitrate/Nitrite as N	☐	☐
Nitrogen, Total Kjeldahl	☐	☐
Nitrogen, Total as N	☐	■
Orthophosphate as P	☐	☐
Phosphorus, Total as P	☐	☐
Sulfate	☐	☐
Sulfide	☐	☐
Other	☐	☐
Other	☐	☐

ORGANIC CHEMISTRY

	D	C
Acrolein and Acrylonitrile	☐	☐
Dioxin GC/SIM/MS Scan	☐	☐
Organochlorine Pesticides & PCBs	☐	☐
Purgeable Organics (GCMS)	☐	☐
Semivolatile Organics (GCMS)	☐	☐
Bis(2-ethylhexyl) phthalate	☐	☐
Digester Gas	☐	☐
Oil and Grease	☐	☐
Organic Carbon, Total	☐	☐
Organic Carbon, Dissolved	☐	☐
TCLP Herbicides (Contract Lab)	☐	☐
TCLP Pesticides	☐	☐
TCLP Semivolatile Organics	☐	☐
TCLP Volatile Organics	☐	☐
TTHM	☐	☐
Total Petroleum Hydrocarbons	☐	☐
Volatile Acids	☐	☐
Other	☐	☐
Other	☐	☐

EFFLUENT TOXICITY TESTING

	D	C
Chronic *P. promelas*	☐	☐
Chronic *C. dubia*	☐	☐
Chronic *Selenastrum capricornutum*	☐	☐
Other	☐	☐

MICROBIOLOGY - WET CHEM

	D	C
Alkalinity	D	D
BOD	D	D
COD	D	D
Coliform, Fecal	O	O
Coliform, Total	☐	D
Specific Conductance	O	O
E.coli	☐	☐
Oxygen, Dissolved	O	O
pH	☐	☐
	O	■
Solids, Total Dissolved	☐	☐
Solids, Total Suspended	D	D
Solids, Total Volatile	☐	☐
Solids, Volatile Suspended	☐	D
Other _____	☐	D

OTHER

	D	C
Paint Filter	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐

COMPLIANCE FIELD MEASUREMENTS

	Result	Units
D Chlorine *Hach 10014*		µg/L
D Specific Conductance *SM 2510 B*	-----	µmhos/cm
D Oxygen, Dissolved *SM4500-0 G*		mg/L
☐ PH @ pH Temp *SM4500-HB*	@	pH Units@ °C
D Temperature *SM2550B*		°C
D Total Depth of Well		feet
☐ Depth to water		feet
☐ Other		

Comments/Instnictions: Poured off the daily sample 1903025-08

Septum Blank Prep Date & Initials:

Chain of Custody Record (Signatures Only)

See 1903025-08 for COC

Relinquished by Sampler:	Received by:	Date:	Time (Military time)
Relinquished by:	Received by:	Date:	Time (Military time)
Relinquished by:	Received by:	Date:	Time (Military time)
Relinquished by:	Received by:	Date:	Time (Military time)

Sample Integrity/Preservation:

of Bottl :i:ed ---- -=--IJIIJ

Transported on Ice D YES (g) NO

Lab Receipt

Temperature: b °C

Initials: C,,.u

Q6 qualifier? ♦ YES O N O

LAB USE ONLY

Sample Inspection:	Yes	No	NA
Chain of Custody Record completed appropriately?	(g)	☐	☐
Sample labels match Chain of Custody?	(g)	☐	☐
Correct number of sample bottles were delivered?	(g)	☐	☐
Custody seals intact?	D	☐	(g)
Within holding time?	(g)	☐	☐
Sufficient sample volume for analysis?	[g]	☐	☐
Samples are in properly preserved containers?	(g)	☐	☐
Sample containers damaged/leaking/frozen?	D	(g)	☐
40 ml vials headspace, > pea-sized air bubble?	D	☐	(g)
Received from a refrigerator?	D	(g)	☐

• *Sb, As, Be, Cd, Cr, Cu, Pb, Ni, Se, Ag, Tl, Zn, Mercury(Cold Vapor)*
- *As, Cd, Cr, Cu, Pb, Mercury, Mo, Ni, Se, Zn*

A Pima County Regional Wastewater Reclamation Department

Compliance. and Regulatory Affairs Office Laboratory

CHAIN OF CUSTODY

NUMBER OF BOTTLES: 3

PROJECT: Tres Rios WRF

PROJECT NUMBER: 20001

SAMPLES START DATE: 03/04/2019 MMDDYY or MMDDYYYY

CLIENT: Tres Rios Operations

SAMPLES END DATE: 03/04/2019 MMDDYY, MMDDYYYY

SAMPLER(S): Vasquez, /6£1-NA (Pirt Lat Name) Orq)

COMMENTS: " -J.(r O301°1-0J off 6'3,()$-I CQE

Work Order ID: 10j0ZS

Location Description Location Number	D	C	Composite Sample Start Time (Mlrtary time)	Microbiology: Alkalinity, BOD, COD, E. coli, pH	Microbiology: Solids, Total; Solids, Total Grams; Solids, Total Dissolved; Solids, Total Suspended; Solids, Total Volatile; Solids, Volatile Suspended; Soluble BOD; Soluble COD	Inorganic: Specific Conductance; Air Filter Be or Pb; Ammonia; Chloride; Cyanide, Total; Cyanide, Amenable; Fluoride; Hardness; Metals *	Inorganic: Nitrate; Nitrite; Nitrate/Nitrite; Nitrogen, Total Kjeldahl; Nitrogen, Total; Orthophosphate; Phosphorus, Total; Sulfate	Organic: Digester Gas; Oil and Grease; TTHM; VOA	Field: Field Ammonia Probe Result (mg/L); Field Nitrate Probe Result (mg/L)	Sample End Time (Milltarytlme)
Centrifuge Feed Sludge 5300			0900							2040
Dewatered Cake Biosolids 5703			0915							2045
Thickened To Avragro 5701										
Centrate 5501			0905							2035
Thickened Cake Biosolids 5600										
Unprocessed sludge to Avraaro 5702		n								

* Please indicate soecific metals reauest here:

Chain of Custom, Record (Signatures Only)

Relin♦hed by Sampler:	Received by:	Date:	Time: (Military lime)
Refrigerator @/.,,l	c:/0<1h9	2055	
Refrigerator @ 1;L..		3-s-/9	o?-3
Relinquished by:	♦,vedby:	Date:	Time: (Military lime)
Relinquished by:	Received by:	Date:	Time: (Military time)
Relinquished by:	Received by:	Date:	Time: (Military time)

Lab Use OnlY

	Yes	No	NA
Chain of Custody Record completed appropriately?	☐		☐
Sample Labels match Chain of Custody?	☐		☐
Correct number of sample bottles were delivered?	☐		☐
Custody seals intact?	☐	☐	
Within holding time?	☐		☐
Sufficient sample volume for analysis?	☐		☐
Samples are in properly preserved containers?	☐		☐
Sample containers damaged/leaking/frozen?	☐	☐	
40 ml vials headspace, > pea-sized air bubble?	☐	☐	☐
Received from a refrigerator?	☐		☐

PIMA COUNTY
WATER RECLAMATION

Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office (CRAO) Laboratory
2955 W. Calle Agua Nueva, Tucson Arizona 85745-9750, Phone (520) 724-6200

Report Date: 06/06/2019
Laboratory License: AZ0159

Sample Analysis Report

Regional Biosolids Facility Management

April 2019

Sample Integrity

SAMPLE RECEIPT: Samples were received intact at the required temperature, unless otherwise noted with a data qualifier below. Please refer to the Chain of Custody for sample receipt details.

HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the Pima County CRAO Laboratory Quality Manual.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS:

Notes and Definitions:

See attached

Case Narratives:

See attached

All results on this report intended for compliance submission must have the associated chain(s) of custody attached for the results to meet reporting requirements as per ADHS Laboratory licensure rules. If you have received this report for compliance purposes and it is not complete, please contact the Compliance and Regulatory Affairs Office for a final report in its entirety.

Reviewed By:

Jenelle Chaft

Laboratory Director or Designee
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office Laboratory

6/10/19
Date

Laboratory License: AZO159

Sample Qualifiers

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Sample Qualifiers
Thickener Underflow #1	1904029-22	Water	4/4/2019 0:45:00	4/4/2019 8:00:00	Q6
Thickener Underflow #2	1904029-24	Water	4/4/2019 0:47:00	4/4/2019 8:00:00	Q6
Thickener Underflow #4	1904029-28	Water	4/4/2019 0:49:00	4/4/2019 8:00:00	Q6
Dewatered Cake Biosolids	1904066-01	Biosolids	4/8/2019 22:25:00	4/9/2019 8:51:00	Q6
Thickener Underflow #2	1904127-24	Water	4/18/2019 2:22:00	4/18/2019 8:14:00	Q6
Thickener Underflow #4	1904127-28	Water	4/18/2019 2:24:00	4/18/2019 8:14:00	Q6
Thickener Underflow #1	1904127-22	Water	4/18/2019 2:20:00	4/18/2019 8:14:00	Q6
GBT #1 Thickened Sludge #58	1904150-45	Water	4/22/2019 6:13:00	4/22/2019 8:20:00	Q6
GBT #2 Thickened Sludge #58	1904150-48	Water	4/22/2019 6:15:00	4/22/2019 8:20:00	Q6
Thickener Underflow #1	1904157-22	Water	4/23/2019 2:36:00	4/23/2019 8:15:00	Q6
Thickener Underflow #2	1904157-24	Water	4/23/2019 2:32:00	4/23/2019 8:15:00	Q6
Thickener Underflow #4	1904157-28	Water	4/23/2019 2:34:00	4/23/2019 8:15:00	Q6
GBT #2 Thickened Sludge #58	1904199-48	Water	4/29/2019 8:45:00	4/29/2019 8:52:00	Q6
Thickener Underflow #1	1904205-22	Water	4/30/2019 0:12:00	4/30/2019 7:00:00	Q6
Thickener Underflow #2	1904205-24	Water	4/30/2019 0:12:00	4/30/2019 7:00:00	Q6
Thickener Underflow #4	1904205-28	Water	4/30/2019 0:10:00	4/30/2019 7:00:00	Q6

Lab ID:	Sample Type	Parameter	Sample Date/Time	Analysis Method	Analysis Date/Time	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
Dewatered Cake Biosolids (20002-5703)											
Cross Reference 1904062-08											
1904066-01	C	Ammonia	04/08/19 22:25	EPA 3501	4/12/19 12:06	8440	mg/kg dry	80.3	343.28		AJH
1904066-01	C	Arsenic	04/08/19 22:25	EPA6010D	4/16/19 12:50	ND	mg/kg dry		9.38		MLB
1904066-01	C	Cadmium	04/08/19 22:25	EPA6010D	4/16/19 11:40	ND	mg/kg dry		3.75		MLB
)904066-01	C	Chromium	04/08/19 22:25	EPA6010D	4/16/19 11:40	31.1	mg/kg dry		9.38		MLB
1904066-01	C	Copper	04/08/19 22:25	EPA6010D	4/16/19 11:40	354	mg/kg dry		9.38		MLB
1904066-01	C	Lead	04/08/19 22:25	EPA6010D	4/16/19 11:40	14.7	mg/kgdry		9.38		MLB
1904066-01	C	Mercury	04/08/19 22:25	EPA 7471B	5/2/19 12:07	0.60	mg/kg dry		0.35		MJC
1904066-01	C	Molybdenum	04/08/19 22:25	EPA6010D	4/16/19 12:50	13.3	mg/kgdry		3.75		MLB
1904066-01	C	Nickel	04/08/19 22:25	EPA6010D	4/16/19 11:40	22.3	mg/kg dry		9.38		MLB
1904066-01	C	Nitrite	04/08/19 22:25	SM4500-N02	4/9/19 14:34	2.76	mg/kgdry	0.65	S.5S	J	KMT
1904066-01	C	Total Kjeldahl Nitrogen	04/08/19 22:25	EPA 3512	4/23/19 16:09	73608	mg/kg dry	-496.S2	8,190.09	02	AJH
1904066-01	C	Nitrogen Total Biosolids	04/08/19 22:25	Calculated	4/23/19 16:09	73621	mg/kg dry	71.604	1,181.10		AJH
1904066-01	C	Selenium	04/08/19 22:25	EPA6010D	4/16/19 11:40	ND	mg/kg dry		18.75		MLB
1904066-01	C	Silver	04/08/19 22:25	EPA6010D	4/16/19 11:40	3.06	mg/kg dry		0.94		MLB
1904066-01	C	Zinc	04/08/19 22:25	EPA6010D	4/16/19 11:40	693	mg/kg dry		9.38		MLB
1904066-01	C	%Solids	04/08/19 22:25	SM25400	4/10/19 07:49	14.42	%		0.01		TLG
Dewatered Cake Biosolids (20001-5703)											
Cross Reference 1904066											
1904062-08	C	%Solids	04/08/19 22:25	SM 25400	4/10/19 07:49	14.42	%.		0.01		TLG
1904062-08	C	Solids Total Grams	04/08/19 22:25	NA	4/9/19 09:31	494.4	g				TLG
Thickener Underflow #1 (20001-0700)											
1904012-22	D	% Solids, Total Volatile	04/02/19 0:34	SM25400	4/2/19 15:51	87.2	%		0.ot		TLG
1904029-22	D	% Solids, Total Volatile	04/04/19 0:4S	SM25400	4/4/19 15:49	89.4	%		0.ot		TLG
1904062-22	D	% Solids, Total Volatile	04/09/19 0:4S	SM25400	4/9/19 14:53	89.1	%		0.01		TLG
1904078-22	D	% Solids, Total Volatile	04/11/19 0:31	SM 25400	4/11/19 15:58	89.2	%		0.01		TLG
1904109-22	D	% Solids, Total Volatile	04/16/19 0:40	SM 25400	4/16/19 15:43	88.7	%		0.01		TLG
1904127-22	D	% Solids, Total Volatile	04/18/19 2:20	SM 25400	4/18/19 16:09	88.3	%		0.01		TLG
1904157-22	D	% Solids, Total Volatile	04/23/19 2:36	SM 25400	4/23/19 16:07	87.9	%		0.ot		TLG
1904177-22	D	% Solids, Total Volatile	04/25/19 0:52	SM25400	4/26/19 15:53	88.7	%		0.ot		MSM
1904205-22	D	% Solids, Total Volatile	04/30/19 0:12	SM 25400	4/30/19 16:08	89.1	%		0.01		ESW
Thickener Underflow #2 (20001-0900)											
1904012-24	D	% Solids, Total Volatile	04/02/19 0:3S	SM25400	4/2/19 15:51	87.0	%		0.01		TLG
1904029-24	D	% Solids, Total Volatile	04/04/19 0:47	SM 25400	4/4/19 15:49	89.7	%		0.01		TLG
1904062-24	D	% Solids, Total Volatile	04/09/19 0:42	SM25400	4/9/19 14:53	91.0	%		0.ot		TLG
1904078-24	D	% Solids, Total Volatile	04/11/19 0:28	SM25400	4/11/19 15:58	90.8	%		0.01		TLG
1904109-24	D	% Solids, Total Volatile	04/16/19 0:42	SM 25400	4/16/19 15:43	89.2	%		0.01		TLG
1904127-24	D	% Solids, Total Volatile	04/18/19 2:22	SM25400	4/18/19 16:09	89.3	%		0.01		TLG
1904157-24	D	% Solids, Total Volatile	04/23/19 2:32	SM25400	4/23/19 16:07	89.3	%		0.01		TLG
1904177-24	D	% Solids, Total Volatile	04/25/19 0:53	SM 25400	4/25/19 IS:SS	89.2	%		0.01		MSM
1904205-24	D	% Solids, Total Volatile	04/30/19 0:12	SM 25400	4/30/19 16:08	89.5	%		0.01		ESW
Thickener Underflow #4 (20001-1300)											
1904012-28	D	% Solids, Total Volatile	04/02/19 0:37	SM25400	4/2/19 15:51	91.3	%		0.01		TLG
1904029-28	D	% Solids, Total Volatile	04/04/19 0:49	SM 25400	4/4/19 15:49	90.1	%		0.01		TLG
1904062-28	D	% Solids, Total Volatile	04/09/19 0:47	SM25400	4/9/19 14:53	86.2	%		0.ot		TLG
1904078-28	D	% Solids, Total Volatile	04/11/19 0:34	SM 25400	4/11/19 15:58	86.9	%		0.01		TLG
1904109-28	D	% Solids, Total Volatile	04/16/19 0:21	SM 25400	4/16/19 15:43	86.6	%		0.01		TLG
1904127-28	D	% Solids, Total Volatile	04/18/19 2:24	SM 25400	4/18/19 16:09	88.S	%		0.ot		TLG
1904157-28	D	% Solids, Total Volatile	04/23/19 2:34	SM 25400	4/23/19 16:07	87.6	%		0.01		TLG
)904177-28	D	% Solids, Total Volatile	04/25/19 0:54	SM25400	4/25/19 IS:SS	88.7	%		0.01		MSM
1904205-28	D	% Solids, Total Volatile	04/30/19 0:10	SM 25400	4/30/19 16:08	90.4	%		0.01		ESW
Digester #1 to Centrifuge (20001-2101)											
1904021-19	C	% Solids, Total Volatile	04/02/19 8:50	SM2540G	4/3/19 15:38	76.S	%		0.01		TLG
)904036-20	C	% Solids, Total Volatile	04/04/19 13:50	SM 25400	4/S/19 15:52	75.0	%		0.01		MSM
1904053-20	C	% Solids, Total Volatile	04/07/19 14:32	SM 25400	4/8/19 15:01	77.1	%		0.01		TLG
1904071-19	C	% Solids, Total Volatile	04/09/19 1:18	SM 25400	4/10/19 15:51	76.1	%		0.01		TLG
1904084-20	C	% Solids, Total Volatile	04/11/19 8:00	SM 25400	4/14/19 16:08	74.6	%		0.01		"LAH

Qualifier Definitions

J	Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
D2	Sample required dilution due to higb concentration o ftarget analyte.
NI	See case narrative.
Q6	Sample was received above recommended temperature.
NR	Not Reported.

General Notes and Definitions

J	Equivalent to E4 Qualifier - Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
ND	Analyte NOT DETECTED at or above reporting limit (MDL). Equivalent to ES Qualifier - Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
C	Sample Type - Composite
CD	Sample Type - Composite Duplicate
D	Sample Type - Discrete
DD	Sample Type - Discrete Duplicate
NR	Not Reported
DET	Analyte DETECTED
DRY	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
Analysis Date	Analysis Date represents the final reading date.
Field Results	Field Results performed by "SMPLR" (Sampler), are not subject to approval of Laboratory Director.
Solids, Total Volatile	Used for process control samples only.
RE	Re-Analysis has been performed.
FD	Field Duplicate
FB	Field Blank
UC	Under Construction
EB	Equipment Blank

Case Narrative(s)

1904205-32

Solids, Total(%) & Solids, Total Volatile(%) SM 24500: Samples (1904205-31 & 1904205-32) switched due to Analyst mistake. Results not reported. ESW 6/6/2019

PIMA COUNTY WASTEWATER RECLAMATION

Pima County Regional Wastewater Reclamation Dfpartment

Compliance and Regulatory Affairs Office Laboratory

CHAIN OF CUSTODY

WORK ORDER & SAMPLE(S): 1904066-01

PROJECT & LOCATION: Regional Biosolids Facility Management - Dewatered Cake Biosolids

PROJECT-LOCATION NUMBER: 20002-5703 (QWOOTMM)

SAMPLE START DATE: 04/08/2019 (MM/ODIYY OR MMIDD/YYYY)

SAMPLE START TIME: loOS-404Q- (Military time)

cuENT: Deputy Director-Treatment

SAMPLE END DATE: 04/08/2019 (MMDO(YY OR MMIDD/YYYY)

SAMP◆E END TIME: 1,1.1.S ◆ (Milita<ytime)

SAMPLER(S): Sierra, Montemayor (Print Loot Nam•(•) Only)

11.4¶

Permit Type: ☐ APP ☐ OAZPDES ☐ 1wc ☐ Investigative ☐ Reuse ☐ Air ■ 503 ☐ Process Control ☐ Other

Matrix: ■ Biosolids ☐ Groundwater ☐ Industrial ☐ soil ☐ Stormwater ☐ Surface Water ☐ Wastewater ☐ Air ☐ Other

INORGANIC CHEMISTRY

METALS	Tot	Diss	D	C
Aluminum	☐	☐	☐	☐
Antimony	☐	☐	☐	☐
Arsenic	☐	☐	☐	☐
Barium	☐	☐	☐	☐
Beryllium	☐	☐	☐	☐
Boron	☐	☐	☐	☐
Cadmium	☐	☐	☐	☐
Calcium	☐	☐	☐	☐
Chromium	☐	☐	☐	☐
Cobalt	☐	☐	☐	☐
Copper	☐	☐	☐	☐
Hardness	☐	☐	☐	☐
Iron	☐	☐	☐	☐
Lead	☐	☐	☐	☐
Magnesium	☐	☐	☐	☐
Manganese	☐	☐	☐	☐
Mercury	X		☐	■
Mercury LL	☐	☐	☐	☐
Molybdenum	☐	☐	☐	☐
Nickel	☐	☐	☐	☐
Potassium	☐	☐	☐	☐
Selenium	☐	☐	☐	☐
Silver			☐	■
Sodium	☐	☐	☐	☐
Thallium	☐	☐	☐	☐
Tin	☐	☐	☐	☐

METALS	Tot	Diss	D	C
Titanium	D	D	D	D
Vanadium	D	D	D	D
Zinc	D	D	D	D
PPMs*	0	☐	☐	☐
TCLP Metals			☐	☐
503 Metals **			☐	■
Dissolved Cr+6			D	D

WET METHODS	D	C
Ammonia as N	☐	■
Chloride	☐	☐
Cyanide, Total	D	D
Cyanide, Amenable	D	D
Fluoride	D	D
Ignitability	☐	0
[illegible]	☐	■
Nitrite as N	D	■
Nitrate/Nitrite as N	☐	☐
Nitrogen, Total Kjeldahl	☐	☐
Nitrogen, Total as N	☐	■
Orthophosphate as P	D	D
Phosphorus, Total as P	D	D
Sulfate	D	D
Sulfide	D	D
Other	D	D
Other	☐	☐

ORGANIC CHEMISTRY

	D	C
Acrolein and Acrylonitrile	D	D
Dioxin GC/SIM/MS Scan	☐	☐
Organochlorine Pesticides & PCBs	D	D
Purgeable Organics (GCMS)	D	D
Semivolatile Organics (GCMS)	D	D
Bis(2-ethylhexyl) phthalate	0	0
Digester Gas	D	D
Oil and Grease	D	D
Organic Carbon, Total	D	D
Organic Carbon, Dissolved	D	D
TCLP Herbicides (Contract Lab)	D	D
TCLP Pesticides	0	0
TCLP Semivolatile Organics	D	D
TCLP Volatile Organics	0	0
TTHM	0	0
Total Petroleum Hydrocarbons	D	D
Volatile Acids	D	D
Other	☐	D
Other	D	D

EFFLUENT TOXICITY TESTING

	D	C
Chronic *P. promelas*	☐	☐
Chronic *C. dubia*	☐	☐
Chronic *Se/enastrum capricomutum*	☐	☐
Other	☐	☐

MICROBIOLOGY - WET CHEM

	D	C
Alkalinity	D	D
BOD	☐	☐
COD	D	D
Coliform, Fecal	0	0
Colifonn, Total	☐	D
Specific Conductance	0	0
E.coli	0	☐
Oxygen, Dissolved	0	0
pH	☐	☐
Solids, Total	0	■
Solids, Total Dissolved	☐	☐
Solids, Total Suspended	D	D
Solids, Total Volatile	☐	☐
Solids, Volatile Suspended	D	D
other	☐	D

OTHER

	D	C
Paint Filler	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐

COMPLIANCE FIELD MEASUREMENTS

	Result	Units
D Chlorine *Hach 10014*		µg/L
D Specific Conductance *SM 2510 B*		µmhos/cm
D Oxygen, Dissolved *SM 4500-0 G*		mg/L
0 pH @ pH Temp *SM 4500-H B*	@	pH Units@• C
D Temperature *SM2550B*		·C
D Total Depth of Well		feet
☐ Depth to Water		feet
☐ other		

Comments/Instructions: Poured off the daily sample 1904062-08

Septum Blank Prep Date & Initials:

Chain of Custody Record (Signatures Only)

See 1904062-08 for COC

Relinquished by Sampler:	Received by:	Date:	Time: (Military time)
Relinquished by:	Received by:	Date:	Time: (Military time)
Relinquished by:	Received by:	Date:	Time: (Military time)
Relinquished by:	Received by:	Date:	Time: (Military time)

Sample Integrity/Preservation:

# of Bottles Delivered: 2 GES

Transported on Ice: 0 YES [8] NO

Lab Receipt

Temperature: 1.1 ·c

Initials: Jo.J,

Q6 qualifier? ◆ YES 0 NO

LAB USE ONLY

Sample Inspection:	Yes	No	NA
Chain of Custody Record completed appropriately?	[8]	☐	☐
Sample labels match Chain of Custody?	[8]	☐	☐
Correct 11umber of sample bottles were delivered?	[8]	☐	☐
Custody seals intact?	☐	☐	[8]
Within holding time?	[8]	☐	☐
Sufficient sample volume for analysis?	[8]	☐	☐
Samples are in properly preserved containers?	[8]	☐	☐
Sample containers damagedneaking/frozen?	☐	[8]	☐
40 ml vials headspace, > pea-sized air bubble?	☐	☐	[8]
Received from a refrigerator?	☐	[8]	☐

• Sb, As, Be, Cd, Cr, Cu, Pb, Ni, Se, Ag, TT, Zn, Mercury(Cold Vapor)
- As, Cd, Cr, Cu, Pb, Mercury, Mo, Ni, Se, Zn

COG-Single Revision 3

Revised: 12/12/2015

A Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office Laboratory

ID COPY

CHAIN OF CUSTODY

NUMBER OF BOTTLES: 3

PROJECT: Tres Rios WRF

PROJECT NUMBER: 20001

SAMPLES START DATE: 04/08/2019 MMDDYY or MMDDYYYY

CLIENT: Tres Rios Operations

SAMPLES END DATE: 04/08/2019 MMDDYY or MMDDYYYY

SAMPLER(S): Sierra, r'l.o t -- (Print Lui Name(s) Only)

COMMENTS: &wre GC-D5f-<>"i' 7'''' l'YO"oU-c,1 &c, O'i-0'7--<7

Work Order ID: VOL10&°1.

Sample ID	Location Description Location Number	D	C	Composite Sample Start Time (Military)	Microbiology: Alkalinity	BOD	COD	E. coli	pH	Solids, Total	Solids, Total Grams	Solids, Total Dissolved	Solids, Total Suspended	Solids, Total Volatile	Solids, Volatile Suspended	Soluble BOD	Soluble COD	Specific Conductance	Inorganic: Air Filter Be or Pb	Ammonia	Chloride	Cyanide, Total	Cyanide, Amenable	Fluoride	Hardness	Metals *	Nitrate	Nitrite	Nitrate/Nitrite	Nitrogen, Total Kjeldahl	Nitrogen, Total	Orthophosphate	Phosphorus, Total	Sulfate	Organic: Digester Gas	Oil and Grease	TTHM	VOA	Field: Field Ammonia Probe Result (mg/L)	Field Nitrate Probe Result (mg/L)	Sample End Time (Military time)	Initials
01	Centrifuge Feed Sludge 5300		■	1000						■																																2219	
og	De-tared Cake Blosolids 5703		■	1005						■	■																															2225	
	Thickened To Avragro 5701																																										
la	Centrate 5501		■	1010						■																																2221	
	Thickened Cake Biosolids 5600																																										
	Unprocessed sludge to Avraaro 5702																																										

* Please indicate soecific metals reauest here:

Chain of Custody Record (Signatures Only)

Relinquished by Sampler: Refrigerator@ Date: Time: (Military time)

Refrigerator@ Relinquished by: Received by: Date: Time: (Military time)

Relinquished by: Received by: Date: Time: (Military time)

Relinquished by: Received by: Date: Time: (Military time)

Use

Chain of Custody Record completed appropriately?	☑	☐	☐
Sample Labels match Chain of Custody?	☑	☐	☐
Correct number of sample bottles were delivered?	☑	☐	
Custody seals intact?	☐	☐	
Within holding time?	☑	☐	☐
Sufficient sample volume for analysis?	☑	☐	☐
Samples are in property preserved containers?	☑	☐	☐
Sample containers damaged/leaking/frozen?	☐	☑	☐
40 ml vials headspace, > pea-sized air bubble?	☐	☐	☑
Received from a refrigerator?	☑	☐	☐

Temperature: 5.c.,, °C Initials: t

CCC-Multiple-Revision 2 Revised: 03/12/2015

PIMA COUNTY
wAS1EWmRREcLAMmoN
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office (CRAO) Laboratory
2955 W. Calle Agua Nueva, Tucson Arizona 85745-9750, Phone (520) 724-6200

Report Date: 07/11/2019
Laboratory License: AZ0159

Sample Analysis Report

Regional Biosolids Facility Management

May 2019

Sample Integrity

SAMPLE RECEIPT: Samples were received intact at the required temperature, unless otherwise noted with a data qualifier below. Please refer to the Chain of Custody for sample receipt details.

HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the Pima County CRAO Laboratory Quality Manual.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS:

Notes and Definitions:

See attached

Case Narratives:

See attached

All results on this report intended for compliance submission must have the associated chain(s) of custody attached for the results to meet reporting requirements as per ADHS Laboratory licensure rules. If you have received this report for compliance purposes and it is not complete, please contact the Compliance and Regulatory Affairs Office for a final report in its entirety.

Reviewed By:

Jenelle Chraft 7·15·19

Laboratory Director or Designee — Date

Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office Laboratory

Laboratory License: AZO159

Sample Qualifiers

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Sample Qualifiers
Thickener Underflow #2	1905139-24	Water	5/21/2019 2:10:00	5/21/2019 7:57:00	Q6
Thickener Underflow #3	1905139-26	Water	5/21/2019 2:15:00	5/21/2019 7:57:00	Q6
Thickener Underflow #4	1905139-28	Water	5/21/2019 2:20:00	5/21/2019 7:57:00	Q6
Thickener Underflow #2	1905153-24	Water	5/22/2019 0:45:00	5/23/2019 7:50:00	Q6
Thickener Underflow #3	1905153-26	Water	5/22/2019 0:50:00	5/23/2019 7:50:00	Q6
Thickener Underflow #4	1905153-28	Water	5/22/2019 0:55:00	5/23/2019 7:50:00	Q6

Laboratory License # AZ0159

Lab ID:	Sample Type	Parameter	Sample Date/fime	Analysis Method	Analysis Date/fime	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
Thickened Sludge to AvraGro Storage (20002-0200)											
Cross Reference 1905094..(19											
1905098-01	C	Ammonia	05/13/19 12:45	EPA 3501	5/15/19 13:11	**25200**	mg/kg dry	254	1,085.56		KMT
1905098-01	C	Arsenic	05/13/19 12:45	EPA6010D	5/24/19 13:55	**ND**	mg/kg dry		25.78		MLB
1905098-01	C	Cadmium	05/13/19 12:45	EPA6010D	5/24/19 13:55	**ND**	mg/kg dry		1031		MLB
1905098-01	C	Chromium	05/13/19 12:45	EPA6010D	5/24/19 13:55	**31.6**	mg/kg dry		25.78		MLB
1905098-01	C	Copper	05/13/19 12:45	EPA6010D	5/24/19 13:55	**358**	mg/kg dry		25.78		MLB
1905098-01	C	Lead	05/13/19 12:45	EPA6010D	5/24/19 13:55	**ND**	mg/kg dry		25.78		MLB
1905098-01	C	Mercury	05/13/19 12:45	EPA 74718	6nt19 15:04	**0.81**	mg/kg dry		0.22	M5	MJC
1905098-01	C	Molybdenum	05/13/19 12:45	EPA6010D	5/24/19 13:55	**13.8**	mg/kg dry		1031		MLB
1905098-01	C	Nickel	05/13/19 12:45	EPA6010D	5/24/19 13:55	**ND**	mg/kg dry		25.78		MLB
1905098-01	C	Nitrite	05/13/19 12:45	SM4500-N02	5/14/19 12:48	**2.32**	mg/kg dry	2.03	1731	J	AJH
1905098-01	C	Total Kjeldahi Nitrogen	05/13/19 12:45	EPA 3512	5/20/19 15:11	**80525**	mg/kg dry	1097.7	3,038.67		AJH
1905098-01	C	Nitrogen Total Biosolids	05/13/19 12:45	Calculated	5/20/19 15:11	**80528**	mg/kg dry	50.560	139.96		AJH
1905098-01	C	Selenium	05/13/19 12:45	EPA6010D	5/24/19 13:55	**ND**	mg/kg dry		51.55		MLB
1905098-01	C	Silver	05/13/19 12:45	EPA6010D	5/24/19 16:28	**3.09**	mg/kg dry		**2.58**		MLB
1905098-01	C	Zinc	05/13/19 12:45	EPA6010D	5/24/19 13 :55	**680**	mg/kg dry		25.78		MLB
1905098-01	C	%Solids	05/13/19 12:45	SM 25400	5/14/19 13:53	**4.61**	%		0.01		TLG
Thick. to AvraGro (20001-5701)											
Cross Reference 1905098-01											
1905094-09	C	% Solids	05/13/19 12:45	SM 25400	5/14/19 13:53	**4.61**	%		0.01	RS	TLG
1905094-09	C	Solids Total Grams	05/13/19 12:45	NA	5/14/19 12:04	**506.4**	g				TLG
Thickener Underflow #1 (20001-0700)											
1905046-22	D	% Solids, Total Volatile	05/07/19 0:17	SM25400	5nt19 16:28	**90.5**	%		0.Q1		TLG
1905066-22	D	% Solids, Total Volatile	05/09/19 0:21	SM 25400	5/9/19 16:00	**90.2**	%		0.01		TLG
1905094-22	D	% Solids, Total Volatile	05/14/19 0:08	SM 2S40G	5/14/19 16:09	**88.2**	%		0.01		TLG
1905112-22	D	% Solids, Total Volatile	05115/19 0:15	SM 25400	5/16'19 16:14	**87.5**	%		0.01		TLG
Thickener Underflow #2 (20001-0900)											
1905046-24	D	% Solids, Total Volatile	05/07/19 0:20	SM25400	5nt19 16:28	**90.1**	%		0.01		TLG
1905066-24	D	% Solids, Total Volatile	05/09/19 0:23	SM 2540G	5/9/19 16:00	**89.t**	%		0.01		TLG
1905094-24	D	% Solids, Total Volatile	05/14/19 0:13	SM2540G	5/14/19 16:09	**89.t**	%		0.01		TLG
1905112-24	D	% Solids, Total Volatile	05/15/19 0:17	SM2540G	5/16/19 16:14	**86.2**	%		0.01		TLG
1905139-24	D	% Solids, Total Volatile	05/21/19 2:10	SM2540G	5/21/19 15:24	91.0	%		0.01		TLG
1905153-24	D	% Solids, Total Volatile	05/22/19 0:45	SM 2S40G	5/23/19 15:26	**90.6**	%		0.01		TLG
1905179-24	D	% Solids, Total Volatile	05/28/19 2:40	SM 2540G	5/28/19 15:20	**89.6**	%		0.01		TLG
1905198-24	D	% Solids, Total Volatile	05/30/19 0:50	SM 2540G	5/30/19 16:00	**89.1**	%		0.01	NI, T6	TLG
Thickener Underflow #3 (20001-1100)											
1905139-26	D	% Solids, Total Volatile	05/21119 2:15	SM 25400	5/21119 16:37	**89.4**	%		0.01		TLG
1905153-26	D	% Solids, Total Volatile	05/22/19 0:50	SM 2540G	5/23/19 15:26	**89.1**	%		O.ot		TLG
1905179-26	D	% Solids, Total Volatile	05/28/19 2:30	SM 2540G	5/28/19 15:20	90.0	%		0.Q1		TLG
1905198-26	D	% Solids, Total Volatile	05/30/19 0:55	SM 2540G	5/30/19 16:00	**87.4**	%		0.01	NI, T6	TLG
Thickener Underflow #4 (20001-1300)											
1905046-28	D	% Solids, Total Volatile	05/07/19 0:23	SM2540G	5nt19 16:28	**89.2**	%		0.01		TLG
1905066-28	D	% Solids, Total Volatile	05/09/19 0:27	SM 2540G	5/9/19 16:00	**89.1**	%		0.01		TLG
1905094-28	D	% Solids, Total Volatile	05/14/19 0:20	SM 25400	5/14/19 16:09	**89,2**	%		0.Q1		TLG
1905112-28	D	% Solids, Total Volatile	05/15/19 0:19	SM 25400	5/16/19 16:14	**86.5**	%		0.01		TLG
1905139-28	D	% Solids, Total Volatile	05/21119 2:20	SM 25400	5/21/19 15:24	**89.3**	%		0.01		TLG
1905153-28	D	% Solids, Total Volatile	05/22/19 0:55	SM 2S40G	5/23/19 15:26	**88.6**	%		0.01		TLG
1905179-28	D	% Solids, Total Volatile	05/28/19 2:35	SM 2540G	5/28/19 15:20	**90.1**	%		0.01		TLG
1905198-28	D	% Solids, Total Volatile	05/30/19 1:00	SM2540G	5/30/19 16:00	**87.5**	%		0.01	N1,T6	TLG
Digester #1 to Centrifuge (20001-2101)											
1905024-20	C	% Solids, Total Volatile	05/02/19 8:00	SM 25400	5/3/19 16:05	**79.3**	%		0.Q1		TLG
1905038-20	C	% Solids, Total Volatile	05/05/19 7:00	SM 2540G	5/6/19 16:18	**76.6**	%		0.01		LAH
1905073-20	C	% Solids, Total Volatile	05/09/19 23:45	SM 2540G	5/10/19 15:58	**75.4**	%		0.01		TLG
1905085-20	C	% Solids, Total Volatile	05/12/19 4:30	SM 25400	5/13/19 16:12	**75.4**	%		0.Q1		SOR
1905105-19	C	% Solids, Total Volatile	05/14/19 II :20	SM2S40G	5/15/19 15:54	**77.8**	%		0.Q1		TLG
I905115-20	C	% Solids, Total Volatile	05/16/19 16:10	SM2540G	5/17/19 15:31	**75.7**	%		0.01		TLG
1905129-20	C	% Solids, Total Volatile	05/19/19 16:05	SM 25400	5/20/19 15:31	**76,4**	%		0.01		ESW

Qualifier Definitions

J	Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL
MS	Analyte concentration was determined by the method of standard addition (MSA).
NI	See case narrative.
Q6	Sample was received above recommended temperature.
RS	Sample RPD exceeded the method acceptance limit.
T6	The reported result cannot be used for compliance purposes.

General Notes and Definitions

J	Equivalent to E4 Qualifier - Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
ND	Analyte NOT DETECTED at or above reporting limit (MDL). Equivalent to ES Qualifier - Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
C	Sample Type - Composite
CD	Sample Type - Composite Duplicate
D	Sample Type - Discrete
DD	Sample Type - Discrete Duplicate
NR	Not Reported
DET	Analyte DETECTED
DRY	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
Analysis Date	Analysis Date represents the final reading date.
Field Results	Field Results performed by "SMPLR" (Sampler), are not subject to approval of Laboratory Director.
Solids, Total Volatile	Used for process control samples only.
RE	Re-Analysis has been performed.
FD	Field Duplicate
FB	Field Blank
UC	Under Construction
EB	Equipment Blank

Case Narrative(s)

1905198-24-32

Total Volatile Solids, SM 25400: Confirmation muffle burn time was less than the method required 30 minutes. Sample dish weights confirmed. ESW 6/20/19

PIMA COUNTY WASTEWATER RECLAMATION

Pima County Regional Wastewater Reclamation Department

Compliance and Regulatory Affairs Office Laboratory

CHAIN OF CUSTODY

WORK ORDER & SAMPLE(S): 1905098-01

PROJECT & LOCATION: Regional Biosolids Facility Management - Thickened sludge to AvraGro

PROJECT-LOCATION NUMBER: 20002-0200

SAMPLE START DATE: 05/13/2019 (MMIOCIYY OR MMIO(Y(YYY)

SAMPLE START TIME: 1040 (Milltorytime)

CLIENT: Deputy Director-Treatment

SAMPLE END DATE: 05/13/2019 (MMIOCVYY OR MMIOOfYYYY)

SAMPLE END TIME: 1245 (Military time)

SAMPLER(S): Fitzpatrick, Berndt (Print Lut Nome(ɜ) Only)

Permit Type: 0 APP; 0AZPDES; ☐ 1wc; D Investigative; ☐ Reuse; OAir; ■ 503; D Process Control; D Other _____

Matrix: ■ Biosolids; D Groundwater; D Industrial; ☐ Soil; D Stormwater; D Surface Water; D Wastewater; O Air; ☐ Other _____

INORGANIC CHEMISTRY

METALS	Tot	Diss	D	C
Aluminum	☐	☐	☐	☐
Antimony	☐	☐	☐	☐
Arsenic	☐	☐	☐	☐
Barium	☐	☐	☐	☐
Beryllium	☐	☐	☐	☐
Boron	☐	☐	☐	☐
Cadmium	☐	☐	☐	☐
Calcium	☐	☐	☐	☐
Chromium	☐	☐	☐	☐
Cobalt	☐	☐	☐	☐
Copper	☐	☐	☐	☐
Hardness	☐	☐	☐	☐
Iron	☐	☐	☐	☐
Lead	☐	☐	☐	☐
Magnesium	☐	☐	☐	☐
Manganese	☐	☐	☐	☐
Mercury	JL-		☐	■
Mercury LL	☐	☐	☐	☐
Molybdenum	☐	☐	☐	☐
Nickel	☐	☐	☐	☐
Potassium	☐	☐	☐	☐
Selenium	☐	☐	☐	☐
Silver	x		☐	■
Sodium	☐	☐	☐	☐
Thallium	☐	☐	☐	☐
Tin	☐	☐	☐	☐

METALS	Tot	Diss	D	C
Titanium	☐	☐	☐	☐
Vanadium	☐	☐	☐	☐
Zinc	☐	☐	☐	☐
PPMs•	☐	☐	☐	☐
TCLP Metals			☐	☐
503 Metals **			☐	■
Dissolved Cr+6			☐	☐

WET METHODS	D	C
Ammonia as N	☐	■
Chloride	☐	☐
Cyanide, Total	☐	☐
Cyanide, Amenable	☐	☐
Fluoride	☐	☐
Ignitability	☐	☐
Nitrate •11f	☐	■
Nitrite as	☐	■
Nitrate/Nitrite as N	☐	☐
Nitrogen, Total Kjeldahl	☐	☐
Nitrogen, Total as N	☐	■
Orthophosphate as P	☐	☐
Phosphorus, Total as P	☐	☐
Sulfate	☐	☐
Sulfide	☐	☐
Other _____	☐	☐
Other _____	☐	☐

ORGANIC CHEMISTRY

	D	C
Acrolein and Acrylonitrile	D	D
Dioxin GC/SIM/MS Scan	O	0
Organochlorine Pesticides & PCBs	D	D
Purgeable Organics (GCMS)	D	D
Semivolalile Organics (GCMS)	D	D
Bis(2-ethylhexyl) phthalate	O	0
Digester Gas	D	D
Oil and Grease	D	D
Organic Carbon, Total	D	D
Organic Carbon, Dissolved	D	D
TCLP Herbicides (Contract Lab)	D	D
TCLP Pesticides	☐	☐
TCLP Semivolalile Organics	D	D
TCLP Volatile Organics	☐	☐
TTHM	☐	☐
Total Petroleum Hydrocarbons	D	D
Volatile Acids	D	D
Other _____	☐	D
other _____	D	D

EFFLUENT TOXICITY TESTING	D	C
Chronic *P. promelas*	☐	☐
Chronic *C. dubia*	☐	☐
Chronic *Selenastrum capricomutum*	☐	☐
Other _____	☐	☐

MICROBIOLOGY - WET CHEM

	D	C
Alkalinity	D	D
BOD	D	D
COD	D	D
Coliform, Fecal	0	0
Coliform, Total	☐	D
Specific Conductance	0	0
E.coli	☐	☐
Oxygen, Dissolved	0	0
pH	D	D
Solids, Total	0	■
Solids, Total Dissolved	☐	☐
Solids, Total Suspended	D	D
Solids, Total Volatile	☐	☐
Solids, Volatile Suspended	☐	☐
Other _____	☐	D

OTHER	D	C
Paint Filter	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐

COMPLIANCE FIELD MEASUREMENTS

	Result	Units
D Chlorine *Hach 10014*	_____	µg/L
D Specific Conductance *SM 2510 B*	_____	µmhos/cm
D Oxygen, Dissolved *SM 4500-0 G*	_____	mg/L
☐ pH @ pH Temp *SM 4500-H B*	_____ @ _____	pH Unns@ °C
D Temperature *SM25508*	_____	°C
D Total Depth of Well	_____	feet
☐ Depth to Water	_____	feet
☐ Other _____	_____	

Comments/Instructions:
Monthly pour off. Poured off the daily sample 1905094-09

Septum Blank Prep Date & Initials: _____ _____

Chain of Custody Record (Signatures Only)

See 1905094-09 for COC

Relinquished by Sampler.	Received by:	Date:	Time: (Militaly time)

Relinquished by:	Received by:	Date:	Time: (Military time)

Relinquished by:	Received by:	Date:	Time: (Military time)

Relinquished by:	Received by:	Date:	Time: (Military time)

Sample Integrity/Preservation:

of Bottles Delivered: (2) Cos

Transpoi:ted on Ice: 0 YES NO

Lab Receipt

Temperature: 1/4 °C

Initials: CSV

06 qualifier? 1I) YES O N O

LAB USE ONLY

Sample Inspection:	Yes	No	NA
Chain of Custody Record completed appropriately?		D	D
Sample labels match Chain of Custody?		D	D
Correct number of sample bottles were delivered?		D	D
Custody seals intact?	D	D	
Within holding time?		D	D
Sufficient sample volume for analysis?		D	D
Samples are in properly preserved containers?		D	D
Sample containers damaged/leaking/frozen?	☐		D
40 ml vials headspace, > pea-sized air bubble?	D	D	
Received from a refrigerator?	D		D

* Sb, As, Be, Cd, Cr, Cu, Pb, Ni, Se, Ag, Tl, Zn, Mercury(Cold Vapor)
** As, Cd, Cr, Cu, Pb, Mercury, Mo, Ni, Se, Zn

COG-Single_Revision 2 Revised: 03/12/2015

A Pima County Regional wastewater Reclamation Department

Compliance and Rtgulatory Affairs Office Laboratory

COPY

CHAIN OF CUSTODY

NUMBER OF BOTTLES: 4

PROJECT: Tres Rios WRF

PROJECT NUMBER: 20001

SAMPLES START DATE: 0 1 19 WIJOOm .. MMOOYYYY

CLIENT: Tres Rios Operations

SAMPLES END DATE: 05/1♦19 MMOOYY .. MMOOYYYY

SAMPLER(S): Fitzpatrick, f!JEI.Nt:ir (:::1 I.mt Name (a) Only)

COMMENTS: ♦ 14"050'18-01 p,....v J o/:P ♦.,5 05– /L(-l.'J

Work Order ID: [C.050CL{

Location Description Location Number	DC	Composite Sample Start Time (Military)	Microbiology: Alkalinity	BOD	COD	E. coli	pH	Solids, Total	Solids, Total Grams	Solids, Total Dissolved	Solids, Total Suspended	Solids, Total Volatile	Solids, Volatile Suspended	Soluble BOD	Soluble COD	Specific Conductance	Inorganic: Air Filter Be or Pb	Ammonia	Chloride	Cyanide, Total	Cyanide, Amenable	Fluoride	Hardness	Metals *	Nitrate	Nitrite	Nitrate/Nitrite	Nitrogen, Total Kjeldahl	Nitrogen, Total	Orthophosphate	Phosphorus, Total	Sulfate	Organic: Digester Gas	Oil and Grease	TTHM	VOA	Field: Field Ammonia Probe Result (mg/L)	Field Nitrate Probe Result (mg/L)	Sample End Time (Military time)	Initials
Centrifuge Feed Sludge 5300		■ 1025						■																															2025	JB
Dewatered Cake Biosolids 5703		■ 1030						■	■																														2035	JB
Thickened To Avragr;_ 5701		[8] 1040																																					1245	JB
Centrate 5501		■ 1033						■																															2015	JB
Thickened Cake Biosolids 5600																																								
Unprocessed sludge to Avraaro 5702																																								

* Please indicate SnACific metals rAnuest here:

Chain of Custody Record (Signatures Only)

Refrigerator @ 12

Relinquished by: Received by: Date: Time: (Military time)

Relinquished by: Received by: Date: Time: (Military time)

Lab Use Only

	Yes	No
Chain of Custody Record completed appropriately?	a--	□ □
Sample Labels match Chain of Custody?	Et""	□ □
Correct number of sample bottles were delivered?	a--	□ □
Custody seals intact?	□	□ a-
Within holding time?	e-	□ □
Sufficient sample volume for analysis?	s-	□ □
Samples are in properly preserved containers?	e-	□ □
Sample containers damaged/leaking/frozen?	□	ra-- □
40 ml vials headspace, > pea-sized air bubble?	□	□ g--
Received from a refrigerator?	[3-""	D □

Temperature: 5". C Initials: ♦

COC-Multiple-Revision 2 Revised: 03/12/2015

PIMA COUNTY
wAmwAmRECLAMATIoN
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office (CRAO) Laboratory
2955 W. Calle Agua Nueva, Tucson Arizona 85745-9750, Phone (520) 724-6200

Report Date: 07/24/2019
Laboratory License: AZ0159

Sample Analysis Report

Regional Biosolids Facility Management

June 2019

Sample Integrity

SAMPLE RECEIPT: Samples were received intact at the required temperature, unless otherwise noted with a data qualifier below. Please refer to the Chain of Custody for sample receipt details.

HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the Pima County CRAO Laboratory Quality Manual.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS:

Notes and Definitions:

See attached

Case Narratives:

See attached

All results on this report intended for compliance submission must have the associated chain(s) of custody attached for the results to meet reporting requirements as per ADHS Laboratory licensure rules. If you have received this report for compliance purposes and it is not complete, please contact the Compliance and Regulatory Affairs Office for a final report in its entirety.

Reviewed By:

Jenelle Pratt

Laboratory Director or Designee
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office Laboratory

7.29.19
Date

Laboratory License: AZ0159

Sample Qualifiers

Sample ID	Laboratory ID	Matri1	Date Sampled	Date Received	Sample Qualifiers
Digester #1 to Centrifuge	1906009-20	Water	6/2/2019 2:40:00	6/3/2019 8:30:00	Q6
Digester #2 to Centrifuge	1906009-21	Water	6/2/2019 14:15:00	6/3/2019 8:30:00	Q6
Digester #3 to Centrifuge	1906009-22	Water	6/2/2019 15:25:00	6/3/2019 8:30:00	Q6
Digester #4 to Centrifuge	1906009-23	Water	6/2/2019 7:50:00	6/3/2019 8:30:00	Q6
Digester #5 to Centrifuge	1906009-24	Water	6/2/2019 11:00:00	6/3/2019 8:30:00	Q6
Digester #6 to Centrifuge	1906009-25	Water	6/2/2019 1:45:00	6/3/2019 8:30:00	Q6
GBT #1 Thickened Sludge #58	1906037-32	Water	6/5/2019 13:17:00	6/6/2019 7:13:00	Q6
GBT #3 Thickened Sludge #58	1906037-38	Water	6/5/2019 13:17:00	6/6/2019 7:13:00	Q6
Digester #1 to Centrifuge	1906059-20	Water	6/9/2019 15:50:00	6/10/2019 8:25:00	Q6
Digester #2 to Centrifuge	1906059-21	Water	6/9/2019 8:15:00	6/10/2019 8:25:00	Q6
Digester #3 to Centrifuge	1906059-22	Water	6/9/2019 10:14:00	6/10/2019 8:25:00	Q6
Digester #4 to Centrifuge	1906059-23	Water	6/9/2019 1:00:00	6/10/2019 8:25:00	Q6
Digester #5 to Centrifuge	-1906059-24	Water	6/9/2019 4:00:00	6/10/2019 8:25:00	Q6
Digester #6 to Centrifuge	1906059-25	Water	6/9/2019 13:23:00	6/10/2019 8:25:00	Q6
Digester #1 to Centrifuge	1906075-19	Water	6/11/2019 4:02:00	6/12/2019 7:16:00	Q6
Digester #2 to Centrifuge	1906075-20	Water	6/11/2019 13:48:00	6/12/2019 7:16:00	Q6
Digester #3 to Centrifuge	1906075-21	Water	6/11/2019 15:45:00	6/12/2019 7:16:00	Q6
Digester #4 to Centrifuge	1906075-22	Water	6/11/2019 7:53:00	6/12/2019 7:16:00	Q6
Digester #5 to Centrifuge	1906075-23	Water	6/11/2019 10:55:00	6/12/2019 7:16:00	Q6
Digester #6 to Centrifuge	1906075-24	Water	6/11/2019 2:39:00	6/12/2019 7:16:00	Q6
Thickener Underflow #2	1906066-24	Water	6/11/2019 0:16:00	6/11/2019 7:45:00	Q6
Thickener Underflow #3	1906066-26	Water	6/11/2019 0:17:00	6/11/2019 7:45:00	Q6
Thickener Underflow #4	1906066-28	Water	6/11/2019 0:18:00	6/11/2019 7:45:00	Q6
Thickener Underflow #2	1906086-24	Water	6/13/2019 3:10:00	6/13/2019 7:24:00	Q6
Thickener Underflow #3	1906086-26	Water	6/13/2019 3:12:00	6/13/2019 7:24:00	Q6
Thickener Underflow #4	1906086-28	Water	6/13/2019 3:14:00	6/13/2019 7:24:00	Q6
Thickener Underflow #2	1906114-24	Water	6/18/2019 0:10:00	6/18/2019 8:05:00	Q6
Thickener Underflow #3	1906114-26	Water	6/18/2019 0:13:00	6/18/2019 8:05:00	Q6
Thickener Underflow #4	1906114-28	Water	6/18/2019 0:15:00	6/18/2019 8:05:00	Q6
Dewatered Cake Biosolids	1906118-01	Biosolids	6/17/2019 23:30:00	6/18/2019 9:45:00	Q6
Thickener Underflow #2	1906159-24	Water	6/25/2019 1:30:00	6/25/2019 7:07:00	Q6
Thickener Underflow #3	1906159-26	Water	6/25/2019 1:32:00	6/25/2019 7:07:00	Q6
Thickener Underflow #4	1906159-28	Water	6/25/20f9 1:34:00	6/25/2019 7:07:00	Q6
Thickener Underflow #2	1906174-24	Water	6/27/2019 0:36:00	6/27/2019 6:50:00	Q6
GBT #1 Thickened Sludge #58	1906159-32	Water	6/24/2019 15:56:00	6/25/2019 7:07:00	Q6
Thickener Underflow #3	1906174-26	Water	6/27/2019 0:40:00	6/27/2019 6:50:00	Q6
Thickener Underflow #4	1906174-28	Water	6/27/2019 0:46:00	6/27/2019 6:50:00	Q6
Digester #1 to Centrifuge	1906180-20	Water	6/27/2019 11:15:00	6/28/2019 6:54:00	Q6
Digester #2 to Centrifuge	1906180-21	Water	6/27/2019 2:35:00	6/28/2019 6:54:00	Q6
Digester #3 to Centrifuge	1906180-22	Water	6/27/2019 4:30:00	6/28/2019 6:54:00	Q6
Digester #4 to Centrifuge	1906180-23	Water	6/27/2019 13:40:00	6/28/2019 6:54:00	Q6
Digester #5 to Centrifuge	1906180-24	Water	6/27/2019 16:15:00	6/28/2019 6:54:00	Q6
Digester #6 to Centrifuge	1906180-25	Water	6/27/2019 8:00:00	6/28/2019 6:54:00	Q6
Digester #1 to Centrifuge	1907004-20	Water	6/30/2019 11:45:00	7/1/2019 8:25:00	Q6
Digester #2 to Centrifuge	1907004-21	Water	6/30/2019 1:00:00	7/1/2019 8:25:00	Q6
Digester #3 to Centrifuge	1907004-22	Water	6/30/2019 4:00:00	7/1/2019 8:25:00	Q6
Digester #4 to Centrifuge	1907004-23	Water	6/30/2019 14:40:00	7/1/2019 8:25:00	Q6
Digester #5 to Centrifuge	1907004-24	Water	6/30/2019 16:17:00	7/1/2019 8:25:00	Q6
Digester #6 to Centrifuge	1907004-25	Water	6/30/2019 8:10:00	7/1/2019 8:25:00	Q6

Laboratory License # AZ0159

Lab ID:	Sample Type	Parameter	Sample Date/fime	Analysis Method	Analysis Date/fime	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
Dewatered Cake Biosolids {20002-5703)											
Cross Reference 1906114-08											
1906118-01	C	Ammonia	06/17/19 23:30	EPA 350.1	6/21/19 12:06	**7140**	mg/kg dry	**86.8**	1,112.57	D2	KMT
1906118-01	C	Arsenic	06/17/19 23:30	EPA 6010D	7/3/19 12:25	**ND**	mg/kg dry		11.68		MLB
1906118-01	C	Cadmium	06/17/19 23:30	EPA 6010D	7/3/19 12:25	**ND**	mg/kg dry		4.67		MLB
1906118-01	C	Chromium	06/17/19 23:30	EPA6010D	7/3/19 12:25	**32.4**	mg/kg dry		11.68		MLB
1906118-01	C	Copper	06/17/19 23:30	EPA6010D	7/3/19 12:25	377	mg/kg dry		11.68		MLB
1906118-01	C	Lead	06/17/19 23:30	EPA 6010D	7/3/19 12:25	**ND**	mg/kg dry		11.68		MLB
1906118-01	C	Mercury	06/17/19 23:30	EPA 74718	7/8/19 14:17	0.79	mg/kg dry		0.37		MJC
1906118-01	C	Molybdenum	06/17/19 23:30	EPA 6010D	7/3/19 12:25	**15.3**	mg/kg dry		4.67		MLB
1906118-01	C	Nickel	06/17/19 23:30	EPA 6010D	7/3/19 12:25	**21.0**	mg/kg dry		11.68		MLB
1906118-01	C	Nitrite	06/17/19 23:30	SM4500-N02	6/19/19 11:06	**9.14**	mg/kg dry	0.69	5.93		MJC
1906118-01	C	Total Kjeldahi Nitrogen	06/17/19 23:30	EPA 351.2	6/19/19 17:03	**68612**	mg/kg dry	508.43	1,407.43		AJH
1906118-01	C	Nitrogen Total Biosolids	06/17/19 23:30	Calculated	6/24/19 12:13	**68614**	mg/kg dry	68.548	189.75		AJH
1906118-01	C	Selenium	06/17/19 23:30	EPA 6010D	7/3/19 12:25	**ND**	mg/kg dry		23.36		MLB
1906118-01	C	Silver	06/17/19 23:30	EPA 6010D	7/3/19 14:27	**3.19**	mg/kg dry		I.I 7		MLB
1906118-01	C	Zinc	06/17/19 23:30	EPA6010D	7/3/19 12:25	727	mg/kg dry		11.68		MLB
1906118-01	C	%Solids	06/17/19 23:30	SM 25400	6/19/19 07:53	**13.48**	%		0.01		SOR
Dewatered Cake Biosolids {20001-5703)											
Cross Reference 1906118-01											
1906114-08	C	%Solids	06/17/19 23:30	SM 25400	6/19/19 07:53	**13.48**	%		0.01		SOR
1906114-08	C	Solids Total Grams	06/17/19 23:30	NA	6/18/19 12:21	**525.3**	g				SOR
Thickener Underflow #2 {20001-0900}											
1906019-24	O	% Solids, Total Volatile	06/04/19 0:26	SM 25400	6/4/19 15:12	**91.3**	%		0.01		TLG
1906037-24	O	% Solids, Total Volatile	06/06/19 0:19	SM 25400	6/6/19 16:06	**89.0**	%		0.01		ANM
1906066-24	O	% Solids, Total Volatile	06/11/19 0:16	SM 25400	6/11/19 15:39	**90.5**	%		0.01		ANM
1906086-24	O	% Solids, Total Volatile	06/13/19 3:10	SM 25400	6/13/19 15:15	**89.3**	%		0.01		ANM
1906114-24	O	% Solids, Total Volatile	06/18/19 0:10	SM 25400	6/19/19 07:14	**88.7**	%		0.01		SOR
1906131-24	O	% Solids, Total Volatile	06/20/19 0:04	SM25400	6/20/19 16:06	**88.8**	%		0.01		MSM
1906159-24	O	% Solids, Total Volatile	06/25/19 1:30	SM 25400	6/25/19 15:19	**89.2**	%		0.01		JAH
1906174-24	O	% Solids, Total Volatile	06127/19 0:36	SM25400	6127/19 16:01	**89.2**	%		0.01		SOR
Thickener Underflow #3 {20001-1100)											
1906019-26	O	% Solids, Total Volatile	06/04/19 0:30	SMH400	6/4/19 15:12	**90.2**	%		0.01		TLG
1906037-26	O	% Solids, Total Volatile	06/06/19 0:24	SM2540G	6/6/19 16:06	**89.1**	%		0.01		ANM
1906066-26	O	% Solids, Total Volatile	06/11/19 0:17	SM 25400	6/11/19 15:39	**89.2**	%		0.01		ANM
1906086-26	O	% Solids, Total Volatile	06/13/19 3:12	SM 25400	6/13/19 15:15	**88.9**	%		0.01		ANM
1906114-26	O	% Solids, Total Volatile	06/18/19 0:13	SM 25400	6/19/19 07:14	**88.7**	%		0.01		SOR
1906131-26	O	% Solids, Total Volatile	06/20/19 0:08	SM 25400	6/20/19 16:06	**88.8**	%		0.01		MSM
1906159-26	D	% Solids, Total Volatile	06/25/19 1:32	SM25400	6/25/19 15:19	**89.4**	%		0.DI		JAH
1906174-26	O	% Solids, Total Volatile	06127/19 0:40	SM 2S400	6127/19 16:01	**89.2**	%		0.01		SOR
Thickener Underflow #4 {20001-1300)											
1906019-28	O	% Solids, Total Volatile	06/04/19 0:33	SM 25400	6/4/19 15:12	**92.1**	%		0.01		TLG
1906037-28	O	% Solids, Total Volatile	06/06/19 0:29	SM 25400	6/6/19 16:06	**85.7**	%		0.01		ANM
1906066-28	O	% Solids, Total Volatile	06/11/19 0:18	SM 2S400	6/11/19 15:39	**87.7**	%		0.01		ANM
1906086-28	O	% Solids, Total Volatile	06/13/19 3:14	SM25400	6/13/19 15:15	**89.2**	%		0.01		ANM
1906114-28	O	% Solids, Total Volatile	06/18/19 0:15	SM 25400	6/19/19 07:14	**87.9**	%		0.01		SOR
1906131-28	O	% Solids, Total Volatile	06/20/19 0:10	SM 25400	6/20/19 I6:06	**87.4**	%		0.01		MSM
1906159-28	O	% Solids, Total Volatile	06/25/19 1:34	SM 25400	6/25/19 15:19	**88.0**	%		0.01		JAH
1906174-28	O	% Solids, Total Volatile	06/27/19 0:46	SM 2540G	6/27/19 16:01	**89.1**	%		0.DI		SOR
Digester #1 to Centrifuge {20001-2101)											
1906009-20	C	% Solids, Total Volatile	06/02/19 2:40	SM 2S400	6/3/19 16:22	**74.1**	%		0.01		SOR
1906027-19	C	% Solids, Total Volatile	06/04/19 Il :40	SM 2S400	6/6/19 16:06	76.3	%		0.01		ANM
1906044-20	C	% Solids, Total Volatile	06/06/19 16:15	SM 25400	6n/19 15:46	76.0	%		0.01		ANM
1906059-20	C	% Solids, Total Volatile	06/09/19 15:50	SM25400	6/10/19 16:49	**77.1**	%		0.01		SOR
1906075-19	C	% Solids, Total Volatile	06/11/19 4:02	SM 2S400	6/12/19 15:08	**76.0**	%		0.DI		ANM
!906093-20	C	% Solids, Total Volatile	06/13/19 I 1:00	SM2540G	6/14/19 15:39	**78.1**	%		0.01		ANM
1906122-19	C	% Solids, Total Volatile	06/18/19 10:18	SM 25400	6/19/19 16:22	77.1	%		0.01		AV
1906137-20	C	% Solids, Total Volatile	06/20/19 16:15	SM 2S400	6/21/19 I5:48	78.3	%		0.01		SOR

Qualifier Definitions

D2	Sample required dilution due to high concentration of target analyte.
Q6	Sample was received above recommended temperature.

General Notes and Definitions

J	Equivalent to E4 Qualifier• Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
ND	Analyte NOT DETECTED at or above reporting limit (MDL). Equivalent to ES Qualifier - Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
C	Sample Type - Composite
CD	Sample Type • Composite Duplicate
D	Sample Type • Discrete
DD	Sample Type - Discrete Duplicate
NR	Not Reported
DET	Analyte DETECTED
DRY	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
Analysis Date	Analysis Date represents the final reading date.
Field Results	Field Results performed by "SMPLR" (Sampler), are not subject to approval of Laboratory Director.
Solids, Total Volatile	Used for process control samples only.
RE	Re-Analysis has been performed.
FD	Field Duplicate
FB	Field Blank
UC	Under Construction
EB	Equipment Blank

Case Narrative(s)

None

PIMA COUNTY WASTEWATER RECLAMATION

Puna County Regional Wastewater Reclamation Department

Campliaru:c and Regulatory Affairs Office Laboratory

CHAIN OF CUSTODY

ORDER & SAMPLEIS)

fq 06' II 8'-0 I

PROJECT & LOCATION: Regional Biosolids Facility Management - Dewatered Cake Biosolids

PROJECT-LOCATION NUMBER: 20002-5703

SAMPLE START DATE: 06/17/2019 (MMIDCVYY OR MMIDOIYYYY)

SAMPLE START TIME: 0830 (M--,Imo)

CLIENT: Deputy Director-Treatment

SAMPLE END DATE: 06/17/2019 (MM/00/YY OR MM.IIIDIYYYY)

SAMPLE END TIME: 2330 (I-,Ume)

SAMPLER(S): Walker, Berndt (Print Last Name(s) Only)

Permit Type: ☐ APP ☐ AZPDES ☐ 1WC ☐ Investigative ☐ Reuse ☐ Air ■ 503 ☐ Process Control ☐ Other

Matrix: ■ Biosolids ☐ Groundwater ☐ Industrial ☐ Soil ☐ Stormwater ☐ Surface Water ☐ Wastewater ☐ Air ☐ Other

INORGANIC CHEMISTRY

METALS	Tot	Diss	D	C
Aluminum	☐	☐	☐	☐
Antimony	☐	☐	☐	☐
Arsenic	☐	☐	☐	☐
Barium	☐	☐	☐	☐
Beryllium	☐	☐	☐	☐
Boron	☐	☐	☐	☐
Cadmium	☐	☐	☐	☐
Calcium	☐	☐	☐	☐
Chromium	☐	☐	☐	☐
Cobalt	☐	☐	☐	☐
Copper	☐	☐	☐	☐
Hardness	☐	☐	☐	☐
Iron	☐	☐	☐	☐
Lead	☐	☐	☐	☐
Magnesium	☐	☐	☐	☐
Manganese	☐	☐	☐	☐
Mercury	X		☐	■
Mercury LL	☐	☐	☐	☐
Molybdenum	☐	☐	☐	☐
Nickel	☐	☐	☐	☐
Potassium	☐	☐	☐	☐
[redacted]	☐	☐	☐	☐
	X		☐	■
Sodium	☐	☐	☐	☐
Thallium	☐	☐	☐	☐
Tin	☐	☐	☐	☐

METALS	Tot	Diss	D	C
Titanium	D	D	D	D
Vanadium	D	D	D	D
Zinc	D	D	D	D
PPMs •	0	0	0	0
TCLP Metals			o	O
503 Metals			☐	■
Dissolved Cr+6			D	D

WET METHODS	D	C
MIID+i,•N	O	■
Chloride	☐	☐
Cyanide, Total	☐	☐
Cyanide, Amenable	☐	☐
Fluoride	☐	☐
Ignitability	☐	☐
--•N	☐	■
Nitrite aN	☐	■
Nitrate/Nitrite as N	☐	☐
Nitrogen, Total Kjeldahl	☐	☐
Nitrogen, Total as N	☐	■
Orthophosphate as P	☐	LJ
Phosphorus, Total as P	☐	☐
Sulfate	☐	☐
Sulfide	☐	☐
Other	☐	☐
Other	☐	☐

ORGANIC CHEMISTRY

	D	C
Acrolein and Acrylonitrile	D	D
Dioxin GC/SIM/MS Scan	D	D
Organochlorine Pesticides & PCBs	D	D
Purgeable Organics (GCMS)	☐	0
Semivolatile Organics (GCMS)	0	0
Bis(2-ethylhexyl) phthalate	O	0
Digester Gas	D	D
Oil and Grease	D	D
Organic Carbon, Total	D	D
Organic Carbon, Dissolved	D	D
TCLP Herbicides (Contract Lab)	D	D
TCLP Pesticides	0	0
TCLP Semivolatile Organics	D	D
TCLP Volatile Organics	O	0
TTHM	0	0
Total Petroleum Hydrocarbons	D	D
Volatile Acids	D	D
Other	☐	D
Other	D	D

EFFLUENT TOXICITY TESTING

Chronic *P. promelas*	☐	☐
Chronic *C. dubia*	☐	☐
Chronic *Selenastrum capricornutum*	☐	☐
Other	☐	☐

MICROBIOLOGY - WET CHEM

	D	C
Alkalinity	D	D
BOD	0	0
COD	D	D
Coliform, Fecal	D	D
Coliform, Total	D	D
Specific Conductance	D	D
E coli	☐	☐
Oxygen, Dissolved	O	O
pH	D	☐
[redacted]		■
Solids, Total Dissolved	☐	☐
Solids, Total Suspended	D	D
Solids, Total Volatile	O	0
Solids, Volatile Suspended	☐	☐
Other	☐	D

OTHER

	D	C
Paint Filter	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐

COMPLIANCE FIELD MEASUREMENTS

	Result	Units
D Chlorine *Hach 10014*		µg/L
D Specific Conductance *SM2510B*	----	µmhos/cm
D Oxygen, Dissolved *SM 4500-0 G*		mg/L
D pH @ pH Temp *SM 4500-H B*	@	pH Units@ °C
D Temperature *SM 2550 B*		•c
D Total Depth of Well		feet
O Depth to Water		feet
☐ Other		

Comments/Instructions:
Pounid off the daily sample-1so6114-08

Septum Blank Prep Date & Initials:

Chain of Custody Record (Signatures Only)

See 1906114-08 for COC

Relinquished by Sampler:	Received by:	Date:	Time: (Military time)
Relinquished by:	Received by:	Date:	Time: (Military time)
Relinquished by:	Received by:	Date:	Time: (Military time)
Relinquished by:	Received by:	Date:	Time: (Military time)

Sample Integrity/Preservation:

#of Bo♦elivered

02 Ci_C.,.;J'—

Transported on Ice

D YES ♦ NO

Lab Receipt

Temperature: ____ °C

Initials: /;QJ

06 qualifier?

D)IYES O N O

LAB USE ONLY

Sample Inspection:	Yes	No	NA
Chain of Custody Record completed appropriately?	♦	☐	☐
Sample labels match Chain of Custody?	♦	☐	☐
Correct number of sample bottles were delivered?	♦	☐	☐
custody seals intact?	O	☐	IBJ
Within holding time?	IBJ	☐	☐
Sufficient sample volume for analysis?	♦	☐	☐
Samples are in properly preserved containers?	♦	☐	☐
Sample containers damaged/leaking/frozen?	D	?	☐
40 ml vials headspace, > pea-sized air bubble?	D	☐	IBJ
Received from a refrigerator?	o	IBJ	☐

• Sb, As, Be, Cd, Cr, Cu, Pb, Ni, Se, Ag, Tl, Zn, Mercury(Cold Vapor)
- As, Cd, Cr, Cu, Pb, Mercury, Mo, Ni, Se, Zn

A Pima County Regional Wastewater Reclamation Department

Compliance and Regulatory Affairs Office Laboratory

CHAIN OF CUSTODY

[I COPY

NUMBER OF BOTTLES: 3

PROJECT: Tres Rios WRF

PROJECT NUMBER: 20001

SAMPLES START DATE: 06/17/2019 MM/DD/YY or MM/DD/YYYY

CLIENT: Tres Rios Operations

SAMPLES END DATE: 06/17/2019 MM/DD/YY or MM/DD/YYYY

SAMPLER(S): Walker, Nt;,-f (First Name Lat Name(s) Only)

COMMENTS: ♦ /'f06' J/8-.0(poM♦J .,tp ()f-18-/'1 Caj i't,.IJ.

Work Order ID: 1cio6JlC-f

Sample ID	Location Description / Location Number	D	C	Composite Sample Start Time (Mfflto,y Orne)	Microbiology													Inorganic																		Organic						Field			Sample End Time (Military time)	Initials
					Alkalinity	BOD	COD	E. coli	pH	Solids, Total	Solids, Total Grams	Solids, Total Dissolved	Solids, Total Suspended	Solids, Total Volatile	Solids, Volatile Suspended	Soluble BOD	Soluble COD	Specific Conductance	Air Filter Be or Pb	Ammonia	Chloride	Cyanide, Total	Cyanide, Amenable	Fluoride	Hardness	Metals *	Nitrate	Nitrite	Nitrate/Nitrite	Nitrogen, Total Kjeldahl	Nitrogen, Total	Orthophosphate	Phosphorus, Total	Sulfate	Digester Gas	Oil and Grease	TTHM	VOA			Field Ammonia Probe Result (mg/L)	Field Nitrate Probe Result (mg/L)			
01	Centrifuge Feed Sludge 5300		■	0825						■																																		2320	JB
0%	Dewatered Cake Biosolids 5703		■	0830 t						■	■																																	2330	JB
	Thickened To Avragro 5701																																													
to	Centrate 5501		■	0835						■																																		.1.1<	Q/
	Thickened Cake Biosolids 5600																																													
	Unprocessed sludge to Avraaro 5702																																													
					C														C												C														

* Please indicate soecific metals reauest here:

Chain of Custody Record (Signatures Only)

Refrigerator @ 12

Relinquished by: Received by: Date: Time (Military time)

Relinquished by: Received by: Date: Time (Military time)

Relinquished by: Received by: Date: Time (Military time)

Lab Use Only

	Yes	No	NA
Chain of Custody Record completed appropriately?	W	O	O
Sample Labels match Chain of Custody?		O	O
Sample bottles were delivered?		O	O
	O	O	W
Within holding time?	Er'	O	O
Sufficient sample volume for analysis?	W	O	O
Samples are in properly preserved containers?	Ed"	O	O
Sample containers damaged/leaking/frozen?	O	Q-O	
40 ml vials headspace, > pea-size d air bubble?	O	□	W
Received from a refrigerator?	W-O		O

Temperature: :f. ♦ °C Initials: J/-/,-

COG-Multiple-Revision 2 Revised: 03/12/2015

PIMA COUNTY
wAmwATIRREcLAMAriON
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office (CRAO) Laboratory
2955 W. Calle Agua Nueva, Tucson Arizona 85745-9750, Phone (520) 724-6200

Report Date: 08/27/2019
Laboratory License: AZ0159

Sample Analysis Report

Regional Biosolids Facility Management

July 2019

Sample Integrity

SAMPLE RECEIPT: Samples were received intact at the required temperature, unless otherwise noted with a data qualifier below. Please refer to the Chain of Custody for sample receipt details.

HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the Pima County CRAO Laboratory Quality Manual.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS:

Notes and Definitions:

See attached

Case Narratives:

See attached

All results on this report intended for compliance submission must have the associated chain(s) of custody attached for the results to meet reporting requirements as per ADHS Laboratory licensure rules. If you have received this report for compliance purposes and it is not complete, please contact the Compliance and Regulatory Affairs Office for a final report in its entirety.

Reviewed By:

Jenelle Chagoya

Laboratory Director or Designee
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office Laboratory

0·28· /CJ
Date

Laboratory License: AZO159

Sample Qualifiers

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Sample Qualifiers
Thickener Underflow #2	1907012-24	Water	7/2/2019 0:40:00	7/2/2019 7:59:00	Q6
Thickener Underflow #3	1907012-26	Water	7/2/2019 0:45:00	7/2/2019 7:59:00	Q6
Thickener Underflow #4	1907012-28	Water	7/2/2019 0:50:00	7/2/2019 7:59:00	Q6
GBT #1 Thickened Sludge #58	1907012-32	Water	7/li2019 10:34:00	7/2/2019 7:59:00	Q6
GBT #3 Thickened Sludge #58	1907012-38	Water	7/1/2019 10:36:00	7/2/2019 7:59:00	Q6
Digester # 1 to Centrifuge	1907021-19	Water	7/2/2019 14:30:00	7/3/2019 7:47:00	Q6
Digester #2 to Centrifuge	1907021-20	Water	7/2/2019 16:25:00	7/3/2019 7:47:00	Q6
Digester #3 to Centrifuge	1907021-21	Water	7/2/2019 8:40:00	7/3/2019 7:47:00	Q6
Digester #4 to Centrifuge	1907021-22	Water	7/2/2019 2:30:00	7/3/2019 7:47:00	Q6
Digester #5 to Centrifuge	1907021-23	Water	7/2/2019 3:30:00	7/3/2019 7:47:00	Q6
Digester #6 to Centrifuge	1907021-24	Water	7/2/2019 ll :42:00	7/3/2019 7:47:00	Q6
Thickener Underflow #2	1907057-24	Water	7/9/2019 0:15:00	7/9/2019 7:16:00	Q6
Digester #1 to Centrifuge	1907066-19	Water	7/9/2019 1:07:00	7/10/2019 8:15:00	Q6
Digester #2 to Centrifuge	1907066-20	Water	7/9/2019 9:45:00	7/10/2019 8:15:00	Q6
Digester #3 to Centrifuge	1907066-21	Water	7/9/2019 14:30:00	7/10/2019 8:15:00	Q6
Digester #4 to Centrifuge	1907066-22	Water	7/9/2019 3:34:00	7/10/2019 8:15:00	Q6
Digester #5 to Centrifuge	1907066-23	Water	7/9/2019 7:05:00	7/10/2019 8:15:00	Q6
Digester #6 to Centrifuge	1907066-24	Water	7/9/2019 16:00:00	7/10/2019 8:15:00	Q6
Thickener Underflow #2	1907075-24	Water	7/11/2019 2:10:00	7/11/2019 7:48:00	Q6
Thickener Underflow #3	1907075-26	Water	7/11/2019 2:11:00	7/11/2019 7:48:00	Q6
Thickener Underflow #4	1907075-28	Water	7/11/2019 2:12:00	7/11/2019 7:48:00	Q6
Digester #3 to Centrifuge	1907081-22	Water	7/11/2019 2:45:00	7/12/2019 7:45:00	Q6
Digester #4 to Centrifuge	1907081-23	Water	7/11/2019 10:20:00	7/12/2019 7:45:00	Q6
Digester #5 to Centrifuge	1907081-24	Water	7/11/2019 13:20:00	7/12/2019 7:45:00	Q6
Digester #6 to Centrifuge	1907081-25	Water	7/11/2019 4:20:00	7/12/2019 7:45:00	Q6
Thickener Underflow #3	1907057-26	Water	7/9/2019 0:20:00	7/9/2019 7:16:00	Q6
Thickener Underflow #4	1907057-28	Water	7/9/2019 0:25:00	7/9/2019 7:16:00	Q6
GBT #1 Thickened Sludge #58	1907057-32	Water	7/8/2019 8:44:00	7/9/2019 7:16:00	Q6
GBT #1 Thickened Sludge #58	1907075-32	Water.	7/10/2019 12:45:00	7/11/2019 7:48:00	Q6
GBT #3 Thickened Sludge #58	1907075-38	Water	7/10/2019 12:40:00	7/11/2019 7:48:00	Q6
Digester #1 to Centrifuge	1907081-20	Water	7/11/2019 7:20:00	7/12/2019 7:45:00	Q6
Digester #2 to Centrifuge	1907081-21	Water	7/11/2019 16:05:00	7/12/2019 7:45:00	Q6
Digester #1 to Centrifuge	1907098-20	Water	7/14/2019 8:05:00	7/15/2019 8:00:00	Q6
Digester #2 to Centrifuge	1907098-21	Water	7/14/2019 15:30:00	7/15/2019 8:00:00	Q6
Digester #3 to Centrifuge	1907098-22	Water	7/14/2019 2:29:00	7/15/2019 8:00:00	Q6
Digester #4 to Centrifuge	1907098-23	Water	7/14/2019 11:30:00	7/15/2019 8:00:00	Q6
Digester #5 to Centrifuge	1907098-24	Water	7/14/2019 14:05:00	7/15/2019 8:00:00	Q6
Digester #6 to Centrifuge	1907098-25	Water	7/14/2019 4:06:00	7/15/2019 8:00:00	Q6
Thickener Underflow #2	1907106-24	Water	7/16/2019 0:38:00	7/16/2019 7:49:00	Q6
Thickener Underflow #3	1907106-26	Water	7/16/2019 0:53:00	7/16/2019 7:49:00	Q6
Dewatered Cake Biosolids	1907110-01	Biosolids	7/15/2019 23:25:00	7/16/2019 9:15:00	Q6
Thickener Underflow #2	1907124-24	Water	7/18/2019 1:20:00	7/18/2019 7:07:00	Q6
Thickener Underflow #3	1907124-26	Water	7/18/2019 1:25:00	7/18/2019 7:07:00	Q6
Thickener Underflow #4	1907124-28	Water	7/18/2019 1:30:00	7/18/2019 7:07:00	Q6
Digester #1 to Centrifuge	1907131-20	Water	7/18/2019 2:30:00	7/19/2019 7:48:00	Q6
Digester #2 to Centrifuge	1907131-21	Water	7/18/2019 10:30:00	7/19/2019 7:48:00	Q6
Digester #1 to Centrifuge	1907145-20	Water	7/21/2019 1:00:00	7/22/2019 0:00:00	Q6
Digester #2 to Centrifuge	1907145_-21	Water	7/21/2019 II:55:00	7/22/2019 0:00:00	Q6
Digester #3 to Centrifuge	1907145-22	Water	7/21/2019 14:40:00	7/22/2019 0:00:00	Q6
Digester #4 to Centrifuge	1907145-23	Water	7/21/2019 4:00:00	7/22/2019 0:00:00	Q6
Digester #5 to Centrifuge	1907145-24	Water	7/21/2019 8:50:00	7/22/2019 0:00:00	Q6
Digester #6 to Centrifuge	1907145-25	Water	7/21/2019 16:10:00	7/22/2019 0:00:00	Q6
Thickener Underflow #4	1907106-28	Water	7/16/2019 0:40:00	7/16/2019 7:49:00	Q6
GBT #1 Thickened Sludge #58	1907106-32	Water	7/15/2019 9:14:00	7/16/2019 7:49:00	Q6
GBT #3 Thickened Sludge #58	1907106-38	Water	7/15/2019 9:16:00	7/16/2019 7:49:00	Q6
Digester #3 to Centrifuge	1907131-22	Water	7/18/2019 13:30:00	7/19/2019 7:48:00	Q6
Digester #4 to Centrifuge	1907131-23	Water	7/18/2019 4:00:00	7/19/2019 7:48:00	Q6
Digester #5 to Centrifuge	1907131-24	Water	7/18/2019 16:10:00	7/19/2019 7:48:00	Q6

Digester #6 to Centrifuge	1907131-25	Water	7/18/2019	8:15:00	7/19/2019	7:48:00	Q6
Thickener Underflow #2	1907152-24	Water	7/23/2019	1:00:00	7/23/2019	7:50:00	Q6
Thickener Underflow #3	1907152-26	Water	7/23/2019	1:05:00	7/23/2019	7:50:00	Q6
Thickener Underflow #4	1907152-28	Water	7/23/2019	1:10:00	7/23/2019	7:50:00	Q6
Digester #1 to Centrifuge	1907161-19	Water	7/23/2019	8:45:00	7/24/2019	7:42:00	Q6
Digester #2 to Centrifuge	1907161-20	Water	7/23/2019	16:15:00	7/24/2019	7:42:00	Q6
Digester #3 to Centrifuge	1907161-21	Water	7/23/2019	2:30:00	7/24/2019	7:42:00	Q6
Digester #4 to Centrifuge	1907161-22	Water	7/23/2019	11:35:00	7/24/2019	7:42:00	Q6
Digester #5 to Centrifuge	1907161-23	Water	7/23/2019	14:50:00	7/24/2019	7:42:00	Q6
Digester #6 to Centrifuge	1907161-24	Water	7/23/2019	4:00:00	7/24/2019	7:42:00	Q6
Thickener Underflow #2	1907168-24	Water	7/25/2019	1:10:00	7/25/2019	8:02:00	Q6
Thickener Underflow #3	1907168-26	Water	7/25/2019	1:15:00	7/25/2019	8:02:00	Q6
Thickener Underflow #4	1907168-28	Water	7/25/2019	1:20:00	7/25/2019	8:02:00	Q6
GBT #1 Thickened Sludge #58	1907168-32	Water	7/24/2019	15:26:00	7/25/2019	8:02:00	Q6
GBT #2 Thickened Sludge #58	1907168-35	Water	7/24/2019	15:25:00	7/25/2019	8:02:00	Q6
Digester #1 to Centrifuge	1907177-20	Water	7/25/2019	14:00:00	7/26/2019	8:11:00	Q6
Digester #2 to Centrifuge	1907177-21	Water	7/25/2019	3:00:00	7/26/2019	8:11:00	Q6
Digester #3 to Centrifuge	1907177-22	Water	7/25/2019	8:00:00	7/26/2019	8:11:00	Q6
Digester #4 to Centrifuge	1907177-23	Water	7/25/2019	16:10:00	7/26/2019	8:11:00	Q6
Digester #5 to Centrifuge	1907177-24	Water	7/25/2019	2:15:00	7/26/2019	8:11:00	Q6
Digester #6 to Centrifuge	1907177-25	Water	7/25/2019	11:00:00	7/26/2019	8:11:00	Q6
Thickener Underflow #3	1907197-26	Water	7/30/2019	0:15:00	7/30/2019	7:35:00	Q6
Thickener Underflow #4	1907197-28	Water	7/30/2019	0:16:00	7/30/2019	7:35:00	Q6
Digester #1 to Centrifuge	1907191-20	Water	7/281/2019	14:20:00	7/29/2019	8:00:00	Q6
Digester #2 to Centrifuge	1907191-21	Water	7/28/2019	4:03:00	7/29/2019	8:00:00	Q6
Digester #3 to Centrifuge	1907191-22	Water	7/28/2019	8:45:00	7/29/2019	8:00:00	Q6
Digester #4 to Centrifuge	1907191-23	Water	7/28/2019	16:10:00	7/29/2019	8:00:00	Q6
Digester #5 to Centrifuge	1907191-24	Water	7/28/2019	1:30:00	7/29/2019	8:00:00	Q6
Digester #6 to Centrifuge	1907191-25	Water	7/28/2019	11:45:00	7/29/2019	8:00:00	Q6
Thickener Underflow #2	1907197-24	Water	7/30/2019	0:14:00	7/30/2019	7:35:00	Q6
GBT #1 Thickened Sludge #58	1907197-32	Water	7/29/2019	14:15:00	7/30/2019	7:35:00	Q6
GBT #2 Thickened Sludge #58	1907197-35	Water	7/29/2019	14:18:00	7/30/2019	7:35:00	Q6
Digester #1 to Centrifuge	1907205-19	Water	7/30/2019	2:32:00	7/31/2019	7:41:00	Q6
Digester #2 to Centrifuge	1907205-20	Water	7/30/2019	11:50:00	7/31/2019	7:41:00	Q6
Digester #3 to Centrifuge	1907205-21	Water	7/30/2019	14:45:00	7/31/2019	7:41:00	Q6
Digester #4 to Centrifuge	1907205-22	Water	7/30/2019	3:41:00	7/31/2019	7:41:00	Q6
Digester #5 to Centrifuge	1907205-23	Water	7/30/2019	8:25:00	7/31/2019	7:41:00	Q6
Digester #6 to Centrifuge	1907205-24	Water	7/30/2019	16:20:00	7/31/2019	7:41:00	Q6
GBT #1 Thickened Sludge #58	1908004-32	Water	7/31/2019	12:12:00	8/1/2019	7:39:00	Q6

Laboratory License# AZ0159

Lab ID:	Sample Type	Parameter	Sample Date/flme	Analysis Method	Analysis Date/fime	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
Dewatered Cake Biosolids {20002-5703)											
Cross Reference 1907106-08											
1907110-01	C	Ammonia	07115/19 23:25	EPA 350.1	7/22/19 12:16	10700	mg/kg dry	90.8	1,164.58	D2	KMT
1907110-01	C	Arsenic	07/15/19 23:25	EPA6010D	7/26/19 16:30	10.6	mg/kg dry		9.44		MLB
1907110-0I	C	Cadmium	07/15/19 23:25	EPA6010D	7/26/19 16:30	ND	mg/kg dry		3.78		MLB
1907110-01	C	Chromium	07/15/19 23:25	EPA6010D	7/26/19 16:30	33.0	mg/kgdry		9.44		MLB
1907110-01	C	Copper	07/15/19 23:25	EPA6010D	7/26/19 16:30	409	mg/kg dry		9.44		MLB
1907110-01	C	Lead	07/15/19 23:25	EPA6010D	7/30/19 13:56	ND	mg/kg dry		9.44		MLB
1907110-01	C	Mercury	07/15/19 23:25	EPA 747IB	8n/19 15:54	0.74	mg/kg dry		0.39		MJC
1907110-01	C	Molybdenum	07/15/19 23:25	EPA6010D	7/26/19 16:30	16.1	mg/kg dry		3.78		MLB
1907110-01	C	Nickel	07/15/19 23:25	EPA6010D	7/26/19 16:30	26.2	mg/kg dry		9.44		MLB
1907110-01	C	Nitrite	07/15/19 23:25	SM4500-NO2	7/16/19 15:06	4.47	mg/kg dry	0.18	1.55		KMT
1907110-01	C	Total Kjeldahl Nitrogen	07/15/19 23:25	EPA 351.2	7/26/19 11:15	65828	mg/kg dry	543.55	1,504.63		AJH
1907110-01	C	Nitrogen Total Biosolids	07/15/19 23:25	Calculated	7/26/19 11:15	65831	mg/kg dry	70.010	193.80		AJH
1907110-01	C	Selenium	07/15/19 23:25	EPA6010D	7/26/19 16:30	ND	mg/kg dry		18.88		MLB
1907110-01	C	Silver	07/15/19 23:25	EPA6010D	7/26/19 16:30	3.00	mg/kg dry		0.94		MLB
1907110-01	C	Zinc	07/15/19 23:25	EPA6010D	7/26/19 16:30	764	mg/kg dry		9.44		MLB
1907110-01	C	%Solids	07/15/19 23:25	SM 2540G	7/17/19 10:22	12.88	%		0.01		MSM
Dewatered Cake Biosolids {20001-5703)											
Cross Reference 1907110-01											
1907106-08	C	%Solids	07/15/19 23:25	SM25400	7/17/19 10:22	12.88	%		0.01		MSM
1907106-08	C	Solids Total Grams	07/15/19 23:25	NA	7/16/19 11:43	501.1	g				IYC
Thickener Underflow #2 {20001-0900)											
1907012-24	D	% Solids, Total Volatile	07/02/19 0:40	SM 25400	7/2/19 15:51	87.4	%		0.01		LAH
1907057-24	D	% Solids, Total Volatile	07/09/19 *0:15*	SM2S400	7/9/19 15:30	90.7	%		0.01		SDR
1907075-24	D	% Solids, Total Volatile	07/11/19 2:10	SM25400	7/11/19 16:04	88.8	%		0.01		AV
1907106-24	D	% Solids, Total Volatile	07/16/19 0:38	SM25400	7/16/19 15:35	87.6	%		0.QI		IYC
1907124-24	D	% Solids, Total Volatile	07/18/19 1:20	SM25400	7/18/19 16:12	89.4	%		0.01		TLG
1907152-24	D	% Solids, Total Volatile	07/23/19 1:00	SM25400	7/23/19 *15:53*	88.0	%		0.01		ANM
1907168-24	D	% Solids, Total Volatile	07/25/19 1:10	SM 25400	7/25/19 16:02	87.2	%		0.01		MSM
1907197-24	D	% Solids, Total Volatile	07/30/19 0:14	SM 25400	7/30/19 16:08	88.6	%		0.01		AV
Thickener Underflow #3 {20001-1100)											
1907012-26	D	% Solids, Total Volatile	07/02/19 0:45	SM2S400	7/2/19 15:51	89.S	%		0.01		LAH
1907057-26	D	% Solids, Total Volatile	07/09/19 0:20	SM2S400	7/9/19 15:30	90.8	%		0.QI		SDR
1907075-26	D	% Solids, Total Volatile	07/11/19 2:11	SM 25400	7/11/19 16:04	88.4	%		0.QI		AV
1907106-26	D	% Solids, Total Volatile	07/16/19 0:53	SM 25400	7/16/19 15:35	87.5	%		0.01		IYC
1907124-26	D	% Solids, Total Volatile	07/18/19 1:25	SM2S400	7/18/19 16:12	89.8	%		0.01		TLG
1907152-26	D	% Solids, Total Volatile	07/23/19 1:05	SM 2540G	7/23/19 15:53	87.8	%		0.01		ANM
1907168-26	D	% Solids, Total Volatile	07/25/19 1:15	SM25400	7/25/19 16:02	89.0	%		0.01		MSM
1907197-26	D	% Solids, Total Volatile	07/30/19 *0:15*	SM2540G	7/30/19 16:08	90.1	%		0.QI		AV
Thickener Underflow #4 {20001-1300)											
1907012-28	D	% Solids, Total Volatile	07/02/19 0:50	SM 25400	7/2/19 15:51	88.S	%		0.01		LAH
1907057-28	D	% Solids, Total Volatile	07/09/19 0:25	SM25400	7/9/19 15:30	89.4	%		0.01		SDR
1907075-28	D	% Solids, Total Volatile	07/11/19 2:12	SM25400	7/11/19 16:04	88.S	%		0.ot		AV
1907106-28	D	% Solids, Total Volatile	07/16/19 0:40	SM 25400	7/16/19 15:35	88.2	%		0.01		IYC
1907124-28	D	% Solids, Total Volatile	07/18/19 1:30	SM25400	7/18/19 16:12	89.6	%		0.01		TLG
1907152-28	D	% Solids, Total Volatile	07/23/19 1:10	SM 25400	7/23/19 15:53	88.0	%		0.01		ANM
1907168-28	D	% Solids, Total Volatile	07/25/19 1:20	SM2S400	7/25/19 16:02	86.0	%		0.01		MSM
1907197-28	D	% Solids, Total Volatile	07/30/19 0:16	SM25400	7/30/19 16:08	88.6	%		0.01		AV
Digester #1 to CentrifuKe (20001-2101)											
1907021-19	C	% Solids, Total Volatile	07/02/19 14:30	SM25400	7/3/19 16:07	76.0	%		0.ot		AV
1907034-20	C	% Solids, Total Volatile	07/04/19 5:45	SM 2540G	7/5/19 *15:57*	75.0	%		0.01		ANM
1907048-20	C	% Solids, Total Volatile	07/07/19 4:09	SM 25400	7/8/19 16:12	76.9	%		0.01		TLG
1907066-19	C	% Solids, Total Volatile	07/09/19 1:07	SM 25400	7/10/19 16:22	74.3	%		0.01		AV
1907081-20	C	% Solids, Total Volatile	07/11/19 7:20	SM2S400	7/12/19 15:50	75.7	%		0.01		IYC
1907098-20	C	% Solids, Total Volatile	07/14/19 8:05	SM 25400	7/15/19 16:16	76.7	%		0.01		TLG
1907131-20	C	% Solids, Total Volatile	07/18/19 2:30	SM 25400	7/19/19 15:53	73.6	%		0.01		MSM
1907145-20	C	% Solids, Total Volatile	07/21/19 1:00	SM 2540G	7/22/19 16:09	78.9	%		0.01		TLG

Qualifier Definitions

D2	Sample required dilution due to high concentration of target analyte.
Q6	Sample was received above recommended temperature.

General Notes and Definitions

J	Equivalent to E4 Qualifier - Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
ND	Analyte NOT DETECTED at or above reporting limit (MDL). Equivalent to ES Qualifier - Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
C	Sample Type • Composite
CD	Sample Type • Composite Duplicate
D	Sample Type • Discrete
DD	Sample Type - Discrete Duplicate
NR	Not Reported
DET	Analyte DETECTED
DRY	Sample results reported on a dry weight basis
RPO	Relative Percent Difference
Analysis Date	Analysis Date represents the final reading date.
Field Results	Field Results performed by "SMPLR" (Sampler), are not subject to approval of Laboratory Director.
Solids, Total Volatile	Used for process control samples only.
RE	Re-Analysis has been performed.
FD	Field Duplicate
FB	Field Blank
UC	Under Construction
EB	Equipment Blank

Case Narrative(s)

None

PIMA COUNTY WASTEWATER RECLAMATION

Pima County Regional Wastewater Reclamation Department

Compliance and Regulatory Affairs Office Laboratory

CHAIN OF CUSTODY

WORK ORDER & SAMPLE(S): /qo1 IJ0,o{

PROJECT & LOCATION: Regional Biosolids Facility Management - Dewatered Cake Biosolids

PROJECT-LOCATION NUMBER: 20002-5703

SAMPLE START DATE: 07/15/2019 (MM/00/YY OR MMIDMYYY)

SAMPLE START TIME: 0945 (Milwylmo)

CLIENT: Deputy Director-Treatment

SAMPLE END DATE: 07/15/2019 (MMIOOIYY OR MM/00/YYYY)

SAMPLE END TIME: 2325 (Milta,y tinw)

SAMPLER(S): Vasquez, Berndt (Print Lut Name(•) Only)

Permit Type: O APP; D Investigative; ■ 503; O AZPDES; D Reuse; D Process Control; O Air; ☐ Other

Matrix: ■ Biosolids; ☐ Soil; D Wastewater; D Groundwater; D Stormwater; O Air; D Industrial; D Surface Water; ☐ Other

INORGANIC CHEMISTRY

METALS	Tot	Diss	D	C
Aluminum	☐	☐	☐	☐
Antimony	☐	☐	☐	☐
Arsenic	☐	☐	☐	☐
Barium	☐	☐	☐	☐
Beryllium	D	☐	D	D
Boron	☐	☐	☐	☐
Cadmium	☐	☐	☐	☐
Calcium	☐	☐	☐	☐
Chromium	☐	☐	☐	☐
Cobalt	☐	☐	☐	☐
Copper	☐	☐	☐	☐
Hardness	☐	☐	☐	☐
Iron	☐	☐	☐	☐
Lead	☐	☐	☐	☐
Magnesium	☐	☐	☐	☐
Manganese	☐	☐	☐	☐
Mercury	×		☐	■
Mercury LL	☐	☐	☐	☐
Molybdenum	☐	☐	☐	☐
Nickel	☐	☐	☐	☐
Potassium	☐	☐	☐	☐
Selenium	☐	☐	☐	☐
Silver	×		☐	■
Sodium	☐	☐	☐	☐
Thallium	☐	☐	☐	☐
Tin	☐	☐	☐	☐

METALS	Tot	Diss	D	C
Titanium	☐	☐	☐	☐
Vanadium	☐	☐	☐	☐
Zinc	☐	☐	☐	☐
PPMs*	☐	☐	☐	☐
TCLP Metals			D	D
503 Metals**			☐	■
Dissolved Cr+6			☐	☐

WET METHODS	D	C
Ammonia as N	☐	■
Chloride	☐	☐
Cyanide, Total	☐	☐
Cyanide, Amenable	☐	☐
Fluoride	☐	☐
Ignitability	☐	☐
Nitrate as N	☐	■
Nitrite as N	☐	■
Nitrate/Nitrite as N	☐	☐
Nitrogen, Total Kjeldahl	☐	☐
Nitrogen, Total as N	☐	■
Orthophosphate as P	☐	☐
Phosphorus, Total as P	☐	☐
Sulfate	☐	☐
Sulfide	☐	☐
Other	☐	☐
Other	☐	☐

ORGANIC CHEMISTRY

	D	C
Acrolein and Acrylonitrile	D	D
Dioxin GC/SIM/MS Scan	O	O
Organochlorine Pesticides & PCBs	D	D
Purgeable Organics (GCMS)	D	D
Semivolatile Organics (GCMS)	D	D
Bis(2-ethylhexyl) phthalate	D	D
Digester Gas	D	D
Oil and Grease	D	D
Organic Carbon, Total	D	D
Organic Carbon, Dissolved	D	D
TCLP Herbicides (Contract Lab)	D	D
TCLP Pesticides	O	O
TCLP Semivolatile organics	D	D
TCLP Volatile Organics	D	D
TTHM	☐	☐
Total Petroleum Hydrocarbons	D	D
Volatile Acids	D	D
Other		D
Other	D	D

EFFLUENT TOXICITY TESTING

	D	C
Chronic *P. promelas*	☐	☐
Chronic *C. dubia*	☐	☐
Chronic *Selenastrum capricomutum*	☐	☐
Other	☐	☐

MICROBIOLOGY - WET CHEM

	D	C
Alkalinity	D	D
BOD	D	D
COD	D	D
Coliform, Fecal	O	O
Coliform, Total	☐	D
Specific Conductance	O	O
E.coli	O	O
Oxygen, Dissolved	O	O
pH	D	D
Solids, Total	O	■
Solids, Total Dissolved	☐	☐
Solids, Total Suspended	D	D
Solids, Total Volatile	O	O
Solids, Volatile Suspended		D
Other	☐	D

OTHER

	D	C
Paint Filter	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐

COMPLIANCE FIELD MEASUREMENTS

	Result	Units
D Chlorine *Hach 10014*		µg/L
D Specific Conductance *SM 2510 B*		µmhos/cm
D Oxygen, Dissolved *SM 4500-O G*		mg/L
O pH @ pH Temp *SM4500-HB*	@	pH Units@ °C
D Temperature *SM2550B*		°C
D Total Depth of Well		feet
☐ Depth to Water		feet
D Other		

Comments/Instructions: Poured off the daily sample 1907106-08

Septum Blank Prep Date & Initials:

Chain of Custody Record (Signature Only)

See 1907106-08 for COC

Relinquished by Sampler:	Received by:	Date:	Time: (Military time)
Relinquished by:	Received by:	Date:	Time: (Military time)
Relinquished by:	Received by:	Date:	Time: (Military time)
Relinquished by:	Received by:	Date:	Time: (Military time)

Sample Integrity/Preservation

of Bottles Delivered: 2 bot

Transported on Ice: O YES IBJ NO

Lab Receipt

Temperature: 17 °C

Initials: u,.v

Q6 qualifier? ,_RIYES O NO

LAB USE ONLY

Sample Inspection:	Yes	No	NA
Chain of Custody Record completed appropriately?	IBJ	☐	☐
Sample labels match Chain of Custody?	IBJ	☐	☐
Correct number of sample bottles were delivered?	IBJ	☐	☐
Custody seals intact?	O	☐	IBJ
Within holding time?	IBJ	☐	☐
Sufficient sample volume for analysis?	IBJ	☐	☐
Samples are in properly preserved containers?	IBJ	☐	☐
Sample containers damaged/leaking/frozen?	O	IBJ	☐
40 ml vials headspace, > pea-sized air bubble?	D	☐	IBJ
Received from a refrigerator?	O	IBJ	☐

* Sb, As, Be, Cd, Cr, Cu, Pb, Ni, Se, Ag, Tl, Zn, Mercury(Cold Vapor)
- As, Cd, Cr, Cu, Pb, Mercury, Mo, Ni, Se, Zn

COC-Single Sample Rev. 3

Revised: 03/12/2015

Pima County Regional Wastewater Reclamation Department
Compliance mid Rcgularory Affairs OJfia Laboratcry

COPY

CHAIN OF CUSTODY

NUMBER OF BOTTLES: __ 3__

PROJECT: Tres Rios WRF

PROJECT NUMBER: 2000 1

SAMPLES START DATE: 07/15/2019 MM/DD/YY or MM/DD/YYYY

CLIENT: Tres Rios Operations

SAMPLES END DATE: 07/15/2019 MM/DD/YY or MM/DD/YYYY

SAMPLER(S): Vasquez, tlE.i,Nt:, (First Last Name) Cny

COMMENTS: JtJ r-Jo711tl 01 bo...,e J tt as -J!tr;/11 A;l.av ♦ov tot♦

Work Order ID: 11c?1 II¼'

Location Description / Location Number	D	C	Composite Sample Start Time	Microbiology	Inorganic	Organic	Field	Sample End Time
Centrifuge Feed Sludge 5300			0930					
Dewatered Cake Biosolids 5703			0945					2"
Thickened To Avragro 5701								
Centrate 5501			0935					i.2 30
Thickened Cake Blosolids 5600								
Unprocessed sludge to Avranro s10i								

* Please indicate s=cific metals reouest here:

Relinquished by:	Received by:	Date:	Time: (Military Time)
Refrigerator @ 12 tJ7hsh9 .,2337			
Relinquished by: Refrigerator@ /2-	Received by:	Date:	Time: (Military Time)
Relinquished by:	Received by:	Date:	Time: (Military Time)
Relinquished by:	Received by:	Date:	Time: (Military Time)

LIl>UseOnly	Yn	No	NA
Chain of Custody Record completed appropriately?	e	□	□
Sample Labels match Chain of Custody?	s-	□	□
Correct number of sample bottles were delivered?	ia-	D	□
Custody seals intact?	□	□	
Within holding time?	e-	□	D
Sufficient sample volume for analysis?	.Q-	□	□
Samples are in properly preserved containers?	g--	o	□
Sample containers damaged/leaking/frozen?	□	a-	□
40 ml vials headspace, > pea-sized air bubble?	□	□	.a-
Received from a refrigerator?	a-	o	□

Temperature: LJ-♦ oC Initials:

coc-Multiple-Revision 2 Revised: 03/12/2015

PIMA COUNTY
wAmwmRREcLAMAnoN
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office (CRAO) Laboratory
2955 W. Calle Agua Nueva, Tucson Arizona 85745-9750, Phone (520) 724-6200

Report Date: 09/23/2019
Laboratory License: AZO159

Sample Analysis Report

Regional Biosolids Facility Management

August 2019

Sample Integrity

SAMPLE RECEIPT: Samples were received intact at the required temperature, unless otherwise noted with a data qualifier below. Please refer to the Chain of Custody for sample receipt details.

HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the Pima County CRAO Laboratory Quality Manual.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS:

Notes and Definitions:

See attached

Case Narratives:

See attached

All results on this report intended for compliance submission must have the associated chain(s) of custody attached for the results to meet reporting requirements as per ADHS Laboratory licensure rules. If you have received this report for compliance purposes and it is not complete, please contact the Compliance and Regulatory Affairs Office for a final report in its entirety.

Reviewed By: Jenelle Chaffee 9.30.19

Laboratory Director or Designee
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office Laboratory

Date

Laboratory License: AZO159

Sample Qual fiers

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Sample Qualifiers
Thickener Underflow #2	1908004-24	Water	8/1/2019 0:26:00	8/1/2019 7:39:00	Q6
Thickener Underflow #3	1908004-26	Water	8/1/2019 0:24:00	8/1/2019 7:39:00	Q6
Thickener Underflow #4	1908004-28	Water	8/1/2019 0:25:00	8/1/2019 7:39:00	Q6
Digester #1 to Centrifuge	1908013-20	Water	8/1/2019 7:15:00	8/2/2019 8:03:00	Q6
Digester #2 to Centrifuge	1908013-21	Water	8/1/2019 16:05:00	8/2/2019 8:03:00	Q6
Digester #3 to Centrifuge	1908013-22	Water	8/1/2019 2:00:00	8/2/2019 8:03:00	Q6
Digester #4 to Centrifuge	1908013-23	Water	8/1/2019 9:50:00	8/2/2019 8:03:00	Q6
Digester #5 to Centrifuge	1908013-24	Water	8/1/2019 13:30:00	8/2/2019 8:03:00	Q6
Digester #6 to Centrifuge	1908013-25	Water	8/1/2019 3:38:00	8/2/2019 8:03:00	Q6
Digester #1 to Centrifuge	1908030-20	Water	8/4/2019 8:46:00	8/5/2019 8:30:00	Q6
Digester #2 to Centrifuge	1908030-21	Water	8/4/2019 15:46:00	8/5/2019 8:30:00	Q6
Digester #3 to Centrifuge	1908030-22	Water	8/4/2019 2:30:00	8/5/2019 8:30:00	Q6
Digester #4 to Centrifuge	1908030-23	Water	8/4/2019 10:46:00	8/5/2019 8:30:00	Q6
Digester #5 to Centrifuge	1908030-24	Water	8/4/2019 13:57:00	8/5/2019 8:30:00	Q6
Digester #6 to Centrifuge	1908030-25	Water	8/4/2019 4:30:00	8/5/2019 8:30:00	Q6
Dewatered Cake Biosolids	1908034-08	Biosolids	8/5/2019 22:40:00	8/6/2019 7:45:00	Q6
Thickener Underflow #2	1908034-24	Water	8/6/2019 0:10:00	8/6/2019 7:45:00	Q6
Thickener Underflow #3	1908034-26	Water	8/6/2019 0:12:00	8/6/2019 7:45:00	Q6
Thickener Underflow #4	1908034-28	Water	8/6/2019' 0:14:00	8/6/2019 7:45:00	Q6
GBT #1 Thickened Sludge #58	1908034-32	Water	8/5/2019 11:13:00	8/6/2019 7:45:00	Q6
GBT #2 Thickened Sludge #58	1908034-35	Water	8/5/2019 11:15:00	8/6/2019 7:45:00	Q6
Thickener Underflow #4	1908054-28	Water	8/8/2019 3:05:00	8/8/2019 7:47:00	Q6
Dewatered Cake Biosolids	1908039-01	Biosolids	8/5/2019 22:40:00	8/6/2019 9:32:00	Q6
Thickener Underflow #2	1908054-24	Water	8/8/2019 3:00:00	8/8/2019 7:47:00	Q6
Thickener Underflow #3	1908054-26	Water	8/8/2019 3:03:00	8/8/2019 7:47:00	Q6
GBT #1 Thickened Sludge #58	1908054-32	Water	8/7/2019 11:34:00	8/8/2019 7:47:00	Q6
GBT #2 Thickened Sludge #58	1908054-35	Water	8/7/2019 11:40:00	8/8/2019 7:47:00	Q6
Digester #1 to Centrifuge	1908064-20	Water	8/8/2019 1:00:00	8/9/2019 7:40:00	Q6
Digester #2 to Centrifuge	1908064-21	Water	8/8/2019 10:20:00	8/9/2019 7:40:00	Q6
Digester #3 to Centrifuge	1908064-22	Water	8/8/2019 14:00:00	8/9/2019 7:40:00	Q6
Digester #4 to Centrifuge	1908064-23	Water	8/8/2019 4:00:00	8/9/2019 7:40:00	Q6
Digester #5 to Centrifuge	1908064-24	Water	8/8/2019 8:40:00	8/9/2019 7:40:00	Q6
Digester #6 to Centrifuge	1908064-25	Water	8/8/2019 16:00:00	8/9/2019 7:40:00	Q6
Digester #1 to Centrifuge	1908078-20	Water	8/11/2019 2:30:00	8/12/2019 8:30:00	Q6
Digester #2 to Centrifuge	1908078-21	Water	8/11/2019 10:33:00	8/12/2019 8:30:00	Q6
Digester #3 to Centrifuge	1908078-22	Water	8/11/2019 13:32:00	8/12/2019 8:30:00	Q6
Digester #4 to Centrifuge	1908078-23	Water	8/11/2019 4:30:00	8/12/2019 8:30:00	Q6
Digester #5 to Centrifuge	1908078-24	Water	8/11/2019 7:30:00	8/12/2019 8:30:00	Q6
Digester #6 to Centrifuge	1908078-25	Water	8/11/2019 16:29:00	8/12/2019 8:30:00	Q6
GBT #1 Thickened Sludge #58	1908086-32	Water	8/12/2019 15:12:00	8/13/2019 8:03:00	Q6
GBT #2 Thickened Sludge #58	1908086-35	Water	8/12/2019 15:15:00	8/13/2019 8:03:00	Q6
Digester #1 to Centrifuge	1908095-19	Water	8/13/2019 7:51:00	8/14/2019 7:56:00	Q6
Digester #2 to Centrifuge	1908095-20	Water	8/13/2019 16:36:00	8/14/2019 7:56:00	Q6
Digester #3 to Centrifuge	1908095-21	Water	8/13/2019 1:33:00	8/14/2019 7:56:00	Q6
Digester #4 to Centrifuge	1908095-22	Water	8/13/2019 10:30:00	8/14/2019 7:56:00	Q6
Thickener Underflow #2	1908086-24	Water	8/13/2019 0:18:00	8/13/2019 8:03:00	Q6
Thickener Underflow #3	1908086-26	Water	8/13/2019 0:21:00	8/13/2019 8:03:00	Q6
Thickener Underflow #4	1908086-28	Water	8/13/2019 0:24:00	8/13/2019 8:03:00	Q6
Digester #5 to Centrifuge	1908095-23	Water	8/13/2019 13:47:00	8/14/2019 7:56:00	Q6
Digester #6 to Centrifuge	1908095-24	Water	8/13/2019 4:08:00	8/14/2019 7:56:00	Q6
Thickener Underflow #2	1908106-24	Water	8/15/2019 0:17:00	8/15/2019 7:35:00	Q6
Thickener Underflow #3	1908106-26	Water	8/15/2019 0:20:00	8/15/2019 7:35:00	Q6
Thickener Underflow #4	1908106-28	Water	8/15/2019 0:23:00	8/15/2019 7:35:00	Q6
Digester #1 to Centrifuge	1908113-20	Water	8/15/2019 14:00:00	8/16/2019 7:10:00	Q6
Digester #2 to Centrifuge	1908113-21	Water	8/15/2019 4:07:00	8/16/2019 7:10:00	Q6
Digester #3 to Centrifuge	1908113-22	Water	8/15/2019 8:30:00	8/16/2019 7:10:00	Q6
Digester #4 to Centrifuge	1908113-23	Water	8/15/2019 16:30:00	8/16/2019 7:10:00	Q6
Digester #5 to Centrifuge	1908113-24	Water	8/15/2019 1:52:00	8/16/2019 7:10:00	Q6

Digester #6 to Centrifuge	1908113-25	Water	8/15/2019	11 :00:00	8/16/2019	7:10:00	Q6
Thickener Underflow #2	1908133-24	Water	8/20/2019	0: 19:00	8/20/2019	7:32:00	Q6
Thickener Underflow #3	1908133-26	Water	8/20/2019	0:23:00	8/20/2019	7:32:00	Q6
Thickener Underflow #4	1908133-28	Water	8/20/2019	0:26:00	8/20/2019	7:32:00	Q6
GBT #1 Thickened Sludge #58	1908133-32	Water	8/19/2019	10:53:00	8/20/2019	7:32:00	Q6
GBT #2 Thickened Sludge #58	1908133-35	Water	8/19/2019	10:56:00	8/20/2019	7:32:00	Q6
GBT #1 Thickened Sludge #58	1908148-32	Water	8/21/2019	14:50:00	8/22/2019	8:00:00	Q6
GBT #2 Thickened Sludge #58	1908148-35	Water	8/21/2019	14:55:00	8/22/2019	8:00:00	Q6
Thickener Underflow #2	1908148-24	Water	8/2_2/2019	0:35:00	8/22/2019	8:00:00	Q6
Thickener Underflow #3	1908148-26	Water	8/22/2019	0:37:00	8/22/2019	8:00:00	Q6
Thickener Underflow #4	1908148-28	Water	8/22/2019	0:38:00	8/22/2019	8:00:00	Q6
Digester #1 to Centrifuge	1908169-20	Water	8/25/2019	7:30:00	8/26/2019	8:30:00	Q6
Digester #2 to Centrifuge	1908169-21	Water	8/25/2019.	16:10:00	8/26/2019	8:30:00	Q6
Digester #3 to Centrifuge	1908169-22	Water	8/25/2019	2:17:00	8/26/2019	8:30:00	Q6
Digester #4 to Centrifuge	1908169-23	Water	8/25/2019	11:30:00	8/26/2019	8:30:00	Q6
Digester #5 to Centrifuge	1908169-24	Water	8/25/2019	14:40:00	8/26/2019	8:30:00	Q6
Digester #6 to Centrifuge	1908169-25	Water	8/25/2019	4:13:00	8/26/2019	8:30:00	Q6
Digester #3 to Centrifuge	1908182-21	Water	8/27/2019	7:50:00	8/28/2019	7:12:00	Q6
Digester #4 to Centrifuge	1908182-22	Water	8/27/2019	16:10:00	8/28/2019	7:12:00	Q6
Digester #5 to Centrifuge	1908182-23	Water	8/27/2019	2:30:00	8/28/2019	7:12:00	Q6
Digester #6 to Centrifuge	1908182-24	Water	8/27/2019	10:15:00	8/28/2019	7:12:00	Q6
Thickener Underflow #4	1908187-28	Water	8/29/2019	1:15:00	8/29/2019	7:28:00	Q6
GBT #3 Thickened Sludge #58	1908187-38	Water	8/29/2019	2:44:00	8/29/2019	7:28:00	Q6
Digester #1 to Centrifuge	1908195-20	Water	8/29/2019	2:30:00	8/30/2019	7:24:00	Q6
Digester #2 to Centrifuge	1908195-21	Water	8/29/2019	10:45:00	8/30/2019	7:24:00	Q6
Digester #3 to Centrifuge	1908195-22	Water	8/29/2019	14:20:00	8/30/2019	7:24:00	Q6
Digester #4 to Centrifuge	1908195-23	Water	8/29/2019	4:00:00	8/30/2019	7:24:00	Q6
Digester #5 to Centrifuge	1908195-24	Water	8/29/2019	8:15:00	8/30/2019	7:24:00	Q6
Digester #6 to Centrifuge	1908195-25	Water	8/29/2019	16:15:00	8/30/2019	7:24:00	Q6
Thickener Underflow #2	1908176-24	Water	8/27/2019	1:10:00	8/27/2019	7:40:00	Q6
Thickener Underflow #3	1908176-26	Water	8/27/2019	1:15:00	8/27/2019	7:40:00	Q6
Thickener Underflow #4	1908176-28	Water	8/27/2019	1:20:00	8/27/2019	7:40:00	Q6
GBT #1 Thickened Sludge #58	1908176-32	Water	8/26/2019	10:05:00	8/27/2019	7:40:00	Q6
GBT #3 Thickened Sludge #58	1908176-38	Water	8/26/2019	10:06:00	8/27/2019	7:40:00	Q6
Digester #1 to Centrifuge	1908182-19	Water	8/27/2019	14:35:00	8/28/2019	7:12:00	Q6
Digester #2 to Centrifuge	1908182-20	Water	8/27/2019	4:00:00	8/28/2019	7:12:00	Q6
Thickener Underflow #2	1908187-24	Water	8/29/2019	1:05:00	8/29/2019.	7:28:00	Q6
Thickener Underflow #3	1908187-26	Water	8/29/2019	1:10:00	8/29/2019	7:28:00	Q6

Laboratory License # AZ0159

Lab ID:	Sample Type	Parameter	Sample Date/Time	Analysis Method	Analysis Date/Time	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
Dewatered Cake Biosolids {20002-5703}											
Cross Reference 1908034-08											
1908039-01	C	Ammonia	08/05/19 22:40	EPA 350.1	8ntl9 12:12	7480	mg/kg dry	79.5	339.87		JVR
1908039-01	C	Arsenic	08/05/19 22:40	EPA6010D	8/28/19 11 21	7.99	mg/kg dry		7.88		MLB
1908039-01	C	Cadmium	08/05/19 22:40	EPA6010D	8/28/19 11 21	ND	mg/kg dry		3.15		MLB
1908039-01	C	Chromium	08/05/19 22:40	EPA6010D	8/28/19 11 21	33.1	mg/kg dry		7.88		MLB
1908039-01	C	Copper	08/05/19 22:40	EPA6010D	8/28/19 11 21	412	mg/kg dry		7.88		MLB
1908039-01	C	Lead	08/05/19 22:40	EPA6010D	8/28/19 II 21	13.0	mg/kg dry		7.88		MLB
1908039-01	C	Mercury	08/05/19 22:40	EPA 747IB	8n/19 16:00	0.68	mg/kg dry		0.32		MJC
1908039-01	C	Molybdenum	08/05/19 22:40	EPA 6010D	8/28/19 11 21	19.5	mg/kg dry		3.15		MLB
1908039-01	C	Nickel	08/05/19 22:40	EPA6010D	8/28/19 11 21	25.9	mg/kg dry		7.88		MLB
1908039-01	C	Nitrite	08/05/19 22:40	SM4500-NO2	8/6/19 15:22	2.02	mg/kg dry	0.64	5.44	J	MGA
1908039-01	C	Total Kjeldahl Nitrogen	08/05/19 22:40	EPA 351.2	8/8/19 10:48	70183	mg/kg dry	431.55	2,389.22	D2	AJH
1908039-01	C	Nitrogen Total Biosolids	08/05/19 22:40	Calculated	8/21/19 15:03	70187	mg/kg dry	63.489	351.50		AJH
1908039-01	C	Selenium	08/05/19 22:40	EPA6010D	8/28/19 11 21	ND	mg/kg dry		15.75		MLB
1908039-01	C	Silver	08/05/19 22:40	EPA6010D	8/28/19 12:36	2.43	mg/kg dry		0.79		MLB
1908039-01	C	Zinc	08/05/19 22:40	EPA6010D	8/28/19 11:21	767	mg/kg dry		7.88		MLB
1908039-01	C	%Solids	08/05/19 22:40	SM 25400	8/7/19 07:42	14.71	%		0.01		LAH
Dewatered Cake Biosolids {20001-5703}											
Cross Reference 1908039-01											
1908034-08	C	% Solids	08/05/19 22:40	SM25400	8ntl9 07:42	14.71	%		0.01		LAH
1908034-08	C	Solids Total Grams	08/05/19 22:40	NA	8/6/19 11 21	510.9	g				LAH
Thickener Underflow #2 {20001-0900}											
1908004-24	D	% Solids, Total Volatile	08/01/19 0:26	SM 25400	8/1/19 15:40	84.7	%		0.01		ANM
1908034-24	D	% Solids, Total Volatile	08/06/19 0:10	SM2540G	8/6/19 15:57	88.4	%		0.01		LAH
1908054-24	D	% Solids, Total Volatile	08/08/19 3:00	SM2540G	8/8/19 15:40	NR	%		0.01	NI	MSM
1908086-24	D	% Solids, Total Volatile	08/13/19 0:18	SM25400	8/13/19 16:06	87.9	%		0.01		LAH
1908106-24	D	% Solids, Total Volatile	08/15/19 0:17	SM25400	8/15/19 15:02	90.0	%		0.01		MSM
1908133-24	D	% Solids, Total Volatile	08/20/19 0:19	SM2540G	8/20/19 16: 13	87.6	%		0.01		AV
1908148-24	D	% Solids, Total Volatile	08/22/19 0:35	SM25400	8/22/19 15:59	90.1	%		0.01		MSM
1908176-24	D	% Solids, Total Volatile	08/27/19 1:10	SM 2540G	8/27/19 15:52	89.5	%		0.01		ANM
1908187-24	D	% Solids, Total Volatile	08/29/19 1:05	SM 25400	8/29/19 16:04	84.7	%		0.01		AV
Thickener Underflow #3 {20001-1100}											
1908004-26	D	% Solids, Total Volatile	08/01/19 0:24	SM 25400	8/1/19 15:40	84.7	%		0.01		ANM
1908034-26	D	% Solids, Total Volatile	08/06/19 0:12	SM 25400	8/6/19 15:57	87.4	%		0.01		LAH
1908054-26	D	% Solids, Total Volatile	08/08/19 3:03	SM 25400	8/8/19 15:40	NR	%		0.01	NI	MSM
1908086-26	D	% Solids, Total Volatile	08/13/19 0:21	SM 25400	8/13/19 16:06	89.2	%		0.01		LAH
1908106-26	D	% Solids, Total Volatile	08/15/19 0:20	SM 25400	8/15/19 15:02	89.1	%		0.01		MSM
1908133-26	D	% Solids, Total Volatile	08/20/19 0:23	SM25400	8/20/19 16:13	87.7	%		0.01		AV
1908148-26	D	% Solids, Total Volatile	08/22/19 0:37	SM 25400	8/22/19 15:59	89.5	%		0.01		MSM
1908176-26	D	% Solids, Total Volatile	08/27/19 1:15	SM 25400	8/27/19 15:52	89.4	%		0.01		ANM
!908187-26	D	% Solids, Total Volatile	08/29/19 1:10	SM 25400	8/29/19 16:04	83.8	%		0.01		AV
Thickener Underflow #4 {20001-1300}											
1908004-28	D	% Solids, Total Volatile	08/01/19 0:25	SM 25400	8/1/19 15:40	86.8	%		0.01		ANM
1908034-28	D	% Solids, Total Volatile	08/06/19 0:14	SM 25400	8/6/19 15:57	87.2	%		0.01		LAH
1908054-28	D	% Solids, Total Volatile	08/08/19 3:05	SM 25400	8/8/19 15:40	NR	%		0.01	NI	MSM
1908086-28	D	% Solids, Total Volatile	08/13/19 0:24	SM 25400	8/13/19 16:06	89.0	%		0.01		LAH
1908106-28	D	% Solids, Total Volatile	08/15/19 0:23	SM 2540G	8/15/19 15:02	90.5	%		0.01		MSM
1908133-28	D	% Solids, Total Volatile	08/20/19 0:26	SM 25400	8/20/19 16:13	86.3	%		0.01		AV
1908148-28	D	% Solids, Total Volatile	08/22/19 0:38	SM 25400	8/22/19 15 :59	88.6	%		0.01		MSM
1908176-28	D	% Solids, Total Volatile	08/27/19 1:20	SM 2540G	8/27/19 15:52	88.8	%		0.01		ANM
1908187-28	D	% Solids, Total Volatile	08/29/19 1:15	SM 25400	8/29/19 16:04	86.0	%		0.01		AV
Digester #1 to Centrifuge {20001-2101}											
1908013-20	C	% Solids, Total Volatile	08/01/19 7:15	SM 25400	8/2/19 15:46	76.8	%		0.01		SOR
1908030-20	C	% Solids, Total Volatile	08/04/19 8:46	SM 25400	8/5/19 16:33	75.7	%		0.01		TLG
1908045-19	C	% Solids, Total Volatile	08/06/19 13:57	SM 25400	8ntl9 15:52	72.7	%		0.01		LAH
1908064-20	C	% Solids, Total Volatile	08/08/19 1:00	SM 25400	8/9/19 16:07	74.4	%		0.01		MSM
1908078-20	C	% Solids, Total Volatile	08/11/19 2:30	SM 25400	8/12/19 15:51	75.0	%		0.01		TLG

Qualifier Definitions

D2	Sample required dilution due to high concentration of target analyte.
J	Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
NI	See case narrative.
Q6	Sample was received above recommended temperature.

General Notes and Definitions

J	Equivalent to E4 Qualifier - Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
ND	Analyte NOT DETECTED at or above reporting limit {MDL). Equivalent to ES Qualifier - Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
C	Sample Type - Composite
CD	Sample Type - Composite Duplicate
D	Sample Type - Discrete
DD	Sample Type - Discrete Duplicate
NR	Not Reported
DET	Analyte DETECTED
DRY	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
Analysis Date	Analysis Date represents the final reading date.
Field Results	Field Results performed by "SMPLR" (Sampler), are not subject to approval of Laboratory Director.
Solids, Total Volatile	Used for process control samples only.
RE	Re-Analysis has been performed.
FD	Field Duplicate
FB	Field Blank
UC	Under Construction
EB	Equipment Blank

Case Narrative(s)

1908054-24,-26,-28

Solids, Total(%) & Solids, Total Volatile(%) SM 24500: Samples (1908054-24 through 1908054-29) were switched due to Analyst mistake. Results not reported. ESW 8/28/2019

PIMA COUNTY WASTEWATER RECLAMATION

Puna County Regional Wastewater Reclamation Department

Compliance and Regulatory Affairs Office Laboratory

CHAIN OF CUSTODY

WJRK ORDER & SAMPLE(S) q KI-v.) 8 /(i, I I f
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PRo JECT & Lo CATIo N: Regional Biosolids Facility Management - Dewatered Cake Biosolids

PRo JECT-Lo CATIo N NUMBER: 20002-5703

SAMPLE START DATE: 08/05/2019 (MMIDOYY Olt MM/IIIYYYY)

SAMPLE START TIME: 1015

CLIENT: Deputy Director-Treatment

SAMPLE END DATE: 08/05/2019 (MMIDOYY OR MM/DIYYYY)

SAMPLE END TIME: 2240 (Milltaty Imo)

SAMPLER(S): Vasquez, Berndt (Print Lnt Name(1) Only)

Pe rmit Type: ☐ APP ☐ AZPDES ☐ IWC ☐ Investigative ☐ Reuse ☐ Air ■ 503 ☐ Process Control ☐ Other

Matrix: ■ Biosolids ☐ Groundwa ter ☐ Industrial ☐ Soil ☐ Stormwater ☐ Surface Water ☐ Wastewater ☐ Air ☐ Other

INORGANIC CHEMISTRY

METALS	Tot	Diss	D	C
Aluminum	☐	☐	☐	☐
Antimony	☐	☐	☐	☐
Arsenic	☐	☐	☐	☐
Barium	☐	☐	☐	☐
Beryllium	☐	☐	☐	☐
Boron	☐	☐	☐	☐
Cadmium	☐	☐	☐	☐
Calcium	☐	☐	☐	☐
Chromium	☐	☐	☐	☐
Cobalt	☐	☐	☐	☐
Copper	☐	☐	☐	☐
Hardness	☐	☐	☐	☐
Iron	☐	☐	☐	☐
Lead	☐	☐	☐	☐
Magnesium	☐	☐	☐	☐
Manganese	☐	☐	☐	☐
Mercury	X		☐	■
Mercury LL	☐	☐	☐	☐
Molybdenum	☐	☐	☐	☐
Nickel	☐	☐	☐	☐
Potassium	☐	☐	☐	☐
Selenium	☐	☐	☐	☐
Silver	.c		☐	■
Sodium	☐	☐	☐	☐
Thallium	☐	☐	☐	☐
Tin	☐	☐	☐	☐

METALS	Tot	Diss	D	C
Titanium	☐	☐	☐	☐
Vanadium	☐	☐	☐	☐
Zinc	☐	☐	☐	☐
PPMs*	☐	☐	☐	☐
TCLP Metals			☐	☐
503 Metals **			☐	■
Dissolved Cr+6			☐	☐

WET METHODS	D	C
Ammonia as N	☐	■
Chloride	☐	☐
Cyanide, Total	☐	☐
Cyanide, Amenabl e	☐	☐
Fluo ride	☐	☐
Ignitability	☐	☐
Nitrate as N	☐	■
Nitrite as N	☐	■
Nitrate/Nitrite as N	☐	☐
Nitrogen, Total Kjeldahl	☐	☐
Nitrogen, Total as N	☐	■
Orthophosphate as P	☐	☐
Ph osphorus, Total as P	☐	☐
Sulfa te	☐	☐
Sulfide	☐	☐
Other	☐	☐
Other	☐	☐

ORGANIC CHEMISTRY

	D	C
Acrolein and Acrylonitrile	D	D
Dioxin GC/SIM/MS Scan	O	☐
o rganochlorine Pe sticide s & PCBs	D	D
Purgeable o rganics (GCMS)	D	D
Se mivolatile o rganics (GCMS)	D	D
Bis(2-ethylhexyl) ph thalate	O	O
Digeste r Gas	D	D
o il and Grease	D	D
o rganic Carbon, Total	D	D
o rganic Carbon, Dissolved	D	D
TCLP He rbicides (Contract Lab)	☐	☐
TCLP Pes ticides	☐	☐
TCLP Semivolatile Organics	D	D
TCLP Vola tile o rganics	D	D
TTHM	☐	☐
Total Pe trole um Hydrocarbons	D	D
Vola tile Acids	D	D
Other	D	D
o the r	D	D

EFFLUENT TOXICITY TESTING	D	C
Ch ronic *P. promelas*	☐	☐
Ch ronic C *dubia*	☐	☐
Ch ronic *Selenastrum capricomutum*	☐	☐
o the r	☐	☐

MICROBIOLOGY - WET CHEM

	D	C
Alkalinity	D	D
Bo D	O	O
Co D	D	D
Coliform, Fecal	O	O
Coliform, Total	☐	D
Specific Conductance	O	O
E.coli	☐	☐
o xygen, Dissolved	O	O
pH	D	D
Solids, Total	0	■
Solids, Total Dissolved	☐	☐
Solids, Total Suspended	D	D
Solids, Total Vola tile	☐	☐
Solids, Vola tile Suspended	D	D
o the r _____	☐	D

OTHER	D	C
Paint Filter	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐

COMPLIANCE FIELD MEASUREMENTS

	Result	Units
D Ch lorine *Haeh 10014*		µg/L
D Specific Conductance *SM 2510 B*		µmhos/cm
D Oxygen, Dissolved *SM 4500-0 G*		mg/L
☐ pH @ pH Temp *SM4500-HB*	@	pH Units @° C
☐ Temperature SM25508		°C
☐ Total Depth of Well		feet
☐ Depth to water		fe et
D o the r		

Comments/Instructions:
Poured off the daily sample 1908034-08

Septum Blank Prep Date & Initials:

Chain of Custody Record (Signatures Only)

See 1908034-08 for COC

Relinquished by Sampler:	Received by:	Date:	Time (Military time)
Relinqu1Shed by:	Rae ivel by:	Date:	Time (Mi tary time)
Relinquished by: R-ce-	ived by: D-at-e:		Time (Military time)
Relinquished by:	Receiv d by:	Date:	Time (Mi tary time)

Sample Integrity/Preservation

#of (35 ZL w

Transported on Ice
0 YES ◆ NO

Lab Receipt

Temperature: ( ) a C

Initials: I"I &,,,W

ae qualifier?
Jal ES D NO

LAB USE ONLY

Sample Inspection:	Yes	No	NA
Chain of Custody Recora completed appropriately?	◆	☐	☐
Sample labels match Chain of Custody?	◆	☐	☐
Correct number of sample bottles wen; delivered?	◆	☐	☐
Custody seals intact?	D	☐	
Within holding lime?	◆	☐	☐
Sufficient sample volume for analysis?	◆	☐	☐
Samples are h properly preserved containers?	◆	☐	☐
Sample containers damaged/leaking/frozen?	D	☐	
40 ml vials headspace, > pea-sized air bubble?	D	☐	
Received from a refrigerator?	D		☐

• *Sb, As, Be, Cd, Cr, Cu, Pb, Ni, Se, Ag, Tl, Zn, Mercury(Cold Vapor)*
- *As, ca. Cr: Cu, Pb, ♦rcury, MO, Ni, Se, Zn*

A_ Pima County Regional Wastewater Reclamation Department

Compliance and Regulatory Affairs Office Laboratory

CHAIN OF CUSTODY

AdO) D

NUMBER OF BOTTLES: 3

PROJECT: Tres Rios WRF

PROJECT NUMBER: 20001

SAMPLES START DATE: 08/05/2019 MM/00/YY or MM/00/YYYY

CLIENT: Tres Rios Operations

SAMPLES END DATE: 08/05/2019 MM/DO/YY or MM/OO/YYYY

SAMPLER(S): Vasquez, f!,t5.1N1J-r (Print Last Name(s) Only)

COMMENTS: -1.tmiuM•♦ ...l ...t'.l tq ♦ /Q.t. M'ln, h.i 1'toio3q-oi

Work Order ID: /Qo·oo3Lf

Location Description Location Number	DC	Composite Sample Start Time	Microbiology	Inorganic	Organic	Field	Sample End nme
07 Centrifuge Feed Sludge 5300	■	1000					-1_235
08 Dewatered Cake Biosolids 5703	■	1016					.2.;l.c./0
Thickened To Avragro 5701							
lo Centrate 5501	■	1006					:i:1<1S
Thickened Cake Biosolids 5600	n						
Unprocessed sludge to Avraqro 5702	[7						

* Please indicate soecific metals reauest here:

Relinquished by:	Received by:	Date:	Time:
Qa_ Qr	Refrigerator @ 12 offlosh,		;i.;i.s'{
Refrigerator@/?....,	hfth61	OB ·OlO·(q	Cl'-/5

uhU.Ontv	V.	No	MA
Chain of Custody Record completed appropriately?	♦	☐	☐
Sample Labels match Chain of Custody?	ISJ	☐	☐
Correct number of sample bottles were delivered?	ts.	☐	☐
Custody seals intact?	☐	☐	a
Within holding time?	Cl	☐	☐
Sufficient sample volume for analysis?	IS]	☐	☐
Samples are in property preserved containers?	♦	☐	☐
Sample containers damaged/leaking/frozen?	☐	ISi	☐
40 ml vials headspace, > pea-sized air bubble?	☐	☐	♦
Received from a refrigerator?	IS]	☐	☐

Temperature: U °C Initials: ♦ 1\rY'v

COPY

COC-Mult1ple-Rev1s1on 2 Revised: 03/12/2015

PIMA COUNTY WASTEWATER RECLAMATION
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office (CRAO) Laboratory
2955 W. Calle Agua Nueva, Tucson Arizona 85745-9750, Phone (520) 724-6200

Report Date: 10/28/2019
Laboratory License: AZ0159

Sample Analysis Report
Regional Biosolids Facility Management
September 2019

Sample Integrity

SAMPLE RECEIPT: Samples were received intact at the required temperature, unless otherwise noted with a data qualifier below. Please refer to the Chain of Custody for sample receipt details.

HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the Pima County CRAO Laboratory Quality Manual.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS:

Notes and Definitions:

See attached

Case Narratives:

See attached

All results on this report intended for compliance submission must have the associated chain(s) of custody attached for the results to meet reporting requirements as per ADHS Laboratory licensure rules. If you have received this report for compliance purposes and it is not complete, please contact the Compliance and Regulatory Affairs Office for a final report in its entirety.

Reviewed By:

Jenelle Arnott

Laboratory Director or Designee
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office Laboratory

10-/:3tl.tr;
Date

Laboratory License: AZ0159

Sample Qualifiers

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Sample Qualifien
Thickener Underflow #2	1909013-24	Water	9/3/2019 0:10:00	9/3/2019 8:15:00	Q6
Thickener Underflow #3	1909013-26	Water	9/3/2019 0:13:00	9/3/2019 8:15:00	Q6
Thickener Underflow #4	1909013-28	Water	9/3/2019 0:15:00	9/3/2019 8:15:00	Q6
GBT #2 Thickened Sludge #58	1909013-35	Water	9/2/2019 11:25:00	9/3/2019 8:15:00	Q6
GBT #3 Thickened Sludge #58	1909013-38	Water	9/2/2019 11:25:00	9/3/2019 8:15:00	Q6
GBT #2 Thickened Sludge #58	1909020-27	Water	9/4/2019 7:25:00	9/4/2019 8:30:00	Q6
GBT #3 Thickened Sludge #58	1909020-30	Water	9/4/2019 7:40:00	9/4/2019 8:30:00	Q6
Thickener Underflow #2	1909030-24	Water	9/5/2019 0:23:00	9/5/2019 8:25:00	Q6
Thickener Underflow #3	1909030-26	Water	9/5/2019 0:21:00	9/5/2019 8:25:00	Q6
Thickener Underflow #4	1909030-28	Water	9/5/2019 0:22:00	9/5/2019 8:25:00	Q6
Digester #1 to Centrifuge	1909040-20	Water	9/5/2019 7:00:00	9/6/2019 7:23:00	Q6
Digester #2 to Centrifuge	1909040-21	Water	9/5/2019 15:45:00	9/6/2019 7:23:00	Q6
Digester #3 to Centrifuge	1909040-22	Water	9/5/2019 1:40:00	9/6/2019 7:23:00	Q6
Digester #4 to Centrifuge	1909040-23	Water	9/5/2019 10:00:00	9/6/2019 7:23:00	Q6
Digester #5 to Centrifuge	1909040-24	Water	9/5/2019 14:00:00	9/6/2019 7:23:00	Q6
Digester #6 to Centrifuge	1909040-25	Water	9/5/2019 4:22:00	9/6/2019 7:23:00	Q6
Digester #1 to Centrifuge	1909054-20	Water	9/8/2019 8:50:00	9/9/2019 7:34:00	Q6
Digester #2 to Centrifuge	1909054-21	Water	9/8/2019 16:10:00	9/9/2019 7:34:00	Q6
Digester #3 to Centrifuge	1909054-22	Water	9/8/2019 2:32:00	9/9/2019 7:34:00	Q6
Digester #4 to Centrifuge	1909054-23	Water	9/8/2019 11:40:00	9/9/2019 7:34:00	Q6
Digester #5 to Centrifuge	1909054-24	Water	9/8/2019 14:45:00	9/9/2019 7:34:00	Q6
Digester #6 to Centrifuge	1909054-25	Water	9/8/2019 4:16:00	9/9/2019 7:34:00	Q6
GBT #2 Thickened Sludge #58	1909063-35	Water	9/9/2019 15:26:00	9/10/2019 7:26:00	Q6
GBT #3 Thickened Sludge #58	1909063-38	Water	9/9/2019 15:30:00	9/10/2019 7:26:00	Q6
Thickener Underflow #2	1909063-24	Water	9/10/2019 0:40:00	9/10/2019 7:26:00	Q6
Thickener Underflow #3	1909063-26	Water	9/10/2019 0:50:00	9/10/2019 7:26:00	Q6
Thickener Underflow #4	1909063-28	Water	9/10/2019 0:45:00	9/10/2019 7:26:00	Q6
Digester #1 to Centrifuge	1909071-19	Water	9/10/2019 16:15:00	9/11/2019 8:12:00	Q6
Digester #2 to Centrifuge	1909071-20	Water	9/10/2019 7:30:00	9/11/2019 8:12:00	Q6
Digester #3 to Centrifuge	1909071-21	Water	9/10/2019 11:45:00	9/11/2019 8:12:00	Q6
Digester #4 to Centrifuge	1909071-22	Water	9/10/2019 1:40:00	9/11/2019 8:12:00	Q6
Digester #5 to Centrifuge	1909071-23	Water	9/10/2019 3:30:00	9/11/2019 8:12:00	Q6
Digester #6 to Centrifuge	1909071-24	Water	9/10/2019 14:45:00	9/11/2019 8:12:00	Q6
Thickener Underflow #2	1909084-24	Water	9/12/2019 1:20:00	9/12/2019 7:02:00	Q6
Thickener Underflow #3	1909084-26	Water	9/12/2019 1:25:00	9/12/2019, 7:02:00	Q6
Thickener Underflow #4	1909084-28	Water	9/12/2019 1:30:00	9/12/2019 7:02:00	Q6
GBT #2 Thickened Sludge #58	1909084-35	Water	9/11/2019 13:47:00	9/12/2019 7:02:00	Q6
GBT #3 Thickened Sludge #58	1909084-38	Water	9/11/2019 13:52:00	9/12/2019 7:02:00	Q6
Thickener Underflow #3	1909113-26	Water	9/17/2019 1:10:00	9/17/2019 7:32:00	Q6
Thickener Underflow #4	1909113-28	Water	9/17/2019 1:15:00	9/17/2019 7:32:00	Q6
Thickener Underflow #2	1909136-24	Water	9/19/2019 0:26:00	9/19/2019 7:23:00	Q6
Thickener Underflow #3	1909136-26	Water	9/19/2019 0:24:00	9/19/2019 7:23:00	Q6
Thickener Underflow #4	1909136-28	Water	9/19/2019 0:25:00	9/19/2019 7:23:00	Q6
Thickener Underflow #2	1909113-24	Water	9/17/2019 1:05:00	9/17/2019 7:32:00	Q6
Dewatered Cake Biosolids	1909117-01	Biosolids	9/16/2019 22:40:00	9/17/2019 8:54:00	Q6
Digester #1 to Centrifuge	1909162-20	Water	9/22/2019 3:50:00	9/23/2019 8:05:00	Q6
Digester #2 to Centrifuge	1909162-21	Water	9/22/2019 14:25:00	9/23/2019 8:05:00	Q6
Digester #3 to Centrifuge	1909162-22	Water	9/22/2019 16:30:00	9/23/2019 8:05:00	Q6
Digester #4 to Centrifuge	1909162-23	Water	9/22/2019 8:45:00	9/23/2019 8:05:00	Q6
Digester #5 to Centrifuge	1909162-24	Water	9/22/2019 11:40:00	9/23/2019 8:05:00	Q6
Digester #6 to Centrifuge	1909162-25	Water	9/22/2019 1:42:00	9/23/2019 8:05:00	Q6
Thickener Underflow #2	1909169-24	Water	9/24/2019 1:05:00	9/24/2019 8:15:00	Q6
Thickener Underflow #3	1909169-26	Water	9/24/2019 1:10:00	9/24/2019 8:15:00	Q6
Thickener Underflow #4	1909169-28	Water	9/24/2019 1:15:00	9/24/2019 8:15:00	Q6
Digester #1 to Centrifuge	1909176-19	Water	9/24/2019 11:33:00	9/25/2019 7:40:00	Q6
Digester #2 to Centrifuge	1909176-20	Water	9/24/2019 2:35:00	9/25/2019 7:40:00	Q6
Digester #3 to Centrifuge	1909176-21	Water	9/24/2019 4:05:00	9/25/2019 7:40:00	Q6
Digester #4 to Centrifuge	1909176-22	Water	9/24/2019 14:21:00	9/25/2019 7:40:00	Q6

Digester #5 to Centrifuge	1909176-23	Water	9/24/2019	16:40:00	9/25/2019	7:40:00	Q6
Digester #6 to Centrifuge	1909176-24	Water	9/24/2019	8:29:00	9/25/2019	7:40:00	Q6
GBT #1 Thickened Sludge #58	1909183-32	Water	9/25/2019	15:45:00	9/26/2019	8:25:00	Q6
GBT #3 Thickened Sludge #58	1909183-38	Water	9/25/2019	15:48:00	9/26/2019	8:25:00	Q6
Digester #I to Centrifuge	1909189-20	Water	9/26/2019	16:30:00	9/27/2019	7:25:00	Q6
Digester #2 to Centrifuge	1909189-21	Water	9/26/2019	7:30:00	9/27/2019	7:25:00	Q6
Digester #3 to Centrifuge	1909189-22	Water	9/26/2019	10:30:00	9/27/2019	7:25:00	Q6
Digester #4 to Centrifuge	1909189-23	Water	9/26/2019	2:30:00	9/27/2019	7:25:00	Q6
Digester #5 to Centrifuge	1909189-24	Water	9/26/2019	4:30:00	9/27/2019	7:25:00	Q6
Digester #6 to Centrifuge	1909189-25	Water	9/26/2019	13:30:00	9/27/2019	7:25:00	Q6
Thickener Underflow #2	1909183-24	Water	9/26/2019	1:00:00	9/26/2019	8:25:00	Q6
Thickener Underflow #3	1909183-26	Water	9/26/2019	1:05:00	9/26/2019	8:25:00	Q6
Thickener Underflow #4	1909183-28	Water	9/26/2019	1:10:00	9/26/2019	8:25:00	Q6

Laboratory License # AZ0159

Lab ID:	Sample Type	Parameter	Sample Date/fime	Analysis Method	Analysis Date/fime	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
Dewatered Cake Biosolids (20002-5703}											
Cross Reference 1909113-08											
1909117-01	C	Ammonia	09/16/19 22:40	EPA 350.1	9/18/19 12:19	**6510**	mg/kg dry	76.2	325.64		*N R*
1909117-01	C	Arsenic	09/16/19 22:40	EPA60100	9/27/19 13:25	**15.4**	mg/kg dry		8.15		MLB
1909117-01	C	Cadmium	09/16/19 22:40	EPA60100	9/27/19 13:25	**ND**	mg/kg dry		3.26		MLB
1909117-0)	C	Chromium	09/16/19 22:40	EPA60100	9/27/19 13:25	**35.1**	mg/kg dry		8.15		MLB
1909117-01	C	Copper	09/16/19 22:40	EPA60100	9/27/19 13:25	**410**	mg/kg dry		8.15		MLB
1909117-01	C	Lead	09/16/19 22:40	EPA60100	9/27/19 13:25	**14.2**	mg/kg dry		8.15		MLB
1909117-01	C	Mercury	09/16/19 22:40	EPA 7471B	10/10/19 15:37	**0.81**	mg/kg dry		0.33		MJC
1909117-01	C	Molybdenum	09/16/19 22:40	EPA60100	9/27/19 13:25	16.0	mg/kg dry		3.26		MLB
1909117-01	C	Nickel	09/16/19 22:40	EPA6010D	9/27/19 13:25	22.1	mg/kg dry		8.15		MLB
1909117-01	C	Nitrite	09/16/19 22:40	SM4500-N02	9/17/19 11:29	3.07	mg/kg dry	0.61	5.21	J	*N R*
1909117-01	C	Total Kjeldahl Nitrogen	09/16/19 22:40	EPA 351.2	9/19/19 16:38	**66032**	mg/kg dry	435.69	2,412.11	D2	AJH
1909117-01	C	Nitrogen Total Biosolids	09/16/19 22:40	Calculated	9/19/19 16:38	**66045**	mg/kg dry	66.898	370.38		AJH
1909117-01	C	Selenium	09/16/19 22:40	EPA60100	9/27/19 13:25	**ND**	mg/kg dry		16.29		MLB
)909117-01	C	Silver	09/16/19 22:40	EPA6010D	9/27/19 13:25.	**2.48**	mg/kg dry		0.81		MLB
1909117-01	C	Zinc	09/16/19 22:40	EPA60100	9/27/19 13:25	**782**	mg/kg dry		8.15		MLB
1909117-01	C	%Solids	09iJ 6/19 22:40	SM2540G	9/18/19 08:19	**15.35**	%		0.01		ILG
Dewatered Cake Biosolids (20001-5703}											
Cross Reference 1903117-01											
1909113-08	C	%Solids	09/16/19 22:35	SM2S40G	9/18/19 08:19	**15.35**	%		0.01		ILG
1909113-08	C	Solids Total Grams	09/16/19 22:35	NA	9/17/19 13:38	**501.8**	g				AV
Thickener Underflow #2 (20001-0900}											
1909013-24	D	% Solids, Total Volatile	09/03/19 0:10	SM 2540G	9/3/19 16:20	**88.1**	%		0.01		LAH
1909030-24	D	% Solids, Total Volatile	09/05/19 0:23	SM2540G	9/5/19 I6:35	**87.3**	%		0.01		ILG
1909063-24	D	% Solids, Total Volatile	09/10/19 0:40	SM 2540G	9/10/19 15:53	**87.9**	%		0.01		AV
1909084-24	D	% Solids, Total Volatile	09/12/19 1:20	SM2540G	9/12/19 15:23	**88.6**	%		0.01		ANM
1909113-24	D	% Solids, Total Volatile	09/)7/19 1:05	SM2540G	9/17/19 16:20	**89.0**	%		0.01		AV
1909136-24	D	% Solids, Total Volatile	09/)9/19 0:26	SM2540G	9/19/19 15:54	**89.4**	%		0.01		ANM
1909169-24	D	% Solids, Total Volatile	09/24/19 1:05	SM2S40G	9/24/19 16:36	**87.1**	%		0.o!		AV
1909183-24	D	% Solids, Total Volatile	09/26/19 1:00	SM2S40G	9/27/19 09:45	**87.9**	%		0.01		AV
Thickener Underflow #3 (20001-1100}											
1909013-26	D	% Solids, Total Volatile	09/03/19 0:13	SM2540G	9/3/19 16:20	**88.0**	%		0.01		LAH
1909030-26	D	% Solids, Total Volatile	09/05/19 0:21	SM2540G	9/5/19 I6:35	**89.9**	%		0.01		ILG
1909063-26	D	% Solids, Total Volatile	09/10/19 0:50	SM 2540G	9/10/19 15:53	**89.3**	%		0.01		AV
1909084-26	D	% Solids, Total Volatile	09/12/19 1:25	SM 2540G	9/12/19 15:23	**89.1**	%		0.01		ANM
1909113-26	D	% Solids, Total Volatile	09/17/19 1:10	SM2540G	9/17/19 16:20	**90.2**	%		0.01		AV
1909136-26	D	% Solids, Total Volatile	09/19/19 0:24	SM 2540G	9/19/19 15:54	**91.0**	%		0.01		ANM
1909169-26	D	% Solids, Total Volatile	09/24/19 1:10	SM 25400	9/24/19 16:36	**89.2**	%		0,01		AV
1909183-26	D	% Solids, Total Volatile	09/26/19 1:05	SM2540G	9/27 /) 9 09:45	**88.0**	%		0,01		AV
Thickener Underflow #4 (20001-1300}											
1909013-28	D	% Solids, Total Volatile	09/03/19 0:15	SM 2540G	9/3/19 16:20	**88.5**	%		0.Q1		LAH
1909030-28	D	% Solids, Total Volatile	09/05/19 0:22	SM2540G	9/5/19 16:35	**88.9**	%		0.01		ILG
1909063-28	D	% Solids, Total Volatile	09/10/19 0:45	SM2S40G	9/10/19 15:53	**87.1**	%		0.01		AV
1909084-28	D	% Solids, Total Volatile	09/12/19 1:30	SM2540G	9/12/19 15:23	87.7	%		0.01		ANM
1909113-28	D	% Solids, Total Volatile	09/17/19 1:15	SM2540G	9/17/19 16:20	**89.2**	%		0.01		AV
1909136-28	D	% Solids, Total Volatile	09/19/19 0:25	SM2540G	9/19/19 15:54	90.0	%		0.01		ANM
1909169-28	D	% Solids, Total Volatile	09/24/19 1:15	SM2540G	9/24/19 16:36	**87.4**	%		0.01		AV
1909183-28	D	% Solids, Total Volatile	09/26/19 1:10	SM2S40G	9/27119 09:45	87.7	%		0.01		AV
Di&ester #1 to Centrifu&e (20001-2101}											
1909020-19	C	% Solids, Total Volatile	09/03/19 2:30	SM2540G	9/4/19 17:00	**75.4**	%		0.01		ILG
1909040-20	C	% Solids, Total Volatile	09/05/19 7:00	SM2S40G	9/6/19 15:20	**76.1**	%		0.QI		ANM
1909054-20	C	% Solids, Total Volatile	09/08/19 8:50	SM2S40G	9/9/19 16:17	74.0	%		0.01		SDR
1909071-19	C	% Solids, Total Volatile	09/10/19 16:15	SM2S40G	9/11/19 15:49	75.3	%		0.QI		LAH
1909091-20	C	% Solids, Total Volatile	09/12/19 8:00	SM2540G	9/13/19 15:33	74.0	%		0.01		MSM
1909104-20	C	% Solids, Total Volatile	09/15/19 8:35	SM2S40G	9/16/19 15:44	74.7	%		0.01		ANM
1909124-19	C	% Solids, Total Volatile	09/17/19 16:05	SM 2540G	9/18/19 14:54	76.3	%		0.QI		ILG
1909147-20	C	% Solids, Total Volatile	09/19/19 4:18	SM2540G	9/20/19 15:49	75.0	%		0.01		MSM

Qualifier Definitions

D2	Sample required dilution due to high concentration of target analyte.
J	Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
Q6	Sample was received above recommended temperature.

General Notes and Definitions

J	Equivalent to E4 Qualifier - Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
ND	Analyte NOT DETECTED at or above reporting limit (MDL). Equivalent to ES Qualifier - Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
C	Sample Type - Composite
CD	Sample Type - Composite Duplicate
D	Sample Type - Discrete
DD	Sample Type - Djscrete Duplicate
NR	Not Reported
DET	Analyte DETECTED
DRY	Sample results reported on a dry weight basis
RPO	Relative Percent Difference
Analysis Date	Analysis Date represents the final reading date.
Field Results	Field Results performed by "SMPLR" (Sampler), are not subject to approval of Laboratory Director.
Solids, Total Volatile	Used for process control samples only.
RE	Re-Analysis has been performed.
FD	Field Duplicate
FB	Field Blank
UC	Under Construction
EB	Equipment Blank

Case Narrative(s)

None·

Pima County Regional Wastewater Reclamation Department

Compliance and Regulatory Affairs Office Laboratory

CHAIN OF CUSTODY

WORK ORDER & SAMPLE(S): 1909117-01

PROJECT & LOCATION: Regional Biosolids Facility Management - Dewatered Cake Biosolids

PROJECT-LOCATION NUMBER: 20002-5703

SAMPLE START DATE: 09/16/2019 (MMIDIYYY OR MMIOCVYYYY)

SAMPLE START TIME: 1020

CLIENT: Deputy Director-Treatment

SAMPLE END DATE: 09/16/2019 (MMIOCVYY OR MMIOD(YYYY)

SAMPLE END TIME: 2240 (tme)

SAMPLER(S): Vasquez, Mondragon (Print LHt Nam•(•) Orl1)

Permit Type: ☐ APP ☐ AZPDES ☐ IWC ☐ Investigative ☐ Reuse ☐ Air ■ 503 ☐ Process Control ☐ Other

Matrix: ■ Biosolids ☐ Soil D Wastewater ☐ Groundwater ☐ Stormwater O Air ☐ Industrial ☐ Surface Water D Other

INORGANIC CHEMISTRY

METALS	Tot	Diss	D	C
Aluminum			D	D
Antimony	D	D	D	D
Arsenic	D	D	D	D
Barium	D	D	D	D
Beryllium		D	D	D
Boron	D	D	D	D
Cadmium	D	D	D	D
Calcium		D	D	D
Chromium	D		D	D
Cobalt	D	D	D	D
Copper			D	D
Hardness	D	D	D	D
Iron	D	D	D	D
Lead		D	D	D
Magnesium		D	D	D
Manganese		D	D	D
Mercury	X			
Mercury LL		D	D	D
Molybdenum	D	D	D	D
Nickel	D	D	D	D
Potassium	D	D - D	D	
Selenium		D	D	D
Silver	£		D	
Sodium		D	D	D
Thallium		D		
Tin	D	D		

METALS	Tot	Diss	D	C
Titanium	D	D	D	D
Vanadium	D	D	D	D
Zinc	D	D	D	D
PPMs*	D	D	0	0
TCLP Metals			o	0
503 Metals **				
Dissolved Cr+6			0	0

WET METHODS	D	C
Ammonia as N	D	
Chloride	D	D
Cyanide, Total	D	D
Cyanide, Amenable	D	O
Fluoride	D	O
Ignitability	D	D
Nitrate as N		
[illegible]	D	
Nitrate/Nitrite as N	O	D
Nitrogen, Total Kjeldahl	D	D
Nitrogen, Total as N	D	
Orthophosphate as P	o	LJ
Phosphorus, Total as P	O	D
Sulfate	D	D
Sulfide	O	D
Other	O	D
Other	D	D

ORGANIC CHEMISTRY

	D	C
Acrolein and Acrylonitrile	D	D
Dioxin GC/SIM/MS Scan	D	0
Organochlorine Pesticides & PCBs	D	D
Purgeable Organics (GCMS)	D	D
Semivolatile Organics (GCMS)	D	D
Bis(2-ethylhexyl) phthalate	O	0
Digester Gas	D	D
Oil and Grease	D	D
Organic Carbon, Total	D	D
Organic Carbon, Dissolved	D	D
TCLP Herbicides (Contract Lab)	0	0
TCLP Pesticides	O	0
TCLP Semivolatile Organics	D	D
TCLP Volatile Organics	O	0
TTHM	0	0
Total Petroleum Hydrocarbons	D	D
Volatile Acids	D	D
Other	D	D
Other		

EFFLUENT TOXICITY TESTING

	D	C
Chronic *P. promelas*		
Chronic *C. dubia*		
Chronic *Selenastrum capricornutum*		
Other		

MICROBIOLOGY - WET CHEM

	D	C
Alkalinity	D	D
BOD	D	D
COD	D	D
Coliform, Fecal	D	D
Coliform, Total	D	D
Specific Conductance	D	D
E.coli	D	O
Oxygen, Dissolved	D	D
pH	D	D
Solids, Total	D	
Solids, Total Dissolved	D	D
Solids, Total Suspended	D	D
Solids, Total Volatile	D	D
Solids, Volatile Suspended	D	D
Other ------- ♦		D

OTHER

	D	C
Paint Filter		

COMPLIANCE FIELD MEASUREMENTS

	Result	Units
D Chlorine *Harf110014*		µg/L
D Specific Conductance *SM 2510 B*	----	µmhos/cm
D Oxygen, Dissolved *SM 4500-0 G*		mg/L
O pH @ pH Temp *SM 4500-H B*	@	pH Unrts@ °C
D Temperature *SM2550B*		•C
p Total Depth of Well		feet
Depth to Water		feet

other

Comments/Instructions: Poured off the daily sample 1909113-08

Septum Blank Prep Date & Initials:

Chain of Custody Record (Signatures Only)

See 1909113-08 for COC

Relinquished by Sampl:	Received by:	Date:	rme: (Military tme)
Rehnqu1 shed by:	Received by:	Date:	Tme: (Military tme)
Relinquished by:	Received by:	Date:	Tme: (Military tme)
Relmqutshed by:	Received by:	Date:	Tme: (Military tme)

Sample Integrity/Preservation

of Bottles Delivered: 2 (605)

Transported on Ice: O YES IB) NO

Lab Receipt

Temperature: I ·C

Initials:

06 qualifier? ♦ YES O NO

LAB USE ONLY

Sample Inspection:	Yes	No	NA
Chain of Custody Record completed appropriately?	♦		
Sample labels match Chain of Custody?			
Correct number of sample bottles were delivered?	IB]		
Custody seals intact?			IB]
Within holding time?	IB]		
Sufficient sample volume for analysis?			
Samples are in property preserved containers?			
Sample containers damagedneaking/frozen?		IB]	
40 ml vials headspace, > pea-sized air bubble?			
Received from a refrigerator?			

• *Sb, As, Be, Cd, Cr, Cu, Pb, Ni, Se, Ag, Tl, Zn, Mercury(Co/d Vapor)*
- *As, Cd, Cr, Cu, Pb, Mercury, Mo, Ni, Se, Zn*

(1 COPY

A Pima County Regional Wastewater Reclamation Department

Compliance and Rtgulatory Affairs Office Laboratory

CHAIN OF CUSTODY

NUMBER OF BOTTLES: ft

PROJECT: Tres Rios WRF

PROJECT NUMBER: 20001

SAMPLES START DATE: 09/16/2019 MM/00/YY or MM/0D/YYYY

CLIENT: Tres Rios Operations

SAMPLES END DATE: 09/16/2019 MM/00/YY or MMDDIYYYY

SAMPLER(S): Vasquez, M, ♦'<\®Ao VI (PIInt♦) Only)

COMMENTS: ♦ 140111"1-0I p.,,,,J o♦. CIIJ 0,,-/1-ft

Work Order D: I oq ll j

Location Description Location Number	DC		Composite Sample Start Time	Microbiology	Inorganic	Organic	Field	Sample End Time
Centrifuge Feed Sludge 5300		■	1005					2—z.?c
Dewatered Cake Biosolids 5703		■	1020					2-1.35
Thickened To Avragro 5701								
Centrate 5601		■	1010					1.14 0
Thickened Cake Biosolids 5600		n						
Unprocessed sludge to Avraaro 5702		n						

* Please indicate soecific metals reouest here:

Custody Record (Signatures Only)

Relinquilhed by Sampler:	Received by:	Date:	Time: (Military time)
r\ JI_ - /UJ_ / Refrigerator @ 12	oci• ti? ic,C,	lZl/',	
Refrigerator @ 1	\¢.m.mm.0	09-\7- 1q	013?—
Relinquished by:	Received by:	Date:	Time: (Milnary time)
Relinquished by:	Received by:	Date:	Time: (Military time)
Relinquished by:	Received by:	Date:	rme: (Military time)

L..allU..Onllf	Y •	•	IIA
Chain of Custody Record completed appropriately?	!SJ	D	D
Sample Labels match Chain of Custody?	Is	□	D
Correct number of sample bottles were delivered?		D	□
Custody seals intact?	D	D	
Within holding lime?	Is	D	D
Sufficient sample volume for analysis?	IS	D	D
Samples are in proper1y preserved containers?		D	□
Sample containers damaged/leaking/frozen?	D	Is	D
40 ml vials headspace, > pea-sized air bubble?	D	D	KI
Received from a refrigerator?	ISI	D	D

Temperature: L\- oc Initials:♦

COG-Multiple-Revision 2 Revised: 03/12/2015

PIMA COUNTY
WASTEWATER RECLAMATION

Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office (CRAO) Laboratory
2955 W. Calle Agua Nueva, Tucson Arizona 85745-9750, Phone (520) 724-6200

Report Date: 11/20/2019
Laboratory License: AZ0159

Sample Analysis Report

Regional Biosolids Facility Management

October 2019

Sample Integrity

SAMPLE RECEIPT: Samples were received intact at the required temperature, unless otherwise noted with a data qualifier below. Please refer to the Chain of Custody for sample receipt details.

HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the Pima County CRAO Laboratory Quality Manual.

PRESERVATION: Samples requiring preservation were verified_ prior to sample analysis.

QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS:

Notes and Definitions:

See attached

Case Narratives:

See attached

All results on this report intended for compliance submission must have the associated chain(s) of custody attached for the results to meet reporting requirements as per ADHS Laboratory licensure rules. If you have received this report for compliance purposes and it is not complete, please contact the Compliance and Regulatory Affairs Office for a final report in its entirety.

Reviewed By:

Jenelle Pratt

Laboratory Director or Designee
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office Laboratory

11/20/2019
Date

Laboratory License: AZ0159

Sample Qualifiers

Sample ID	Laboratory ro	Matrt1	Date Sampled	Date Received	Sample Qualifiers
Thickener Underflow #2	1910024-24	Water	10/3/2019 3:05:00	10/3/2019 7:05:00	Q6
Thickener Underflow #3	1910024-26	Water	10/3/2019 3:07:00	10/3/2019 7:05:00	Q6
Thickener Underflow #4	1910024-28	Water	10/3/2019 3:·10:00	10/3/2019 7:05:00	Q6
Thickener Underflow #2	1910125-24	Water	10/17/2019 0: 18:00	10/17/2019 7:37:00	Q6
Thickener Underflow #3	1910125-26	Water	10/17/2019 0:15:00	10/17/2019 7:37:00	Q6
Digester #1 to Centrifuge	1910034-20	Water	10/3/2019 1:21 :00	10/4/2019 7:55:00	Q6
Digester #2 to Centrifuge	1910034-21	Water	10/3/2019 4:00:00	10/4/2019 7:55:00	Q6
Digester #3 to Centrifuge	1910034-22	Water	10/3/2019 8:15:00	10/4/2019 7:55:00	Q6
Digester #4 to Centrifuge	1910034-23	Water	10/3/2019 15':30:00	10/4/2019 7:55:00	Q6
Digester #5 to Centrifuge	1910034-24	Water	10/3/2019 1:00:00	10/4/2019 7:55:00	Q6
Digester #6 to Centrifuge	1910034-25	Water	10/3/2019 11:35:00	10/4/2019 7:55:00	Q6
Dewatered Cake Biosolids	1910111-01	Biosolids	10/14/2019 23:10:00	10/15/2019 10:00:00	Q6
Thickener Underflow #4	1910125-28	Water	10/17/2019 0:21:00	10/17/2019 7:37:00	Q6
Digester #1 to Centrifuge	1910133-20	Water	10/17/2019 2:15:00	10/18/2019 7:31 :00	Q6
Digester #2 to Centrifuge	1910133-21	Water	10/17/2019 10:00:00	10/18/2019 7:31 :00	Q6
Digester #3 to Centrifuge	1910133-22	·Water	10/17/2019 12:50:00	10/18/2019 7:31:00	Q6
Digester #4 to Centrifuge	1910133-23	Water	10/17/2019 4:30:00	10/18/2019 7:31:00	Q6
Digester #5 to Centrifuge	1910133-24	Water	10/17/2019 7:15:00	10/18/2019 7:31:00	Q6
Digester #6 to Centrifuge	1910i33-25	Water	10/17/2019 16:00:00	10/18/2019 7:31 :00	Q6
Thickener Underflow #2	1910175-24	Water	10/24/2019 1:05:00	10/24/2019 7:46:00	Q6
Thickener Underflow #3	1910175-26	Water	10/24/2019 1:10:00	10/24/2019 7:46:00	Q6
Thickener Underflow #4	1910175-28	Water	10/24/2019 1:15:00	10/24/2019 7:46:00	Q6

Laboratory License # AZ0159

Lab ID:	Sample Type	Parameter	Sample Date/I'lme	Analysis Method	Analysis Date/I'lme	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
Dewatered Cake Biosolids (20002-5703}											
Cross Reference 1910107--08											
1910111-01	C	Ammonia	10/14/19 23:10	EPA JS0.I	10/18/19 11:24	**6510**	mg/kg dry	92.5	395.37		JVR
1910111-0I	C	Arsenic	10/14/19 23:10	EPA6010D	10/30/19 12:34	**ND**	mg/kg dry		I 1.97		MLB
1910111-01	C	Cadmium	10/14/19 23:10	EPA6010D	10/30/19 12:34	**ND**	mg/kg dry		4.79		MLB
)910111-01	C	Chromium	10/14/19 23:10	EPA6010D	10/30/19 12:34	**33.8**	mg/kg dry		11.97		MLB
1910111-01	C	Copper	10/)4/19 23:10	EPA6010D	10/30/19 12:34	430	mg/kg dry		11.97		MLB
1910111-01	C	Lead	10/14/19 23:10	EPA6010D	10/30/19 12:34	**16.5**	mg/kg dry		11.97		MLB
)9)0111-01	C	Mercury	10/14/19 23:10	EPA 747IB	)1/1/19 15:58	**0.68**	mg/kg dry		0.39		MJC
191011)-01	C	Molybdenum	10/14/19 23:10	EPA6010D	10/30/19 12:34	**16.1**	mg/kg dry		4.79		MLB
)910111-01	C	Nickel	10/14/19 23:10	EPA 6010D	10/30/19 12:34	**23.3**	mg/kg dry		11.97		MLB
191011)-01	C	Nitrite	10/14/19 23:10	SM4500-NO2	10/15/19 12:55	**3.95**	mg/kg dry	0.19	1.58		KMT
)910111-01	C	Total Kjeldahl Nitrogen	10/14/19 23:10	EPA 3512	10/2)fl9 16:01	67794	mg/kg dry	548.81	1,519.20		AJH
1910111-0I	C	Nitrogen Total Biosolids	10/14/19 23:10	Calculated	10/2)/19 16:01	**67806**	mg/kg dry	69,404	192.12		AJH
19101 I 1-01	C	Selenium	10/14/19 23:10	EPA6010D	10/30/19 12:34	**ND**	mg/kg dry		23.94		MLB
)910111-01	C	Silver	10/14/19 23:10	EPA6010D	I0/30/19 13:50	**2.20**	mg/kgdry		1.20		MLB
1910111-0)	C	Zinc	10/14/19 23:10	EPA6010D	I0/30/19 12:34	**823**	mg/kg dry		11.97		MLB
1910111-01	C	%Solids	10/14/19 23:10	SM 25400	10/16/19 09:41	**12.65**	%		0.01		TLG
Dewatered Cake Biosolids (20001-5703}											
Cross Reference 1910111-01											
1910107-08	C	%Solids	10/14/19 23:10	SM 25400	10/16/19 09:41	**12.65**	%		0.01		TLG
1910107-08	C	Solids Total Grams	10/14/19 23:10	NA	10/15/19 1l :30	**500.8**	g				JAH
Thickener Underflow #2 (20001-0900}											
)910004-24	D	% Solids, Total Volatile	10/01/19 0:08	SM 25400	10/2/19 06:46	**89.0**	%		0.01		MSM
)910024-24	D	% Solids, Total Volatile	10/03/19 3:05	SM 25400	10/3/19 15:40	**88.9**	%		0.01		AV
)910060-24	D	% Solids, Total Volatile	10/08/19 0:35	SM 25400	10/8/19 16:31	**87.8**	%		0.01		IYC
1910075-24	D	% Solids, Total Volatile	10/10/19 1:05	SM 25400	10/10/19 16:26	**88.6**	%		0.01		ANM
1910107-24	D	% Solids, Total Volatile	10/15/19 0:44	SM 25400	10/15/19 16:36	**88.3**	%		0.01		JAH
19)0125-24	D	% Solids, Total Volatile	10/17/19 0:18	SM25400	10/18/19 06:58	**87.5**	%		0.01		ANM
1910)55-24	D	% Solids, Total Volatile	10/22/19 1:02	SM 25400	10/22/19 16:10	89.0	%		0.01		TLG
1910175-24	D	% Solids, Total Volatile	10/24/19 1:05	SM 25400	10/24/19 16:02	**88.4**	%		0,01		MSM
1910205-24	D	% Solids, Total Volatile	10/29/19 0:09	SM 25400	I0/30/19 06:03	**88.5**	%		0.01		ESW
1910225-24	D	% Solids, Total Volatile	10/31/19 1:52	SM2S40G	10/31/19 16:34	**89.6**	%		0,01		MSM
Thickener Underflow #3 (20001-1100}											
19)0004-26	D	% Solids, Total Volatile	I0/01/19 0:10	SM 25400	10/2/19 06:46	**88.0**	%		0.01		MSM
19)0024-26	D	% Solids, Total Volatile	10/03/19 3:07	SM 25400	10/3/19 15:40	**90.1**	%		0.01		AV
19)0060-26	D	% Solids, Total Volatile	10/08/19 0:40	SM 25400	10/8/19 16:31	**87.0**	%		0.01		IYC
1910075-26	D	% Solids, Total Volatile	10/10/19 1:08	SM 25400	10/10/19 16:26	**88.7**	%		0,01		ANM
1910107-26	D	% Solids, Total Volatile	10/15/19 0:40	SM25400	10/15/19 16:36	**89.4**	%		0.01		JAH
1910125-26	D	% Solids, Total Volatile	10/17/19 0:15	SM 25400	10/18/19 06:58	89.0	%		0.01		ANM
1910155-26	D	% Solids, Total Volatile	10/22/19 1:07	SM 25400	)0/22/19 16:10	**87.3**	%		0.01		TLG
1910175-26	D	% Solids, Total Volatile	10/24/19 1:10	SM 25400	10/24/19 16:02	**88.0**	%		0.01		MSM
1910205-26	D	% Solids, Total Volatile	10/29/19 0:11	SM25400	I0/30/19. 06:03	**87.4**	%		0.01		ESW
I910225-26	D	% Solids, Total Volatile	10/31/19 2:00	SM25400	10/31/19 16:34	90.2	%		0.01		MSM
Thickener Underflow #4 (20001-1300}											
1910004-28	D	% Solids, Total Volatile	10/01/19 0:13	SM 25400	10/2/19 06:46	**88.4**	%		0,01		MSM
1910024-28	D	% Solids, Total Volatile	10/03/19 3:10	SM 25400	10/3/19 15:40	**87.2**	%		0.01		AV
19)0060-28	D	% Solids, Total Volatile	10/08/19 0:45	SM 25400	10/8/19 16:31	**88.2**	%		0.01		IYC
1910075-28	D	% Solids, Total Volatile	10/10/19 1:11	SM 25400	10/10/19 16:26	**87.5**	%		0,01		ANM
19)0107-28	D	% Solids, Total Volatile	10/15/19 0:42	SM25400	10/15/19 16:36	**85.1**	%		0.01		JAH
)910125-28	D	% Solids, Total Volatile	10/17/19 0:21	SM 25400	I0/18/19 06:58	**88.8**	%		0.01		ANM
1910155-28	D	% Solids, Total Volatile	10/22/19 1:12	SM 25400	10/22/19 16:10	**88.7**	%		0.01		TLG
1910175-28	D	% Solids, Total Volatile	10/24/19 1:15	SM 25400	I0/24/19 I6:02	**87.9**	%		0.01		MSM
I910205-28	D	% Solids, Total Volatile	10/29/19 0:13	SM 25400	I0/31/19 07:22	**89.1**	%		0.01		SDR
1910225-28	D	% Solids, Total Volatile	10/31/19 2:05	SM 25400	10/31/19 16:34	**89.7**	%		0.01		MSM
Dii:;ester #1 to Centrifuge (20001-2101}											
1910014-19	C	% Solids, Total Volatile	10/01/19 4:25	SM 25400	10/2/19 16:04	**76.6**	%		0.01		ANM
1910034-20	C	% Solids, Total Volatile	10/03/19 I:21	SM 25400	10/4/19 15:45	**75.4**	%		0.01		ANM

Qualifier Definitions

Q6	Sample was received above recommended temperature.

General Notes and Definitions

J	Equivalent to E4 Qualifier - Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
ND	Analyte NOT DETECTED at or above reporting limit (MDL). Equivalent to ES Qualifier - Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
C	Sample Type • Composite
CD	Sample Type - Composite Duplicate
D	Sample Type - Discrete
DD	Sample Type - Discrete Duplicate
NR	Not Reported
DET	Analyte DETECTED
DRY	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
Analysis Date	Analysis Date represents the final reading date.
Field Results	Field Results performed by "SMPLR" (Sampler), are not subject to approval of Laboratory Director.
Solids, Total Volatile	Used for process control samples only.
RE	Re-Analysis has been performed.
FD	Field Duplicate
FB	Field Blank
UC	Under Construction
EB	Equipment Blank

Case Narrative(s)

None

Pima County Regional Wastewater Reclamation Department
Compliance a!!d Regulatory Affairs Office Laboratory

CHAIN OF CUSTODY

WORK ORDER & SAMPLE(S): 1910111-01

PROJECT & LOCATION: Regional Biosolids Facility Management - Dewatered Cake Biosolids

PROJECT-LOCATION NUMBER: 20002-5703

SAMPLE START DATE: 10/14/2019 (MM/DO/YY OR MMIDD/YYYY)

SAMPLE START TIME: 0945 (Millar/time)

CLIENT: Deputy Director-Treatment

SAMPLE END DATE: 10/14/2019 (MMIDDIYY OR MMIDD/YYYY)

SAMPLE END TIME: 2310 (Military time)

SAMPLER(S): Vasquez, Berndt (Print Last N1!me(s) Only)

Permit Type: 0 APP; OAZPDES; ☐ 1wc; D Investigative; ☐ Reuse; O Air; ■ 503; D Process Control; ☐ Other

Matrix: ■ Biosolids; D Groundwater; D Industrial; ☐ Soil; D Stormwater; D Surface Water; D Wastewater; O Air; D Other

INORGANIC CHEMISTRY

METALS	Tot	Diss	D	C
Aluminum	☐	☐	☐	☐
Antimony	☐	☐	☐	☐
Arsenic	☐	☐	☐	☐
Barium	☐	☐	☐	☐
Beryllium	☐	☐	☐	☐
Boron	☐	☐	☐	☐
Cadmium	☐	☐	☐	☐
Calcium	☐	☐	☐	☐
Chromium	☐	☐	☐	☐
Cobalt	☐	☐	☐	☐
Copper	☐	☐	☐	☐
Hardness	☐	☐	☐	☐
Iron	☐	☐	☐	☐
Lead	☐	☐	☐	☐
Magnesium	☐	☐	☐	☐
Manganese	☐	☐	☐	☐
Mercury	×		☐	■
Mercury LL	☐	☐	☐	☐
Molybdenum	☐	☐	☐	☐
Nickel	☐	☐	☐	☐
Potassium	☐	☐	☐	☐
Selenium	☐	☐	☐	☐
Silver	×		☐	■
Sodium	☐	☐	☐	☐
Thallium	☐	☐	☐	☐
Tin	☐	☐	☐	☐

METALS	Tot	Diss	D	C
Titanium	☐	☐	☐	☐
Vanadium	☐	☐	☐	☐
Zinc	☐	☐	☐	☐
PPMs*	☐	☐	☐	☐
TCLP Metals			☐	☐
503 Metals			☐	■
Dissolved Cr+6			☐	☐

WET METHODS	D	C
Ammonia as N	☐	■
Chloride	☐	☐
Cyanide, Total	☐	☐
Cyanide, Amenable	☐	☐
Fluoride	☐	☐
Ignitability	☐	☐
Nitrate as N	☐	■
Nitrite as N	☐	■
Nitrate/Nitrite as N	☐	☐
Nitrogen, Total Kjeldahl	☐	☐
Nitrogen, Total as N	☐	■
Orthophosphate as P	☐	☐
Phosphorus, Total as P	☐	☐
Sulfate	☐	☐
Sulfide	☐	☐
Other	☐	☐
Other	☐	☐

ORGANIC CHEMISTRY

Acrolein and Acrylonitrile	D	D
Dioxin GC/SIM/MS Scan	O	0
Organochlorine Pesticides & PCBs	D	D
Purgeable Organics (GCMS)	D	D
Semivolatile Organics (GCMS)	D	D
Bis(2-ethylhexyl) phthalate	O	0
Digester Gas	D	D
Oil and Grease	D	D
Organic Carbon, Total	D	D
Organic Carbon, Dissolved	D	D
TCLP Herbicides (Contract Lab)	D	D
TCLP Pesticides	O	0
TCLP Semivolatile Organics	D	D
TCLP Volatile Organics	O	0
TTHM	☐	☐
Total Petroleum Hydrocarbons	D	D
Volatile Acids	D	D
Other	☐	☐
Other	D	D

EFFLUENT TOXICITY TESTING

	D	C
Chronic *P. promelas*	☐	☐
Chronic *C. dubia*	☐	☐
Chronic *Selenastrum capricornutum*	☐	☐
Other	☐	☐

MICROBIOLOGY

Alkalinity	☐	☐
BOD	☐	☐
COD	☐	☐
Coliform, Fecal	☐	☐
Coliform, Total	☐	☐
Specific Conductance	D	D
E coli	☐	☐
Oxygen, Dissolved	☐	☐
pH	☐	☐
Solids, Total	☐	■
Solids, Total Dissolved	☐	☐
Solids, Total Suspended	☐	☐
Solids, Total Volatile	☐	☐
Solids, Volatile Suspended	☐	☐
Other	☐	☐

OTHER

	D	C
Paint Filter	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐

COMPLIANCE FIELD MEASUREMENTS

☐ Chlorine *Hach 10014*		µg/L
D Specific Conductance *SM2510B*		µmhos/cm
D Oxygen, Dissolved *SM4500-OG*		mg/L
O P H @ p H Temp *SM4500-HB*	@	pH Units@ °C
D Temperature SM2550B		oc
☐ Total Depth of Well		feet
D Depth to Water		feet
☐ Other		

Comments/Instructions:
Poured off the daily sample 1910107-0B

Septum Blank Prep Date & Initials:

Chain of Custody Record (Signatures Only)

See 1910107-08 for COC

Relinquished by Sampler:	Received by:	Date:	Time: (Military Ume)
Relinquished by:	Received by:	Date:	Time: (Military Ume)
Relinquished by:	Received by:	Date:	Time: (Military Ume)
Relinqu1shea by:	Received by:	Date:	Time: (Military Ume)

Sample Integrity/Preservation

of Bottles Delivered: (2) GD5

Transported on Ice: 0 YES ◆ NO

Lab Receipt

Temperature: (◆◆ °C

Initials: GD5

Q6 qualifier? ◆YES ONO

LAB USE ONLY

Sample Inspection:	Yes	No
Chain of Custody Record completed appropriately? ◆		☐
Sample labels match Chain of Custody? ◆	☐	☐
Correct number of sample bottles were delivered? ◆	☐	☐
Custody seals intact?	D	☐
Within holding time?	☐	☐
Sufficient sample volume for analysis?	☐	☐
Samples are in properly preserved containers?	☐	☐
Sample containers damaged/leaking/frozen?	☐	☐
40 ml vials headspace, > pea-sized air bubble?	☐	☐
Received from a refrigerator?	☐	☐

• *Sb, As, Be, Cd, Cr, Cu, Pb, Ni, Se, Ag, Tl, Zn, Mercury(Cold Vapor)*
- ◆. *Cd, Cr, Cu, Pb, Mercury, Ni, Se, Zn*

A Pima County Regional Wastewater Reclamation Department

Compliance and Regulacory Affairs Office I..aboracory

ID COPY

CHAIN OF CUSTODY

NUMBER OF BOTTLES: ♦ '-..Y

PROJECT: Tres Rios WRF

PROJECT NUMBER: 20001

SAMPLES START DATE: 10/14/2019 MM00YY or MM00YYYY

CLIENT: Tres Rios Operations

SAMPLES ENO DATE: 10/14/2019 WNODIVY or MM00YYYY

SAMPLER(S): vasquez, .P., BRANT (Print Last Name(s) Only)

COMMENTS: ♦ !4101 ~Q1 p_,J . f Gl;!, t♦,lf-1'1

Work Order ID: P110107

Location Description Location Number	D	C	Composite Sample Start Time (Military time)	Microbiology	Inorganic	Organic	Field	Sample End Time (Military time)
Centrifuge Feed Sludge 5300	☐	■	0930					? oS
Dewatered Cake Biosolids 5703	☐	■	0945					2'?/0
Thickened To Avragro 5701	☐	☐						
Centrate. 5501	☐	■	0935					.131.S
Thickened Cake Biosolids 5600	☐	[ ]						
Unprocessed sludge to Avraaro 5702	☐	☐						
	☐	☐						
	☐	☐						
	☐	☐						
	☐	☐						

* Please indicate soecific metals reauest here:

t'!blln af. :-ustoiy reco (Signatures Only)

Qa w Refrigerator @ 12 /Dh'lh9 23'-c/

Relinqui♦d by Sampler: Received by: Date: Time: (Military time)

Refrigerator @ 12 J)Aai..o C)t:.115 II♦ t:A-4

Relinquished by: Received by: Date: nme: (Military time)

Relinquished by: Received by: Date: nme: (Military time)

Re♦nquished by: Received by: nme: (Military time)

Lab I.ble Qnly	Y•	Ho	NA.
Chain of Custody Record completed appropriately?	g	☐	☐
Sample Labels match Chain of Custody?	g"	☐	☐
Correct number of sample bottles were delivered?	[1;('o		☐
Custody seals intact?	☐	☐	[g'"
Within holding time?	at	☐	☐
Sufficient sample volume for analysis?			☐
Samples are in properly preserved containers?	☐	☐	☐
Sample containers damagedneaking/frozen?	☐	cg/'o	
40 ml vials headspace, > pea-sized air bubble?			IQ-'"
Received from a refrigerator?	♦		☐

Temperature: -.\o oc Initials: ::J:L;

CCC-Multiple-Revision 2 Revised: 03/12/2015

Revision 1

PIMA COUNTY
wAmwArERREcLAMArmN
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office (CRAO) Laboratory
2955 W. Calle Agua Nueva, Tucson Arizona 85745-9750, Phone (520) 724-6200

Report Date: 12/27/2019
Laboratory License: AZO159

Sample Analysis Report

Regional Biosolids Facility Management.

November 2019

Sample Integrity

SAMPLE RECEIPT: Samples were received intact at the required temperature, unless otherwise noted with a data qualifier below. Please refer to the Chain of Custody for sample receipt details.

HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the Pima County CRAO Laboratory Quality Manual.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS: Report was revised as Q6 Qualifier was added for Work Order 1911080-01.

Notes and Definitions:

See attached

Case Narratives:

See attached

All results on this report intended for compliance submission must have the associated chain(s) of custody attached for the results to meet reporting requirements as per ADHS Laboratory licensure rules. If you have received this report for compliance purposes and it is not complete, please contact the Compliance and Regulatory Affairs Office for a final report in its entirety.

Reviewed By:

Jenelle Amaft

Laboratory Director or Designee
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office Laboratory

12/30/1<]
Date

Laboratory License: AZO159

Sample Qualifiers

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Sample Qualifiers
Dewatered Cake Biosolids	1911080-01	Biosolids	11/11/2019 23:35:00	11/12/2019 9:42:00	Q6

Laboratory License# AZ0159

Lab ID:	Sample Type	Parameter	Sample Date/Time	Analysis Method	Analysis Date/Time	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
Dewatered Cake Biosolids (20002-5703)											
Cross Reference 1911076-08											
1911080-01	C	Ammonia	11/11/19 23:35	EPA 3501	11/12/19 13:50	6850	mg/kgdry	76.4	326.37		JVR
1911080-01	C	Arsenic	11/11/19 23:35	EPA6010D	12/17/19 12:19	11.3	mg/kg dry		8.89		MLB
1911080-01	C	Cadmium	11/11/19 23:35	EPA6010D	12/17/19 12:19	ND	mg/kg dry		3.56		MLB
1911080-01	C	Chromium	11/11/19 23:35	EPA6010D	12/17/19 12:19	32.6	mg/kg dry		8.89		MLB
1911080-01	C	Copper	11/11/19 23:35	EPA6010D	12/17/19 12:19	374	mg/kg dry		8.89		MLB
1911080-01	C	Lead	11/11/19 23:35	EPA6dl0D	12/17/19 15:28	18.0	mg/kg dry		8.89		MLB
1911080-01	C	Mercury	11/11/19 23:35	EPA 7471B	12/6/19 14:43	0.68	mg/kg dry		0.34		MJC
1911080-01	C	Molybdenum	11/11/19 23:35	EPA6010D	12/17/19 12:19	15.4	mg/kgdry		3.56		MLB
1911080-01	C	Nickel	11/11/19 23:35	EPA6010D	12/17/19 12:19	20.3	mg/kg dry		8.89		MLB
1911080-01	C	Nitrite	11/11/19 23:35	SM4500-NO2	11/12/19 12:47	1.90	mg/kg dry	0.81	5.37	J	AJH
1911080-01	C	Total Kjeldahl Nitrogen	11/11/19 23:35	EPA 3512	11/27/19 10:56	78437	mg/kg dry	404.79	22,410.72	D2	AJH
1911080-01	C	Nitrogen Total Biosolids	11/11/19 23:35	Calculated	11/27/19 10:56	78440	mg/kg dry	60.208	3,333.40		AJH
1911080-01	C	Selenium	11/11/19 23:35	EPA6010D	12/17/19 12:19	ND	mg/kg dry		17.78		MLB
1911080-01	C	Silver	11/11/19 23:35	EPA 60l0D	12/17/19 15:28	1.06	mg/kgdry		0.89		MLB
1911080-01	C	Zinc	11/11/19 23:35	EPA6010D	12/17/19 12:19	718	mg/kg dry		8.89		MLB
1911080-01	C	% Solids	11/11/19 23:35	SM 2540G	11/13/19 10:35	14.87	%		0.01		ANM
Dewatered Cake Biosolids (20001-5703)											
Cross Reference 1911080-01											
1911076-08	C	%Solids	11/11/19 23:35	SM 2540G	11/13/19 10:35	14.87	%		0,01		ANM
1911076-08	C	Solids Total Grams	11/11/19 23:35	NA	11/12/19 12:56	531.2	g				ANM
Thickener Underflow #2 (20001-0900)											
1911029-24	D	% Solids, Total Volatile	11/05/19 0:38	SM 2540G	11/5/19 16:44	89.4	%		0.01		TLG
1911048-24	D	% Solids, Total Volatile	11/07/19 1:43	SM 2540G	11n/19 16:08	88.6	%		0,01		JAH
1911076-24	D	% Solids, Total Volatile	11/12/19 1:05	SM 2540G	11/12/19 17:06	88.2	%		0.01		ANM
1911093-24	D	% Solids, Total Volatile	11/14/19 2:25	SM 2540G	11/14/19 16:15	89.5	%		0.01		ANM
191 I 121-24	D	% Solids, Total Volatile	11/19/19 1:05	SM 2540G	11/19/19 16:40	89.3	%		0,01		ESW
1911138-24	D	% Solids, Total Volatile	11/21/19 1:03	SM 2540G	11/21/19 16:27	89.8	%		0,01		MSM-
1911166-24	D	% Solids, Total Volatile	11/26/19 1:18	SM2540G	11/26/19 16:53	89.8	%		0.01		JAH
Thickener Underflow #3 (20001-1100)											
1911029-26-	D	% Solids, Total Volatile	11/05/19 0:37	SM 2540G	11/5/19 16:44	88.6	%		0,01		TLG
1911048-26	D	% Solids, Total Volatile	11/07/19 1:41	SM2540G	11n119 16:08	89.4	%		0,01		JAH
1911076-26	D	% Solids, Total Volatile	11/12/19 1:10	SM2540G	11/12/19 17:06	89.2	%		0.01		ANM
1911093-26	D	% Solids, Total Volatile	11/14/19 2:27	SM2540G	11/14/19 16:15	90.1	%		0.01		ANM
1911121-26	D	% Solids, Total Volatile	11/19/19 1:10	SM 2540G	11/19/19 16:40.	90.1	%		0,01		ESW
1911138-26	D	% Solids, Total Volatile	11/21/19 1:08	SM 2540G	11/21/19 16:27	88.7	%		0,01		MSM
191 I 166-26	D	% Solids, Total Volatile	11/26/19 1:21	SM 2540G	11/26/19 16:53	89.7	%		0.01		JAH
Thickener Underflow #4 (20001-1300)											
1911029-28	D	% Solids, Total Volatile	11105/19 0:36	SM 2540G	11/5/19 16:44	87.7	%		O.Ql		TLG
1911048-28	D	% Solids, Total Volatile	11/07/19 1:42	SM 2540G	11/7/19 16:08	87.9	%		O.Ql		JAH
1911076-28	D	% Solids, Total Volatile	11/12/19 1:15	SM2540G	11/12/19 17:06	87.6	%		0,01		ANM
1911093-28	D	% Solids, Total Volatile	11/14/19 2:29	SM2540G	11/14/19 16:15	89.0	%		0,01		ANM
1911121-28	D	% Solids, Total Volatile	11/19/19 1:15	SM2540G	11/19/19 16:40	89.5	%		0,01		ESW
1911138-28	D	% Solids, Total Volatile	11/21/19 1:13	SM2540G	11/21/19 16:27	87.4	%		0.01		MSM
1911166-28	D	% Solids, Total Volatile	11/26/19 1:24	SM 2540G	11/26/19 16:53	89.1	%		0,01		JAH
Digester #1 to Centrifuge (20001-2101)											
1911021-20	C	% Solids, Total Volatile	11/03/19 8:45	SM2540G	11/4/19 16:19	76.9	%		0,01		SOR
1911039-19	C	% Solids, Total Volatile	11/05/19 13:40	SM2540G	11/6/19 16:32	75.3	%		0.01		IYC
1911056-20	C	% Solids, Total Volatile	11/07/19 2:31	SM2540G	11/8/19 15:12	76.3	%		0,01		MSM
I911084-19	C	% Solids, Total Volatile	11/12/19 8:35	SM 2540G	11/13/19 16:12	76.4	%		0.01		ANM
1911102-20	C	% Solids, Total Volatile	11/14/19 12:45	SM2540G	11/15/19 15:21	74.6	%		0,01		MSM
1911114-20	C	% Solids, Total Volatile	11/17/19 14:20	SM 2540G	11/18/19 16:22	76.1	%		0.01		JAH
1911130-19	C	% Solids, Total Volatile	11/19/19 2:30	SM 2540G	11/20/19 15:11	75.7	%		0,01		STC
1911145-20	C	% Solids, Total Volatile	11/21/19 2:30	SM 2540G	11/22/19 15:51	78.6	%		0.01		ANM
1911158-20	C	% Solids, Total Volatile	11/24/19 4:00	SM 2540G	11/25/19 15:48	77.6	%		0.01		TLG
1911173-19	C	% SoHds, Total Volatile	11/26/19 10:05	SM 2540G	11/27/19 15:40	77.5	%		0.01		IYC

Qualifier Definitions

D2	Sample required dilution due to high concentration of target analyte.
J	Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
Q6	Sample was received above recommended temperature.

General Notes and Definitions

J	Equivalent to E4 Qualifier - Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
ND	Analyte NOT DETECTED at or above reporting limit (MDL). Equivalent to ES Qualifier - Analyte reported to MDL per project specification. Target analyte was riot detected in the sample.
C	Sample Type - Composite
CD	Sample Type - Composite Duplicate
D	Sample Type - Discrete
DD	Sample Type - Discrete Duplicate
NR	Not Reported
DET	Analyte DETECTED
DRY	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
Analysis Date	Analysis Date represents the final reading date.
Field Results	Field Results performed by "SMPLR" (Sampler), are not subject to approval of Laboratory Director.
Solids, Total Volatile	Used for process control samples only.
RE	Re-Analysis has been performed.
.FD	Field Duplicate
FB	Field Blank
UC	Under Construction
EB	Equipment Blank

Case Narrative(s)

None

A Pima County Regional Wastewater Reclamation Department

Compliance and Regulatory Affairs Office Laboratory

CHAIN OF CUSTODY

fO COpy

NUMBER OF BOTTLES: 3

PROJECT: Tres Rios WRF

PROJECT NUMBER: 20001

SAMPLES START DATE: 11/11/2019 MMDDYY or MMDDYYYY

CLIENT: Tres Rios Operations

SAMPLES END DATE: 11/11/2019 MMDDYY or MMDDYYYY

SAMPLER(S): Vasquez, J (Print Last Name(s) Only)

COMMENTS: ♦ I°11I0'DO-OI r,'«sJ 9/:f <pj 1<1-,J 11-1?.-'1

Work Order ID: 191101c

Location Description Location Number	DC		Composite Sample Start Time	Microbiology	Inorganic	Organic	Field	Sample End Time
Centrifuge Feed Sludge 5300		■	1010				J 30	
Dewatered Cake Biosolids 5703		■	1000				J3'3s	
Thickened To Avragro 5701								
Centrate 5601		■	1006				JLfO	
Thickened Cake Biosollds 5600								
Unprocessed sludge to Avragro 5702								

* Please indicate soecific metals reauest here:

Ohalnof:"_usiody record (signatures, rflilwi				Lahl.IllaO*	V.	Na	NA
n	Refrigerator @ 12	It'/ll/lc.	9.'-15	Chain of Custody Record completed appropriately?	0"		
Relinquished by Sampler:	Received by:	Date:	Time: (Military time)	Sample Labels match Chain of Custody?	er		
Refrigerator @ / ♦ 9 -	Q	//-IZ-t<j·	ORIS	Correct number of sample bottles were delivered?	ff		
Relinquished by:	Received♦	Date:	Time: (Military time)	Custody seals intact?			
				Within holding time?	12"		
Relinquished by:	Received by:	Date:	Tune: (Military time)	Sufficient sample volume for analysis?	B"		
				Samples are in properly preserved containers?	i:;y--		
Relinquished by:	Received by:	Date:	Time: (Military time)	Sample containers damaged/leaking/frozen?			
				40 ml vials headspace, > pea-sized air bubble?			E1
				Received from a refrigerator?			
				Temperature: 3,Soc Initials: JI/			

COC-Multiple-Revision 2 Revised: 03/12/2015

PIMA COUNTY
wAmwAmtRECLAMATtoN
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office (CRAO) Laboratory
2955 W. Calle Agua Nueva, Tucson Arizona 85745-9750, Phone (520) 724-6200

Report Date: 01/24/2020
Laboratory License: AZ0159

Sample Analysis Report

Regional Biosolids Facility Management

December 2019

Sample Integrity

SAMPLE RECEIPT: Samples were received intact at the required temperature, unless otherwise noted with a data qualifier below. Please refer to the Chain of Custody for sample receipt details.

HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the Pima County CRAO Laboratory Quality Manual.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS:

Notes and Definitions:

See attached

Case Narratives:

See attached

All results on this report intended for compliance submission must have the associated chain(s) of custody attached for the results to meet reporting requirements as per ADHS Laboratory ticensure rules. If you have received this report for compliance purposes and it is not complete, please contact the Compliance and Regulatory Affairs Office for a final report in its entirety.

Reviewed By:

Laboratory Director or DG1ec
Pima County Regional Wastewater Reclamation Department
Compliance and Regulatory Affairs Office Laboratory

If2'1/J020
Date

Laboratory License: AZO159

Sample Qualifiers

Sample ID	Laboratory ID	Matrix	Date Sampled		Date Received		Sample Qualifiers
Thickener Underflow #2	1912081-24	Water	12/12/2019	0:38:00	12/12/2019	7:21:00	Q6
Thickener Underflow #3	1912081-26	Water	12/12/2019	0:41:00	12/12/2019	7:21:00	Q6
Thickener Underflow #4	1912081-28	Water	12/12/2019	0:45:00	12/12/2019	7:21:00	Q6
Dewatered Cake Biosolids	1912113-01	Biosolids	12/16/2019	23:05:00	12/17/2019	9:26:00	Q6
Thickener Underflow #2	1912126-24	Water	12/19/2019	1:20:00	12/19/2019	7:15:00	Q6
Thickener Underflow #3	1912126-26	Water	12/19/2019	1:25:00	12/19/2019	7:15:00	Q6
Thickener Underflow #4	1912126-28	Water	12/19/2019	1:29:00	12/19/2019	7:15:00	Q6

Laboratory License # AZOI59

Lab ID:	Sample Type	Parameter	Sample Date/fime	Analysis Method	Analysis Date/flme	Analysis Value	Units	MDL	MRL	Sample/Data Qualifiers	Analyst
Dewatered Cake Biosolids {20002-5703}											
Cross Reference 1912109-08											
1912113-01	C	Ammonia	12/16/19 23:05	EPA 350.1	12/20/19 14:26	7820	mg/kg dry	58.6	250.52		JVR
1912113-01	C	Arsenic	12/16/19 23:05	EPA6010D	1/2/20 10:04	ND	mg/kg dry		9.30		MLB
1912113-01	C	Cadmium	12/16/19 23:05	EPA6010D	1/2/20 10:04	ND	mg/kg dry		3.72		MLB
1912113-01	C	Chromium	12/16/19 23:05	EPA6010D	1/2/20 10:04	30.4	mg/kg dry		9.30		MLB
1912113-01	C	Copper	12/16/19 23:05	EPA6010D	1/2/20 10:04	360	mg/kg dry		9.30		MLB
1912113-01	C	Lead	12/16/19 23:05	EPA6010D	I/2/20 I0:04	ND	mg/kg dry		9.30		MLB
1912113-01	C	Mercury	12/16/19 23:05	EPA 7471B	1/10/20 12:17	0.59	mg/kg dry		0.32		MJC
1912113-01	C	Molybdenum	12/16/19 23:05	EPA6010D	112/20 I0:04	14.4	mg/kg dry		3.72		MLB
1912113-0l	C	Nickel	12/16/19 23:05	EPA6010D	1/2/20 10:04	20.9	mg/kg dry		9.30		MLB
1912113-0I	C	Nitrite	12/16/19 23:05	SM4SOO-N02	12/17/19 13:37	1.99	mg/kgdry	0.80	5.33	J	AJH
1912113-01	C	Total Kjeldahl Nitrogen	12/16/19 23:05	EPA 351.2	12/19/19 10:17	64241	mg/kg dry	480.98	1,331.42	D2	AJH
1912113-0I	C	Nitrogen Total Biosolids	12/16/19 23:05	Calculated	12/20/19 14:31	64245	mg/kg dry	72.178	199.80		AJH
I912113-01	C	Selenium	12/16/19 23:05	EPA6010D	1/2/20 10:04	ND	mg/kg dry		18.60		MLB
1912113-01	C	Silver	12/16/19 23:05	EPA6010D	1/2/20 Il :11	2.25	mg/kg dry		0.93		MLB
1912113-01	C	Zinc	12/16/19 23:05	EPA6010D	1/2/20 10:04	695	mg/kg dry		9.30		MLB
1912113-01	C	%Solids	12/16/19 23:05	SM 25400	12/18/19 07:59	15.01	%		0.01		ANM
Dewatered Cake Biosolids {20001-5703}											
Cross Reference 1912113-0l											
1912109-08	C	%Solids	12/16/1 23:05	SM 25400	12/18/19 07:59	15.01	%		0.01		ANM
1912109-08	C	Solids Total Grams	12/16/19 23:05	NA	12/17/19 10:39	533.5	g				SOR
Thickener Underflow #1 {20001-0700)											
1912152-22	O	% Solids, Total Volatile	12/24/19 1:10	SM25400	12/24/19 16:54	90.0	%		0.ot		SOR
1912163-22	O	% Solids, Total Volatile	12/26/19 0:17	SM 25400	12/26/19 17:10	90.1	%		0.01		STC
1912189-22	O	% Solids, Total Volatile	12/31/19 0:30	SM 25400	12/31/19 16:19	88.4	%		0.01		ANM
Thickener Underflow #2 (20001-0900}											
1912015-24	O	% Solids, Total Volatile	12/03/19 0:10	SM25400	12/4/19 07:19	88.6	%		0.01		STC
1912031-24	O	% Solids, Total Volatile	12/05/19 0:15	SM25400	12/5/19 17:11	89.4	%		0.01		JAH
1912063-24	O	% Solids, Total Volatile	12/10/19 1:25	SM25400	12/10/19 16:28	86.2	%		0.01		TL,G
1912081-24	O	% Solids, Total Volatile	12/12/19 0:38	SM 25400	12/12/19 15:49	88.4	%		0.01		ANM
1912109-24	O	% Solids, Total Volatile	12/17/19 2:05	SM 25400	12/17/19 16:32	88.6	%		0.ot		SOR
1912126-24	O	% Solids, Total Volatile	12/19/19 1:20	SM2S400	12/19/19 16:03	89.9	%		0.01		IYC
Thickener Underflow #3 {20001-1100}											
1912015-26	O	% Solids, Total Volatile	12/03/19 0:13	SM 25400	12/4/19 07:19	90.2	%		0.01		STC
1912031-26	O	% Solids, Total Volatile	12/05/19 0:18	SM2540G	12/5/19 17:11	89.0	%		0.01		JAH
1912063-26	O	% Solids, Total Volatile	12/10/19 1:28	SM25400	12/10/19 16:28	87.2	%		0.01		TLG
1912081-26	O	% Solids, Total Volatile	12/12/19 0:41	SM 25400	12/12/19 15:49	89.5	%		0.ot		ANM
1912109-26	D	% Solids, Total Volatile	12/17/19 2:10	SM2540G	12/17/19 16:32	89,3	%		0.01		SDR
1912126-26	D	% Solids, Total Volatile	12/19/19 1:25	SM 25400	12/19/19 16:03	89.5	%		0.01		IYC
1912152-26	O	% Solids, Total Volatile	12/24/19 1:15	SM25400	1-2/24/19 16:54	88.0	%		0.01		SOR
1912163-26	O	% Solids, Total Volatile	12/26/19 0:20	SM 25400	12/26/19 17:10	89.5	% .		0.01		STC
1912189-26	O	% Solids, Total Volatile	12/31/19 0:34	SM25400	12/31/19 16:19	89.4	%		0.01		ANM
Thickener Underflow #4 (20001-1300)											
1912015-28	O	% Solids, Total Volatile	12/03/19 0:15	SM2S400	12/4/19 07:19	87.6	%		0.ot		STC
1912031-28	O	% Solids, Total Volatile	12/05/19 0:20	SM 25400	12/5/19 17:11	87.8	%		0.01		JAH
1912063-28	O	% Solids, Total Volatile	12/10/19 1:31	SM 2540G	12/10/19 16:28	84.9	%		0.01		TLG
1912081-28	O	% Solids, Total Volatile	12/12/19 0:45	SM 2540G	12/12/19 15:49	87.8	%		0.ot		ANM
1912109-28	O	% Solids, Total Volatile	12/17/19 2:00	SM 25400	12/17/19 16:32	88.0	%		0.ot		SOR
1912126-28	O	% Solids, Total Volatile	12/19/19 1:29	SM 25400	12/19/19 16:03	90.6	%		0.01		IYC
1912152-28	O	% Solids, Total Volatile	12/24/19 1:20	SM 25400	12/24/19 16:54	87.8	%		0.01		SOR
1912163-28	O	% Solids, Total Volatile	12/26/19 0:23	SM 25400	12/26/19 17:10	90.1	%		0.01		STC
1912189-28	O	% Solids, Total Volatile	12/31/19 0:38	SM 2540G	12/31/19 16:19	87.3	%		0.01		ANM
Digester #1 to Centrifu1e (20001-2101}											
1912008-20	C	% Solids, Total Volatile	12/01/19 2:30	SM25400	12/2/19 15:30	77.9	%		0.01		SOR
1912023-19	C	% Solids, Total Volatile	12/03/19 8:50	SM25400	12/4/19 15:57	74.6	%		0.01		STC
1912038-20	C	% Solids, Total Volatile	12/05/19 I3:45	SM25400	12/6/19 15:27	61.0	%		0.01		AV
1912056-20	C	% Solids, Total Volatile	12/08/19 13:57	SM 25400	12/9/19 16:58	75.0	%		0.ot		STC

Qualifier Definitions

D2	Sample required dilution due to high concentration of target analyte.
J	Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
NI	See case narrative.
Q6	Sample was received above recommended temperature.

General Notes and Definitions

J	Equivalent to E4 Qualifier - Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL) but above MDL.
ND	Analyte NOT DETECTED at or above reporting limit (MDL). Equivalent to ES Qualifier - Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
C	Sample Type - Composite
CD	Sample Type - Composite Duplicate
D	Sample Type - Discrete
DD	Sample Type - Discrete Duplicate
NR	Not Reported
DET	Analyte DETECTED
DRY	Sample results reported on a dry weight basis
RPO	Relative Percent Difference
Analysis Date	Analysis Date represents the final reading date.
Field Results	Field Results performed by "SMPLR" (Sampler), are not subject to approval of Laboratory Director.
Solids, Total Volatile	Used for process control samples only.
RE	Re-Analysis has been performed.
FD	Field Duplicate
FB	Field Blank
UC	Under Construction
EB	Equipment Blank

Case Narrative(s)

1912170-14 to-25

Total Volatile Solids, SM2540G: The confirmation *550* °C muffle bum time (28 minutes) was less than the method required 30 minutes. The sample weights confirmed. ESW 12/31/2019

Pima County Regional Wastewater Reclamation Department

Compliance and Regulatory Affairs Office Laboratory

CHAIN OF CUSTODY

ORDER • ""'PLE(SJ

11 I'I II'J.-O/

PROJECT & LOCATION: Regional Biosolids Facility Management - Dewatered Cake Biosolids

PROJECT-LOCATION NUMBER: 20002-5703

SAMPLE START DATE: 12/16/2019 (MMIIIIIN't OR MIWIIIYYYY)

SAMPLE START TIME: 1045 (-,Imo)

CLIENT: Deputy Director-Treatment

SAMPLE END DATE: 12/16/2019 (MM/DI/YY OR MJMJO/YYYY)

SAMPLE END TIME: 2305 (Mltlry-)

SAMPLER(S): Vasquez, Mondragon (Print LHt Name(e) Only)

Permit Type: ☐ APP ☐ AZPDES ☐ IWC D Investigative ☐ Reuse O Air ■ 503 D Process Control 0 Other _____

Matrix: ■ Biosolids ☐ Groundwater ☐ Industrial ☐ Soil ☐ Stormwater ☐ Surface Water D Wastewater O Air D Other _____

INORGANIC CHEMISTRY

METALS	Tot	Diss	D	C
Aluminum	☐	☐	☐	☐
Antimony	☐	☐	☐	☐
Arsenic	☐	☐	☐	☐
Barium	☐	☐	☐	☐
Beryllium	☐	☐	☐	☐
Boron	☐	☐	☐	☐
Cadmium	☐	☐	☐	☐
Calcium	☐	☐	☐	☐
Chromium	☐	☐	☐	☐
Cobalt	☐	☐	☐	☐
Copper	☐	☐	☐	☐
Hardness	☐	☐	☐	☐
Iron	☐	☐	☐	☐
Lead	☐	☐	☐	☐
Magnesium	☐	☐	☐	☐
Manganese	☐	☐	☐	☐
Mercury	X		☐	■
Mercury LL	☐	☐	☐	☐
Molybdenum	☐	☐	☐	☐
Nickel	☐	☐	☐	☐
Potassium	☐	☐	☐	☐
Selenium	☐	☐	☐	☐
Silver	X		☐	■
Sodium	☐	☐	☐	☐
Thallium	☐	☐	☐	☐
Tin	☐	☐	☐	☐

METALS	Tot	Diss	D	C
Titanium	☐	☐	☐	☐
Vanadium	☐	☐	☐	☐
Zinc	☐	☐	☐	☐
PPMs*	☐	☐	☐	☐
TCLP Metals			☐	☐
503 Metals **			☐	■
Dissolved Cr+6			☐	☐

WET METHODS	D	C
Ammonia as N	☐	■
Chloride	0	0
Cyanide, Total	D	D
Cyanide, Amenable	D	D
Fluoride	O	D
Ignitability	O	0 ■
[illegible]		■
Nitrate/Nitrite as N	D	D
Nitrogen, Total Kjeldahl	D	D
Nitrogen, Total as N	☐	■
Orthophosphate as P	D	D
Phosphorus, Total as P	D	O
Sulfate	O	D
Sulfide	0	0
Other _____	D	D
Other _____	☐	☐

ORGANIC CHEMISTRY

	D	C
Acrolein and Acrylonitrile	☐	☐
Dioxin GC/SIM/MS Scan	☐	☐
Organochlorine Pesticides & PCBs	☐	☐
Purgeable Organics (GCMS)	☐	☐
Semivolatile Organics (GCMS)	☐	☐
Bis(2-ethylhexyl) phthalate	☐	☐
Digester Gas	☐	☐
Oil and Grease	☐	☐
Organic Carbon, Total	☐	☐
Organic Carbon, Dissolved	☐	☐
TCLP Herbicides (Contract Lab)	☐	☐
TCLP Pesticides	☐	☐
TCLP Semivolatile Organics	☐	☐
TCLP Volatile Organics	☐	☐
TTHM	☐	☐
Total Petroleum Hydrocarbons	☐	☐
Volatile Acids	☐	☐
Other _____	☐	☐
Other _____	☐	☐

EFFLUENT TOXICITY TESTING

	D	C
Chronic *P. promelas*	☐	☐
Chronic *C. dubia*	☐	☐
Chronic *Selenastrum capricornutum*	☐	☐
Other _____	☐	☐

MICROBIOLOGY - WET CHEM

	D	C
Alkalinity	☐	☐
BOD	☐	☐
COD	☐	☐
Coliform, Fecal	☐	☐
Coliform, Total	☐	☐
Specific Conductance	☐	☐
E.coli	☐	☐
Oxygen, Dissolved	☐	☐
pH	☐	☐
Solids, Total	☐	■
Solids, Total Dissolved	☐	☐
Solids, Total Suspended	☐	☐
Solids, Total Volatile	☐	☐
Solids, Volatile Suspended	☐	☐
Other _____	☐	☐

OTHER

	D	C
Paint Filter	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐

COMPLIANCE FIELD MEASUREMENTS

	Result	Units
☐ Chlorine *Hach 10014*	_____	µg/L
D Specific Conductance *SM2510B*	_____	µmhos/cm
D Oxygen, Dissolved *SM4500-OG*	_____	mg/L
☐ PH @ pH Temp *SM4500-HB*	_____ @	pH Units@ °C
D Temperature *SM2550B*	_____	°C
0 Total Depth of Well	_____	feet
D Depth to Water	_____	feet
D Other _____	_____	_____

Comments/Instructions:
Poured off the daily sample 1912108-08

Septum Blank Prep Date & Initials:

Chain of Custody Record (Signatures Only)

See 1912109-08 for COC

Relinquished by Sampler:	Received by:	Date:	Time: (Military time)
Relinquished by:	Received by:	Date:	Time: (Military time)
Relinquished by:	Received by:	Date:	Time: (Military time)
Relinquished by:	Received by:	Date:	Time: (Military time)

Sample Integrity/Preservation:

of Bottles Delivered: (2) Gal

Transported on Ice: 0 YES IBJ NO

Lab Receipt

Temperature: I °C

Initials: G'fl}

as qualifier? ♦ YES 0 NO

LAB USE ONLY

Sample Inspection:	Yes	No	NA
Chain of Custody Record completed appropriately?	IBJ	☐	☐
Sample labels match Chain of Custody?	IBJ	☐	☐
Correct number of sample bottles were delivered?	IBJ	☐	☐
Custody seals intact?	☐	☐	IBJ
Within holding time?	IBJ	☐	☐
Sufficient sample volume for analysis?	IBJ	☐	☐
Samples are in properly preserved containers?	IBJ	☐	☐
Sample containers damaged/leaking/frozen?	☐	IBJ	☐
40 ml vials headspace, > pea-sized air bubble?	☐	☐	IBJ
Received from a refrigerator?	☐	IBJ	☐

• *Sb, As, Be, Cd, Cr, Cu, Pb, Ni, Se, Ag, Tl, Zn, Mercury(Cold Vapor)*
- *As, Cd, Cr, Cu, Pb, Mercury, Mo, Ni, Se, Zn*

COG-Single Revision 2 Revised: 03/12/2015

Pima County Regional wastewater Reclamation Department

Compliance and Regulatory Affairs Office Laboratory

COPY

CHAIN OF CUSTODY

NUMBER OF BOTTLES:

PROJECT: Tres Rios WRF

PROJECT NUMBER: 20001

SAMPLES START DATE: 12/16/2019 MM/00/YY or MM/00/YYYY

CLIENT: Tres Rios Operations

SAMPLES END DATE: 12/1612019 MMDDYY or MMDDYYY

SAMPLER(S): Vasquez, McNi (Print Last Name Only)

COMMENTS: 11A-1-II

Work Order ID: 1'111(t,'f

Sample	Location Description Location Number	DC	Composite Sample Start Time	Microbiology: Alkalinity	BOD	COD	E. coli	pH	Solids, Total	Solids, Total Grams	Solids, Total Dissolved	Solids, Total Suspended	Solids, Total Volatile	Solids, Volatile Suspended	Soluble BOD	Soluble COD	Specific Conductance	Inorganic: Air Filter Be or Pb	Ammonia	Chloride	Cyanide, Total	Cyanide, Amenable	Fluoride	Hardness	Metals *	Nitrate	Nitrite	Nitrate/Nitrite	Nitrogen, Total Kjeldahl	Nitrogen, Total	Orthophosphate	Phosphorus, Total	Sulfate	Organic: Digester Gas	Oil and Grease	TTHM	VOA	Field: Field Ammonia Probe Result (mg/L)	Field Nitrate Probe Result (mg/L)	Sample End Time (Military time)	Initials
0·1	Centrifuge Feed Sludge 5300		1036						■																																2300	Er
aS	Dewatered Cake Biosolids 5703		1046																																						2305	Er
	Thickened To Avragro 5701																																									
la	Centrate 5501		1026						■																																2.JIO	E11
	Thickened Cake Biosolids 5600																																									
	Unprocessed sludge to Avragro 5702																																									

* Please indicate soecific metals reauest here:

Chain of Custody Record (Signatures Only)

Relinquished by Sampler:	Received by:	Date:	Time: (Military time)
Refrigerator @ 12		12-16-2019	23\.
Refrigerator@ /2-	J/Uv.{ f.n	/2../ /;}-/IP]	u o3
Relinquished by:	Receiveaoy:	Date:	Time: (Military time)
Relinquished by:	Received by:	Date:	Tune: (Military time)
Re nquished by:	Received by:	Date:	Tme: (Military lime)

LabU..Only

	Y•.	No	NA
Chain of Custody Record completed appropriately?			D
Sample Labels match Chain of Custody?	♦♦		D
Correct number of sample bottles were delivered?	DY	D	D
Custody seals intact?	D	D	B"
Within holding time?	(0""	D	D
Sufficient sample volume for analysis?	1g/o		D
Samples are in properly preserved containers?	co/	D	D
Sample containers damaged/leaking/frozen?	D	CY	D
40 ml vials headspace, > pea-sized air bubble?	D	D	[],,'
Received from a refrigerator?	Ir""	D	D

Temperature: 0.2 oc Initials: ::t<:-

CCC-Multiple-Revision 2 Revised: 03/12/2015

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ANNUAL BIOSOLIDS REPORT 2019

REGIONAL WATER
RECLAMATION DEPARTMENT

TREATMENT DIVISION

PIMA COUNTY
TUCSON, ARIZONA

PIMA COUNTY
WASTEWATER RECLAMATION

SECTION 4

LAND APPLICATION EVENTS LABORATORY ANALYSES

Crop Plant and Harvest Schedule

AVRAGRO SYSTEMS, INC.
LAND APPLICATION CONTRACTOR
2019

PIMA COUNTY
REGIONAL BIOSOLIDS MANAGEMENT FACILITY
TRES RIOS WRF
AZPDES NO. AZ0020001

ANNUAL BIOSOLIDS REPORT 2019

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ANNUAL BIOSOLIDS REPORT 2019

BIOSOLIDS SEWAGE SLUDGE 2019 ANNUAL REPORT FORM LAND APPLICATION EVENTS LABORATORY ANALYSES

Crop Plant and Harvest Schedule

AVRAGRO SYSTEMS, INC. LAND APPLICATION CONTRACTOR 2019

CERTIFICATION

"I certify, under penalty of law, that the information that will be used to determine compliance with the management practices in §503.32(b)(5) was prepared for each site on which bulk sewage sludge was applied under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

Project(s):

Pima County, AZ Liquid

Reporting Period: January 2019 – December 2019

Name: John Kai, Jr. Avragro Systems Inc.

Signature: _____ Date: 1-24-2020

PLANT AND HARVEST DATES 2019

Field ID	Crop	Plant Date	Harvest Date
Lawrence1N	Alfalfa	3/3/2019	Monthly
Lawrence2N	Alfalfa	3/3/2019	Monthly
Chapman2	Cotton	4/15/2019	10/30/2019
Chapman1A	Cotton	4/2/2019	11/2/2019
Chapman1B	Cotton	4/1/2019	11/1/2019
GL-1	Cotton	4/14/2019	11/25/2019
TH11N	Corn	3/10/2019	9/15/2019
JK27	Cotton	4/15/2019	11/25/2019
Pima	Pasture Grass	5/25/2019	Bi-monthly
TH4	Barley	12/25/2019	6/15/2020
TH3	Barley	12/25/2019	6/15/2020
TH5	Barley	12/25/2019	6/15/2020
Lawrence1S	Corn	3/10/2020	9/15/2020
Lawrence2S	Corn	3/10/2020	9/15/2020
Lawrence5	Corn	3/10/2020	9/15/2020
Graveyard2	Corn	3/10/2020	9/15/2020
Keeling	Corn	3/10/2020	9/15/2020
Lawrence7	Corn	3/10/2020	9/15/2020
Lawrence8	Corn	3/10/2020	9/15/2020
Lawrence6	Corn	3/10/2020	9/15/2020
CL-12	Corn	3/10/2020	9/15/2020
V1	Wheat	12/25/2019	6/3/2020
V2	Wheat	12/25/2019	6/3/2020
V3	Wheat	12/25/2019	6/3/2020
NV-1	Wheat	12/25/2019	6/3/2020
TS5	Wheat	12/25/2019	6/3/2020
TS3	Wheat	12/25/2019	6/3/2020
TS6	Wheat	12/25/2019	6/3/2020
TS1	Wheat	12/25/2019	6/3/2020
JK42	Wheat	12/25/2019	6/3/2020
Hillside	Wheat	12/25/2019	6/3/2020
Hacienda	Corn	3/12/2020	8/30/2020
TS4S	Corn	3/12/2020	8/30/2020
BenrossN	Corn	3/12/2020	8/30/2020
BenrossS	Corn	3/5/2020	8/30/2020
JK3	Wheat	1/15/2020	6/30/2020
Selma1	Corn	3/5/2020	8/30/2020

ARIZONA
DEPARTMENT OF ENVIRONMENTAL QUALITY
AZPDES Individual Permits Unit
1110 W Washington Street
Phoenix, Arizona 85007
(602) 771-4689 (voicemail) (602) 771-4505 (fax)
Email to: biosolids@azdeq.gov

BIOSOLIDS OR SEWAGE SLUDGE ANNUAL REPORT FORM

1. Program Information: All preparers (Generators) and Land Applicators Must complete the following.

Reporting Start Date:1/1/2019	**Reporting End Date: 12/31/2019**
Date:	**AZPDES Permit # (if applicable):**Click here to enter text.
Company name (Preparer / Applicator): Avragro Systems Inc.	
Contact Name: Chris Haynes	**Technical Services Manager**
Address: PO Box 91708, Tucson, AZ 85752 **Phone:** 520-990-8888	**E-mail:johnkaijr@yahoo.com, 4chrish@gmail.com**

Please select one of the following options pertaining to your obligation to submit a Biosolids Annual Report. My facility is a:

☐ POTW with a design flow equal to or greater than 1 MGD Per Day

☐ POTW that serves 10,000 people or more

☐ Class I Sludge Management Facility as defined by 40 CFR 503.9

☒ Biosolids Applicator (Complete Section 5 only)

☐Other Click here to enter text.

What is the estimated total of volume of biosolids or sewage sludge generated at your facility (in dry metric tons)?

Click here to enter text.

Were all biosolids removed from your facility sent to a landfill for disposal? Choose an item.

If yes, provide the name and address of the landfill(s). Click here to enter text.

If all biosolids or sewage sludge was sent to a landfill for disposal, you do not need to complete the remainder of this form, as it is only applicable to facilities preparing bisolids or sewage sludge for land application.

Certification: I certify, under penalty of law, that the information and descriptions, have been made under my direction and supervision and under a system designed to ensure that qualified personnel properly gather and evaluate the information used to determine whether the applicable biosolids requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

Signature: Title:	Date:

BIOSOLIDS SEWAGE SLUDGE ANNUAL REPORT

2. Generator/Preparers - Biosolids Storage and Treatment Processes

2.1 Please check the box next to the following biosolids or sewage sludge storage practices and treatment processes used on the sewage sludge or biosolids generated or produced at your facility during the reporting period.

Storage Practices

☐ Biosolids are stored in lined lagoons or impoundments

☐ Biosolids stored directly on the ground

Physical Treatment Processes

☐ Preliminary Operations (e.g. sludge grinding, degritting, blending

☐ Thickening (e.g. gravity floatation, centrifugation, belt filter press, vacuum filter)

☐ Sludge lagoon

Pathogen Reduction Operations (PSRP)

☐ Aerobic Digestion

☐ Air Drying (or "sludge drying beds")

☐ Anaerobic Digestion

☐ Lower Temperature Composting

☐ Lime Stabilization

Process to Further Reduce Pathogens (PFRP)

☐ Higher Temperature Composting

☐ Heat Drying (e.g. flash dryer, spray dryer, rotary dryer)

☐ Heat Treatment (Liquid sewage sludge is heated to temp of 356 °F (180 °C) or higher for 30 minutes

☐ Thermophilic Aerobic Digestion

☐ Beta Ray Irradiation

☐ Gamma Ray Irradiation

☐ Pasteurization

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3. Generators/Preparers: Disposition of Biosolids or Sewage Treatment Sludge:

3.1 At the beginning of the year, did you have any biosolids or sewage sludge stored on site or remaining from previous years? Include any amount that is being stored anywhere. Choose an item.

If yes provide the following information:

	CLASS A Biosolids	Class B Biosolids
Dry Ton Weight	Click here to enter text.	Click here to enter text.
Pathogen Testing	Choose an item.	Not applicable
Pathogen Reduction Method	Choose an item.	Choose an item.
Vector Attraction Reduction Method	Choose an item.	Choose an item.
Storage Locations	Click here to enter text.	Click here to enter text.

3.2 At the end of the year, are any biosolids or sewage sludge stored on site? Choose an item.

If yes, provide the following information:

	CLASS A Biosolids	Class B Biosolids
Dry Ton Weight	Click here to enter text.	Click here to enter text.
Pathogen Testing	Choose an item.	Not applicable
Pathogen Reduction Method	Choose an item.	Choose an item.
Vector Attraction Reduction Method	Choose an item.	Choose an item.
Storage Locations	Click here to enter text.	Click here to enter text.

3.3 Were biosolids or sewage sludge received from another facility during the year, such as another wastewater treatment plant or another APP permitted facility for further processing? Choose an item.

If yes provide the following information for each facility. Click the plus sign to create as many tables as needed.

Name of Facility		
Location:		
	CLASS A Biosolids	Class B Biosolids
Dry Ton Weight	Click here to enter text.	Click here to enter text.
Pathogen Testing	Choose an item.	Not applicable
Pathogen Reduction Method	Choose an item.	Choose an item.
Vector Attraction Reduction Method	Choose an item.	Choose an item.
Storage Locations	Click here to enter text.	Click here to enter text.

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3.4. Were biosolids removed from your facility for land application? Include all recipients, including haulers, name, phone number, land applicators, composters, drying facilities, EQB bagging facilities, bulk composting, etc.

Name of Facility	Click here to enter text.	
Management Practice Type:	Click here to enter text.	
Handler or Preparer Type:	Click here to enter text.	
Management Practice Detail:	Click here to enter text.	
Bag or Bulk Container:	Choose an item.	
	CLASS A Biosolids	Class B Biosolids
Dry Ton Weight	Click here to enter text.	Click here to enter text.
Pathogen Testing	Choose an item.	Not applicable
Pathogen Reduction Method	Choose an item.	Choose an item.
Vector Attraction Reduction Method	Choose an item.	Choose an item.
Storage Locations	Click here to enter text.	Click here to enter text.

4. Generators/Preparers : Biosolids or Sewage Sludge Analytical Methods

Arizona regulations specify that representative samples of sewage sludge that is land applied, placed on a surface disposal site, or fired in s sewage sludge incinerator, must be collected and analyzed. These regulations specify the analytical methods that must be used to analyzed samples of sewage sludge.

Parameter	*Method Number or Author*	*Results (if tested)*	*Comments (required if other)*
Pathogens			
Ascaris ova.	Choose an item.	Click here to enter text.	Click here to enter text.
Fecal Coliform	Choose an item.	Click here to enter text.	Click here to enter text.
Helminth ova.	Choose an item.	Click here to enter text.	Click here to enter text.
Salmonella sp. Bacteria	Choose an item.	Click here to enter text.	Click here to enter text.
Total Cultural Viruses	Choose an item.	Click here to enter text.	Click here to enter text.
Metals			
Arsenic	Choose an item.	Click here to enter text.	Click here to enter text.
Beryllium	Choose an item.	Click here to enter text.	Click here to enter text.
Cadmium	Choose an item.	Click here to enter text.	Click here to enter text.
Chromium	Choose an item.	Click here to enter text.	Click here to enter text.
Copper	Choose an item.	Click here to enter text.	Click here to enter text.
Lead	Choose an item.	Click here to enter text.	Click here to enter text.
Mercury	Choose an item.	Click here to enter text.	Click here to enter text.
Molybdenum	Choose an item.	Click here to enter text.	Click here to enter text.

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Nickel	Choose an item.	Click here to enter text.	Click here to enter text.
Selenium	Choose an item.	Click here to enter text.	Click here to enter text.
Zinc	Choose an item.	Click here to enter text.	Click here to enter text.
Nitrogen Compounds			
Ammonia Nitrogen	Choose an item.	Click here to enter text.	Click here to enter text.
Nitrate Nitrogen	Choose an item.	Click here to enter text.	Click here to enter text.
Nitrogen	Choose an item.	Click here to enter text.	Click here to enter text.
Organic Nitrogen	Choose an item.	Click here to enter text.	Click here to enter text.
Total Kjeldahl Nitrogen	Choose an item.	Click here to enter text.	Click here to enter text.
Other Analytes			
Fixed Solids	Choose an item.	Click here to enter text.	Click here to enter text.
Paint Filter Test	Choose an item.	Click here to enter text.	Click here to enter text.
pH	Choose an item.	Click here to enter text.	Click here to enter text.
Specific Oxygen Uptake Rate	Choose an item.	Click here to enter text.	Click here to enter text.
TCLP	Choose an item.	Click here to enter text.	Click here to enter text.
Temperature	Choose an item.	Click here to enter text.	Click here to enter text.
Total Solids	Choose an item.	Click here to enter text.	Click here to enter text.
Volatile Solids	Choose an item.	Click here to enter text.	Click here to enter text.
No Analytical Methods Used	Choose an item.	Click here to enter text.	Click here to enter text.

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ARIZONA
DEPARTMENT OF ENVIRONMENTAL QUALITY
AZPDES Individual Permits Unit
1110 W Washington Street
Phoenix, Arizona 85007
(602) 771-4689 (voicemail) (602) 771-4505 (fax)
Email to: biosolids@azdeq.gov

5. Land Applicators: Specific information to be completed by Land Applicators Only

Application Site / Location	Field ID	Amount of Biosolids Applied (in dry tons)	Preparer	Pathogen Treatment Method	Vector Attraction Reduction Method	Loading Rate	Nitrogen Conc. (Organic + ammonium)	Type of Crop Grown After Application	Agronomic Rate of Crop Grown	The Cumulative Concentration of Pollutants (kilograms per hectare) in Soil				
Example: ABC Farms, Aztec AZ	*1A*	*350 tons*	*Aztec WWTP*	*Class B Alt. 2*	*Option 9*	*Tons or Kg/acre*		*Corn*						
1 C Lawrence	Lawrence1N	103.03	Pima County WWTP	Class B, Alt 5	Option 1	2.94	118.63	Alfalfa	480	As=.0405	Cd=.0144	Cr=.1560	Cu=2.1383	Pb=.0636
										Hg=.0054	Mo=.0751	Ni=.1214	Se=.0578	Zn=3.8721
2 C Lawrence	Lawrence2N	109.81	Pima County WWTP	Class B, Alt 5	Option 1	2.88	116.45	Alfalfa	480	As=.4569	Cd=.1706	Cr=2.7544	Cu=31.0335	Pb=2.3393
										Hg=.1028	Mo=.7841	Ni=.1.4355	Se=.3633	Zn=61.592

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3. C Lawrence	Chapman2	131.61	Pima County WWTP	Class B, Alt 5	Option 1	2.92	117.86	Cotton	360	As=.0409	Cd=..0146	Cr=0.1579	Cu=2.1642	Pb=.0643
										Hg=..0055	Mo=.0760	Ni=.1228	Se=.0585	Zn=3.9190
4. C Lawrence	Chapman1A	91.12	Pima County WWTP	Class B, Alt 5	Option 1	3.03	122.40	Cotton	360	As=.0425	Cd=.0152	Cr=.1640	Cu=2.2476	Pb=.0668
										Hg=.0057	Mo=.0790	Ni=.1276	Se=.0607	Zn=4.0700
5. Kai Farms Marana, AZ	JK7	468.7	Pima County WWTP	Class B, Alt 5	Option 1	2.45	98.89			As=.7043	Cd=.3100	Cr=4.2644	Cu=56.44	Pb=4.1266
										Hg=.1651	Mo=1.4254	Ni=2.5607	Se=.5899	Zn=112.7053

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6. Kai Farms Marana, AZ	JK9	231.11	Pima County WWTP	Class B, Alt 5	Option 1	1.23	49.81			As=.6872	Cd=.3039	Cr=4.1986	Cu=55.5404	Pb=4.0998
										Hg=.1628	Mo=1.3937	Ni=2.5095	Se=.5655	Zn=111.0731
7. T Hum	TH11N	100.63	Pima County WWTP	Class B, Alt 5	Option 1	1.32	41.18	Corn	350	As=.7139	Cd=.3002	Cr=4.9223	Cu=52.4306	Pb=3.3124
										Hg=.1469	Mo=1.7036	Ni=3.0137	Se=.6543	Zn=98.369
8. T Glover	GL-1	355.35	Pima County WWTP	Class B, Alt 5	Option 1	3.06	95.27	Cotton	360	As=.8439	Cd=.3361	Cr=4.3431	Cu=55.5154	Pb=3.761
										Hg=.1456	Mo=1.5153	Ni=2.6112	Se=.6025	Zn=92.4753

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9. C Lawrence	Chapman1B	68.03	Pima County WWTP	Class B, Alt 5	Option 1	0.27	8.35	Cotton	360	As=.4403	Cd=.22	Cr=3.3423	Cu=37.0259	Pb=3.1905
										Hg=.1122	Mo=.9069	Ni=1.7896	Se=.3571	Zn=60.7655
10. C Lawrence	Chapman1A	8.05	Pima County WWTP	Class B, Alt 5	Option 1	1.28	42.3	Cotton	360	As=1.245	Cd=.444	Cr=6.5586	Cu=73.3013	Pb=4.674
										Hg=.2501	Mo=2.6623	Ni=3.7622	Se=.9042	Zn=132.1364
11. Kai Farms Marana, AZ	JK7	503.03	Pima County WWTP	Class B, Alt 5	Option 1	2.63	81.91			As=.0369	Cd=.0158	Cr=.1475	Cu=1.9489	Pb=.0521
										Hg=.0037	Mo=.0790	Ni=.1211	Se=.0527	Zn=3.4765

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12. Kai Farms Marana, AZ	JK9	54.02	Pima County WWTP	Class B, Alt 5	Option 1	0.29	8.98			As=.0040	Cd=.0017	Cr=.0162	Cu=.2138	Pb=.0057
										Hg=.0004	Mo=.0087	Ni=.0133	Se=.0058	Zn=.3813
13. Kai Farms Marana, AZ	JK7	704.81	Pima County WWTP	Class B, Alt 5	Option 1	3.69	53.43			As=.0152	Cd=.0054	Cr=.0582	Cu=.6894	Pb=.0259
										Hg=.0015	Mo=.0280	Ni=.0431	Se=.0215	Zn=1.4434
14. Kai Farms Marana	JK9	619.62	Pima County WWTP	Class B, Alt 5	Option 1	3.31	84.56			As=.0302	Cd=.0108	Cr=.1166	Cu=1.3821	Pb=.0518
										Hg=.0030	Mo=.0561	Ni=.0864	Se=.0432	Zn=2.8937

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15. T hum	Th11N	162.19	Pima County WWTP	Class B, Alt 5	Option 1	2.13	77.25	Corn	350	As=.5798	Cd=.1701	Cr=2.5114	Cu=33.6192	Pb=1.7760
										Hg=.1024	Mo=1.3441	Ni=1.6256	Se=.4829	Zn=63.1550
16. Kai Farms Marana AZ	JK27	246.18	Pima County WWTP	Class B, Alt 5	Option 1	1.33	48.17	Cotton	360	As=.8718	Cd=.3442	Cr=4.4462	Cu=56.3487	Pb=3.7928
										Hg=.1482	Mo=1.5542	Ni=2.7197	Se=.6272	Zn=94.3327
17. Kai Farms Marana Az	JK9	966.08	Pima County WWTP	Class B, Alt 5	Option 1	5.16	29.85			As=.0009	Cd=.0003	Cr=.00034	Cu=.0403	Pb=.0014
										Hg=.0001	Mo=.0016	Ni=.0025	Se=.0013	Zn=.0845

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18. Pima County Farm	Pima	247.14	Pima County WWTP	Class B, Alt 5	Option 1	3.63	128.66	Pasture Grass	400	As=.1.3100	Cd=.4303	Cr=6.4910	Cu=86.7924	Pb=5.0305
										Hg=.2765	Mo=3.1466	Ni=4.2182	Se=1.1409	Zn=165.4728
19 T Hum	TH4	642.41	Pima County WWTP	Class B, Alt 5	Option 1	4.52	160.15	Barley	300	As=.1830	Cd=.0629	Cr=.8268	Cu=14.9920	Pb=1.2540
										Hg=.0277	Mo=.4332	Ni=.8111	Se=.1863	Zn=23.6020
20. T Hum	TH3	84.29	Pima County WWTP	Class B, Alt 5	Option 1	0.58	20.58	Barley	300	As=.3020	Cd=.1110	Cr=1.4687	Cu=20.8539	Pb=1.5145
										Hg=.0773	Mo=.7664	Ni=1.1231	Se=.2275	Zn=42.0394

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21. Pima County	Pima	2362.10 Tons Thickened	Pima County WWTP	Class B, Alt 5	Option 1	2.07	70.66	Pasture Grass	400	As=1.2591	Cd=.4158	Cr=6.2947	Cu=84.4663	Pb=4.9505
										Hg=.2714	Mo=3.0521	Ni=4.0728	Se=1.0682	Zn=160.6026
22. T Hum	TH5	469.02	Pima County WWTP	Class B, Alt 5	Option 1	2.07	70.66	Barley	300	As=.3343	Cd=.1091	Cr=1.4401	Cu=25.9409	Pb=2.1058
										Hg=.0598	Mo=.7261	Ni=1.0736	Se=.2766	Zn=47.3899
23. T Hum	TH3	528.48	Pima County WWTP	Class B, Alt 5	Option 1	3.64	124.65	Barley	300	As=.3449	Cd=.1233	Cr=1.6341	Cu=22.8145	Pb=1.5965
										Hg=.0816	Mo=.8461	Ni=1.2456	Se=.2888	Zn=46.1444

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24. T Hum	TH5	562.99	Pima County WWTP	Class B, Alt 5	Option 1	2.03	78.45	Barley	300	As=.3298	Cd=.1110	Cr=1.4383	Cu=25.9193	Pb=2.0927
										Hg=.0607	Mo=.7252	Ni=1.8893	Se=.2719	Zn=47.3437
25. C Lawrence	Lawrence1S	125.05	Pima County WWTP	Class B, Alt 5	Option 1	3.47	134.08	Corn	350	As=.0415	Cd=.0174	Cr=.1876	Cu=2.2231	Pb=.0695
										Hg=.0065	Mo=.0903	Ni=1.5354	Se=.0625	Zn=4.6547
26. C Lawrence	Lawrence2S	128.87	Pima County WWTP	Class B, Alt 5	Option 1	3.39	130.90	Corn	350	As=.0407	Cd=.0170	Cr=.1831	Cu=2.1704	Pb=.0678
										Hg=.0064	Mo=.0882	Ni=1.4989	Se=.0610	Zn=4.5442

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27. C Lawrence	Lawrence5	90.75	Pima County WWTP	Class B, Alt 5	Option 1	2.93	113	Corn	350	As=.0351	Cd=.0145	Cr=.1581	Cu=1.8736	Pb=.0585
										Hg=.0055	Mo=.0761	Ni=1.2939	Se=.0527	Zn=3.9228
28. C Lawrence	Graveyard2	1264.42	Pima County WWTP	Class B, Alt 5	Option 1	4.13	28.94	Corn	350	As=.0075	Cd=.0031	Cr=.0339	Cu=.4024	Pb=.0126
										Hg=.0012	Mo=.0163	Ni=.2779	Se=.0113	Zn=.8425
29. C Lawrence	Lawrence7	158.25	Pima County WWTP	Class B, Alt 5	Option 1	3.96	20.97	Corn	350	As=.0351	Cd=.0145	Cr=.1581	Cu=1.8736	Pb=.0585
										Hg=.0012	Mo=.0163	Ni=.2779	Se=.0113	Zn=.8425

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30. C Lawrence	Keeling	621.20	Pima County WWTP	Class B, Alt 5	Option 1	4.08	21.67	Corn	350	As=.0075	Cd=.0031	Cr=.0339	Cu=.4024	Pb=.0126
										Hg=.0012	Mo=.0163	Ni=.2779	Se=.0113	Zn=.8425
31. C Lawrence	Lawrence8	156.61	Pima County WWTP	Class B, Alt 5	Option 1	4.12	21.85	Corn	350	As=.0075	Cd=.0031	Cr=.0339	Cu=.4024	Pb=.0126
										Hg=.0012	Mo=.0163	Ni=.2779	Se=.0113	Zn=.8425
32. C Lawrence	Lawrence6	140.19	Pima County WWTP	Class B, Alt 5	Option 1	4.38	23.22	Corn	350	As=.0075	Cd=.0031	Cr=.0339	Cu=.4024	Pb=.0126
										Hg=.0012	Mo=.0163	Ni=.2779	Se=.0113	Zn=.8425

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33. C Lawrence	CL12	154.13	Pima County WWTP	Class B, Alt 5	Option 1	4.4	23.24	Corn	350	As=.0075	Cd=.0031	Cr=.0339	Cu=.4024	Pb=.0126
										Hg=.0012	Mo=.0163	Ni=.2779	Se=.0113	Zn=.8425
34. Kai Farms Marana	JK42	59.93	Pima County WWTP	Class B, Alt 5	Option 1	0.39	2.25	Wheat	300	As=.5670	Cd=.1756	Cr=3.0272	Cu=31.5588	Pb=2.0748
										Hg=.1003	Mo=1.0688	Ni=1.4713	Se=.4533	Zn=57.7782
35. C Lawrence	V1	66.09	Pima County WWTP	Class B, Alt 5	Option 1	3.67	21.37	Wheat	300	As=.0220	Cd=.0037	Cr=.0389	Cu=.5214	Pb=.0147
										Hg=.0012	Mo=.0206	Ni=.0264	Se=.0367	Zn=.9547

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36. C Lawrence	V2	70.85	Pima County WWTP	Class B, Alt 5	Option 1	3.94	22.91	Wheat	300	As=.0236	Cd=.0039	Cr=.0417	Cu=.5589	Pb=.0157
										Hg=.0031	Mo=.0220	Ni=.0283	Se=.0394	Zn=1.0234
37. C Lawrence	V3	50.37	Pima County WWTP	Class B, Alt 5	Option 1	3.87	22.55	Wheat	300	As=.0232	Cd=.0039	Cr=.0411	Cu=.5502	Pb=.0155
										Hg=.0012	Mo=.0217	Ni=.0279	Se=.0387	Zn=1.0074
38. C Lawrence	NV1	129.86	Pima County WWTP	Class B, Alt 5	Option 1	3.61	20.99	Wheat	300	As=.0216	Cd=.0036	Cr=.0382	Cu=.5122	Pb=.0144
										Hg=.0012	Mo=.0202	Ni=.0260	Se=.0361	Zn=.9379

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39. C Lawrence	TS5	125.81	Pima County WWTP	Class B, Alt 5	Option 1	3.59	20.92	Wheat	300	As=.0216	Cd=.0038	Cr=.0381	Cu=.5104	Pb=.0144
										Hg=.0012	Mo=.0202	Ni=.0259	Se=.0359	Zn=.9346
40. C Lawrence	TS3	114.69	Pima County WWTP	Class B, Alt 5	Option 1	3.19	18.54	Wheat	300	As=.0191	Cd=.0032	Cr=.0338	Cu=.4524	Pb=.0127
										Hg=.0010	Mo=.0178	Ni=.0229	Se=.0319	Zn=.8283
41. C Lawrence	TS6	133.70	Pima County WWTP	Class B, Alt 5	Option 1	3.43	19.95	Wheat	300	As=.0206	Cd=.0034.	Cr=.0363	Cu=.4868	Pb=.0137
										Hg=.0011	Mo=.0192	Ni=.0247	Se=.0343	Zn=.8913

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42. C Lawrence	TS1	244.52	Pima County WWTP	Class B, Alt 5	Option 1	3.82	20.87	Wheat	300	As=.0014	Cd=.0002	Cr=.0026	Cu=.0342	Pb=.0010
										Hg=.0001	Mo=.0013	Ni=.0017	Se=.0024	Zn=.0626
43. C Lawrence	Hillside	170.83	Pima County WWTP	Class B, Alt 5	Option 1	3.29	17.87	Wheat	300	As=.0014	Cd=.0002	Cr=.0026	Cu=.0342	Pb=.0010
										Hg=.0001	Mo=.0013	Ni=.0017	Se=.0024	Zn=.0626
44. C Lawrence	Hacienda	455.97	Pima County WWTP	Class B, Alt 5	Option 1	3.59	19.53	Corn	350	As=.0014	Cd=.0002	Cr=.0026	Cu=.0342	Pb=.0010
										Hg=.0001	Mo=.0013	Ni=.0017	Se=.0024	Zn=.0626

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45. C Lawrence	TS4S	71	Pima County WWTP	Class B, Alt 5	Option 1	3.55	19.31	Corn	350	As=.0014	Cd=.0002	Cr=.0026	Cu=.0342	Pb=.0010
										Hg=.0001	Mo=.0013	Ni=.0017	Se=.0024	Zn=.0626
46. C Lawrence	BenrossN	539.39	Pima County WWTP	Class B, Alt 5	Option 1	3.67	19.98	Corn	350	As=.0014	Cd=.0002	Cr=.0026	Cu=.0342	Pb=.0010
										Hg=.0001	Mo=.0013	Ni=.0017	Se=.0024	Zn=.0626
47. C Lawrence	BenrossS	200.09	Pima County WWTP	Class B, Alt 5	Option 1	1.61	8.73	Corn	350	As=.2699	Cd=.2823	Cr=3.6643	Cu=39.8872	Pb=3.6818
										Hg=.1365	Mo=1.0794.	Ni=1.7527	Se=.3559	Zn=66.0320

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48. Kai Farms Marana	JK3	207.85	Pima County WWTP	Class B, Alt 5	Option 1	1.28	0	Wheat	300	As=.2699	Cd=.2823	Cr=3.6643	Cu=39.8872	Pb=3.6818
										Hg=.1365	Mo=1.0794	Ni=1.7527	Se=.3559	Zn=66.0320
49. C Lawrence	Selma 1	104.85	Pima County WWTP	Class B, Alt 5	Option 1	1.4	7.75	Corn	350	As=.0081	Cd=.0014	Cr=.0131	Cu=.1734	Pb=.0053
										Hg=.0003	Mo=.0070	Ni=.0087	Se=.0137	Zn=.3076
	Click here to enter text.	Click here to enter text.	Pima County WWTP	Class B, Alt 5	Option 1	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	As=Click here to enter text.	Cd=Click here to enter text.	Cr=Click here to enter text.	Cu=Click here to enter text.	Pb=Click here to enter text.
										Hg=Click here to enter text.	Mo=Click here to enter text.	Ni=Click here to enter text.	Se=Click here to enter text.	Zn=

		Click here to enter text.	Pima County WWTP	Class B, Alt 5	Option 1	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	As=Click here to enter text.	Cd=Click here to enter text.	Cr=Click here to enter text.	Cu=Click here to enter text.	Pb=Click here to enter text.
										Hg=Click here to	Mo=Click here to	Ni=Click here to	Se=Click here to	Zn=Click here to

BIOSOLIDS SEWAGE SLUDGE ANNUAL REPORT

										enter text.	enter text.	enter text.	enter text.	enter text.
		Click here to enter text.	Pima County WWTP	Class B, Alt 5	Option 1	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	As=Click here to enter text.	Cd=Click here to enter text.	Cr=Click here to enter text.	Cu=Click here to enter text.	Pb=Click here to enter text.
										Hg=Click here to enter text.	Mo=Click here to enter text.	Ni=Click here to enter text.	Se=Click here to enter text.	Zn=Click here to enter text.
	Click here to enter text.	Click here to enter text.	Pima County WWTP	Class B, Alt 5	Option 1	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	As=Click here to enter text.	Cd=Click here to enter text.	Cr=Click here to enter text.	Cu=Click here to enter text.	Pb=Click here to enter text.
										Hg=Click here to enter text.	Mo=Click here to enter text.	Ni=Click here to enter text.	Se=Click here to enter text.	Zn=

Detection Summary

Client: Avra Gro Systems, Inc.
Project/Site: Avra Gro Systems Inc - Solids

TestAmerica Job ID: 550-117501-1

Client Sample ID: Pima Co 1/5/19 12PM JK#7-83 — Lab Sample ID: 550-117501-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	6700	D2 H3	670		mg/Kg	5	☼	9056A	Soluble
Aluminum	2900		66		mg/Kg	1	☼	6010C	Total/NA
Barium	280		33		mg/Kg	1	☼	6010C	Total/NA
Boron	69		66		mg/Kg	1	☼	6010C	Total/NA
Calcium	35000		160		mg/Kg	1	☼	6010C	Total/NA
Chromium	27		13		mg/Kg	1	☼	6010C	Total/NA
Copper	370		16		mg/Kg	1	☼	6010C	Total/NA
Iron	31000		66		mg/Kg	1	☼	6010C	Total/NA
Lead	11		6.6		mg/Kg	1	☼	6010C	Total/NA
Magnesium	6500		160		mg/Kg	1	☼	6010C	Total/NA
Manganese	190		13		mg/Kg	1	☼	6010C	Total/NA
Molybdenum	13		13		mg/Kg	1	☼	6010C	Total/NA
Nickel	21		13		mg/Kg	1	☼	6010C	Total/NA
Potassium	2600		160		mg/Kg	1	☼	6010C	Total/NA
Sodium	1200		330		mg/Kg	1	☼	6010C	Total/NA
Zinc	670		33		mg/Kg	1	☼	6010C	Total/NA
Sulfur	13000		320		mg/Kg	1	☼	6010D	Total/NA
Phosphorus	32000		130		mg/Kg	1	☼	6010D	Total/NA
Nitrogen, Kjeldahl	78000	D2 H3	5500		mg/Kg	20	☼	351.2	Soluble
Ammonia	16000	D2 H3	330		mg/Kg	10	☼	SM 4500 NH3 D	Soluble
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Mercury	0.94	H3	0.60		mg/Kg	1	☼	7471B	Total/NA
pH	8.0	H5	1.7		SU	1		9045D	Soluble

Client Sample ID: Pima Co 1/20/19 2:20 JK#7-83 — Lab Sample ID: 550-117501-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	6400	D2	670		mg/Kg	5	☼	9056A	Soluble
Aluminum	2800		65		mg/Kg	1	☼	6010C	Total/NA
Barium	280		32		mg/Kg	1	☼	6010C	Total/NA
Boron	70		65		mg/Kg	1	☼	6010C	Total/NA
Calcium	34000		160		mg/Kg	1	☼	6010C	Total/NA
Chromium	27		13		mg/Kg	1	☼	6010C	Total/NA
Copper	370		16		mg/Kg	1	☼	6010C	Total/NA
Iron	31000		65		mg/Kg	1	☼	6010C	Total/NA
Lead	9.8		6.5		mg/Kg	1	☼	6010C	Total/NA
Magnesium	6100		160		mg/Kg	1	☼	6010C	Total/NA
Manganese	200		13		mg/Kg	1	☼	6010C	Total/NA
Nickel	20		13		mg/Kg	1	☼	6010C	Total/NA
Potassium	2600		160		mg/Kg	1	☼	6010C	Total/NA
Sodium	1100		320		mg/Kg	1	☼	6010C	Total/NA
Zinc	670		32		mg/Kg	1	☼	6010C	Total/NA
Sulfur	13000		300		mg/Kg	1	☼	6010D	Total/NA
Phosphorus	31000		120		mg/Kg	1	☼	6010D	Total/NA
Nitrogen, Kjeldahl	77000	D2	6500		mg/Kg	20	☼	351.2	Soluble
Ammonia	15000	D2	330		mg/Kg	10	☼	SM 4500 NH3 D	Soluble
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Mercury	0.70		0.63		mg/Kg	1	☼	7471B	Total/NA
pH	8.0	H5	1.7		SU	1		9045D	Soluble

This Detection Summary does not include radiochemical test results.

TestAmerica Phoenix

Detection Summary

Client: Avra Gro Systems, Inc.
Project/Site: Avra Gro Systems Inc - Solids

TestAmerica Job ID: 550-117501-1

Client Sample ID: Pima Co 2/5/19 11:50 JK #83 — Lab Sample ID: 550-117501-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5800	D2	720		mg/Kg	5	☼	9056A	Soluble
Aluminum	2900		71		mg/Kg	1	☼	6010C	Total/NA
Barium	280		36		mg/Kg	1	☼	6010C	Total/NA
Calcium	34000		180		mg/Kg	1	☼	6010C	Total/NA
Chromium	28		14		mg/Kg	1	☼	6010C	Total/NA
Copper	370		18		mg/Kg	1	☼	6010C	Total/NA
Iron	30000		71		mg/Kg	1	☼	6010C	Total/NA
Lead	9.9		7.1		mg/Kg	1	☼	6010C	Total/NA
Magnesium	6200		180		mg/Kg	1	☼	6010C	Total/NA
Manganese	190		14		mg/Kg	1	☼	6010C	Total/NA
Molybdenum	15		14		mg/Kg	1	☼	6010C	Total/NA
Nickel	23		14		mg/Kg	1	☼	6010C	Total/NA
Potassium	2500		180		mg/Kg	1	☼	6010C	Total/NA
Sodium	1300		360		mg/Kg	1	☼	6010C	Total/NA
Zinc	660		36		mg/Kg	1	☼	6010C	Total/NA
Sulfur	13000		340		mg/Kg	1	☼	6010D	Total/NA
Phosphorus	30000		140		mg/Kg	1	☼	6010D	Total/NA
Nitrogen, Kjeldahl	77000	D2	6600		mg/Kg	20	☼	351.2	Soluble
Ammonia	13000	D2	360		mg/Kg	10	☼	SM 4500 NH3 D	Soluble
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH	7.9	H5	1.7		SU	1		9045D	Soluble

This Detection Summary does not include radiochemical test results.

TestAmerica Phoenix

Client Sample Results

Client: Avra Gro Systems, Inc.
Project/Site: Avra Gro Systems Inc - Solids

TestAmerica Job ID: 550-117501-1

Client Sample ID: Pima Co 1/5/19 12PM JK#7-83

Date Collected: 01/05/19 12:00
Date Received: 02/06/19 14:44

Lab Sample ID: 550-117501-1
Matrix: Solid
Percent Solids: 14.8

Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND	H3	6.7		mg/Kg	☼		02/21/19 00:58	1
Nitrite as N	ND	H3	6.7		mg/Kg	☼		02/21/19 00:58	1
Nitrate Nitrite as N	ND	H3	6.7		mg/Kg	☼		02/21/19 00:58	1
Chloride	**6700**	**D2 H3**	670		mg/Kg	☼		02/21/19 15:48	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2900**		66		mg/Kg	☼	02/07/19 17:05	02/08/19 23:59	1
Arsenic	ND		20		mg/Kg	☼	02/07/19 17:05	02/08/19 23:59	1
Barium	**280**		33		mg/Kg	☼	02/07/19 17:05	02/08/19 23:59	1
Boron	**69**		66		mg/Kg	☼	02/07/19 17:05	02/08/19 23:59	1
Cadmium	ND		3.3		mg/Kg	☼	02/07/19 17:05	02/08/19 23:59	1
Calcium	**35000**		160		mg/Kg	☼	02/07/19 17:05	02/08/19 23:59	1
Chromium	**27**		13		mg/Kg	☼	02/07/19 17:05	02/08/19 23:59	1
Copper	**370**		16		mg/Kg	☼	02/07/19 17:05	02/08/19 23:59	1
Iron	**31000**		66		mg/Kg	☼	02/07/19 17:05	02/08/19 23:59	1
Lead	**11**		6.6		mg/Kg	☼	02/07/19 17:05	02/14/19 00:47	1
Magnesium	**6500**		160		mg/Kg	☼	02/07/19 17:05	02/08/19 23:59	1
Manganese	**190**		13		mg/Kg	☼	02/07/19 17:05	02/08/19 23:59	1
Molybdenum	**13**		13		mg/Kg	☼	02/07/19 17:05	02/08/19 23:59	1
Nickel	**21**		13		mg/Kg	☼	02/07/19 17:05	02/08/19 23:59	1
Potassium	**2600**		160		mg/Kg	☼	02/07/19 17:05	02/08/19 23:59	1
Selenium	ND		33		mg/Kg	☼	02/07/19 17:05	02/08/19 23:59	1
Silver	ND		16		mg/Kg	☼	02/07/19 17:05	02/08/19 23:59	1
Sodium	**1200**		330		mg/Kg	☼	02/07/19 17:05	02/08/19 23:59	1
Zinc	**670**		33		mg/Kg	☼	02/07/19 17:05	02/08/19 23:59	1

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfur	**13000**		320		mg/Kg	☼	02/08/19 15:00	02/12/19 04:55	1
Phosphorus	**32000**		130		mg/Kg	☼	02/08/19 15:00	02/15/19 23:15	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.94**	**H3**	0.60		mg/Kg	☼	02/12/19 11:16	02/12/19 15:55	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**85.2**		0.1		%			02/07/19 13:07	1
Percent Solids	**14.8**		0.1		%			02/07/19 13:07	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	**78000**	**D2 H3**	5500		mg/Kg	☼	02/10/19 15:30	02/11/19 14:13	20
Ammonia	**16000**	**D2 H3**	330		mg/Kg	☼		02/13/19 22:01	10

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**8.0**	**H5**	1.7		SU			02/12/19 15:55	1

TestAmerica Phoenix

Client Sample Results

Client: Avra Gro Systems, Inc.
Project/Site: Avra Gro Systems Inc - Solids

TestAmerica Job ID: 550-117501-1

Client Sample ID: Pima Co 1/20/19 2:20 JK#7-83

Date Collected: 01/26/19 02:20
Date Received: 02/06/19 14:44

Lab Sample ID: 550-117501-2

Matrix: Solid
Percent Solids: 15.0

Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		6.7		mg/Kg	☼		02/21/19 01:25	1
Nitrite as N	ND		6.7		mg/Kg	☼		02/21/19 01:25	1
Nitrate Nitrite as N	ND		6.7		mg/Kg	☼		02/21/19 01:25	1
Chloride	**6400**	**D2**	670		mg/Kg	☼		02/21/19 16:06	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2800**		65		mg/Kg	☼	02/07/19 17:05	02/09/19 00:01	1
Arsenic	ND		19		mg/Kg	☼	02/07/19 17:05	02/09/19 00:01	1
Barium	**280**		32		mg/Kg	☼	02/07/19 17:05	02/09/19 00:01	1
Boron	**70**		65		mg/Kg	☼	02/07/19 17:05	02/09/19 00:01	1
Cadmium	ND		3.2		mg/Kg	☼	02/07/19 17:05	02/09/19 00:01	1
Calcium	**34000**		160		mg/Kg	☼	02/07/19 17:05	02/09/19 00:01	1
Chromium	**27**		13		mg/Kg	☼	02/07/19 17:05	02/09/19 00:01	1
Copper	**370**		16		mg/Kg	☼	02/07/19 17:05	02/09/19 00:01	1
Iron	**31000**		65		mg/Kg	☼	02/07/19 17:05	02/09/19 00:01	1
Lead	**9.8**		6.5		mg/Kg	☼	02/07/19 17:05	02/14/19 00:49	1
Magnesium	**6100**		160		mg/Kg	☼	02/07/19 17:05	02/09/19 00:01	1
Manganese	**200**		13		mg/Kg	☼	02/07/19 17:05	02/09/19 00:01	1
Molybdenum	ND		13		mg/Kg	☼	02/07/19 17:05	02/09/19 00:01	1
Nickel	**20**		13		mg/Kg	☼	02/07/19 17:05	02/09/19 00:01	1
Potassium	**2600**		160		mg/Kg	☼	02/07/19 17:05	02/09/19 00:01	1
Selenium	ND		32		mg/Kg	☼	02/07/19 17:05	02/09/19 00:01	1
Silver	ND		16		mg/Kg	☼	02/07/19 17:05	02/09/19 00:01	1
Sodium	**1100**		320		mg/Kg	☼	02/07/19 17:05	02/09/19 00:01	1
Zinc	**670**		32		mg/Kg	☼	02/07/19 17:05	02/09/19 00:01	1

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfur	**13000**		300		mg/Kg	☼	02/08/19 15:00	02/12/19 05:00	1
Phosphorus	**31000**		120		mg/Kg	☼	02/08/19 15:00	02/15/19 23:21	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.70**		0.63		mg/Kg	☼	02/12/19 11:16	02/12/19 15:57	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**85.0**		0.1		%			02/07/19 13:07	1
Percent Solids	**15.0**		0.1		%			02/07/19 13:07	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	**77000**	**D2**	6500		mg/Kg	☼	02/10/19 15:30	02/11/19 14:16	20
Ammonia	**15000**	**D2**	330		mg/Kg	☼		02/13/19 22:09	10

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**8.0**	**H5**	1.7		SU			02/12/19 15:55	1

TestAmerica Phoenix

Client Sample Results

Client: Avra Gro Systems, Inc.
Project/Site: Avra Gro Systems Inc - Solids

TestAmerica Job ID: 550-117501-1

Client Sample ID: Pima Co 2/5/19 11:50 JK #83

Date Collected: 02/05/19 11:50
Date Received: 02/06/19 14:44

Lab Sample ID: 550-117501-3
Matrix: Solid
Percent Solids: 13.7

Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		7.2		mg/Kg	☼		02/21/19 01:53	1
Nitrite as N	ND		7.2		mg/Kg	☼		02/21/19 01:53	1
Nitrate Nitrite as N	ND		7.2		mg/Kg	☼		02/21/19 01:53	1
Chloride	**5800**	**D2**	720		mg/Kg	☼		02/21/19 16:25	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2900**		71		mg/Kg	☼	02/07/19 17:05	02/09/19 00:03	1
Arsenic	ND		21		mg/Kg	☼	02/07/19 17:05	02/09/19 00:03	1
Barium	**280**		36		mg/Kg	☼	02/07/19 17:05	02/09/19 00:03	1
Boron	ND		71		mg/Kg	☼	02/07/19 17:05	02/09/19 00:03	1
Cadmium	ND		3.6		mg/Kg	☼	02/07/19 17:05	02/09/19 00:03	1
Calcium	**34000**		180		mg/Kg	☼	02/07/19 17:05	02/09/19 00:03	1
Chromium	**28**		14		mg/Kg	☼	02/07/19 17:05	02/09/19 00:03	1
Copper	**370**		18		mg/Kg	☼	02/07/19 17:05	02/09/19 00:03	1
Iron	**30000**		71		mg/Kg	☼	02/07/19 17:05	02/09/19 00:03	1
Lead	**9.9**		7.1		mg/Kg	☼	02/07/19 17:05	02/14/19 00:52	1
Magnesium	**6200**		180		mg/Kg	☼	02/07/19 17:05	02/09/19 00:03	1
Manganese	**190**		14		mg/Kg	☼	02/07/19 17:05	02/09/19 00:03	1
Molybdenum	**15**		14		mg/Kg	☼	02/07/19 17:05	02/09/19 00:03	1
Nickel	**23**		14		mg/Kg	☼	02/07/19 17:05	02/09/19 00:03	1
Potassium	**2500**		180		mg/Kg	☼	02/07/19 17:05	02/09/19 00:03	1
Selenium	ND		36		mg/Kg	☼	02/07/19 17:05	02/09/19 00:03	1
Silver	ND		18		mg/Kg	☼	02/07/19 17:05	02/09/19 00:03	1
Sodium	**1300**		360		mg/Kg	☼	02/07/19 17:05	02/09/19 00:03	1
Zinc	**660**		36		mg/Kg	☼	02/07/19 17:05	02/09/19 00:03	1

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfur	**13000**		340		mg/Kg	☼	02/08/19 15:00	02/12/19 05:06	1
Phosphorus	**30000**		140		mg/Kg	☼	02/08/19 15:00	02/15/19 23:26	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.63		mg/Kg	☼	02/12/19 11:16	02/12/19 15:59	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**86.3**		0.1		%			02/07/19 13:07	1
Percent Solids	**13.7**		0.1		%			02/07/19 13:07	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	**77000**	**D2**	6600		mg/Kg	☼	02/10/19 15:30	02/11/19 14:18	20
Ammonia	**13000**	**D2**	360		mg/Kg	☼		02/13/19 22:16	10

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.9**	**H5**	1.7		SU			02/12/19 15:55	1

TestAmerica Phoenix

Client Sample Results

Client: Avra Gro Systems, Inc.
Project/Site: Avra Gro Systems Inc - Solids

TestAmerica Job ID: 550-118532-1

Client Sample ID: J K 7

Date Collected: 02/25/19 12:37
Date Received: 02/26/19 12:52

Lab Sample ID: 550-118532-1

Matrix: Solid
Percent Solids: 15.4

Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		6.2		mg/Kg	☼		03/11/19 22:13	1
Nitrite as N	ND		6.2		mg/Kg	☼		03/13/19 02:55	1
Nitrate Nitrite as N	ND	M2	6.2		mg/Kg	☼		03/13/19 02:55	1
Chloride	**5900**	**M3**	120		mg/Kg	☼		03/11/19 22:13	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2900**		63		mg/Kg	☼	03/04/19 07:11	03/04/19 17:49	1
Arsenic	ND		19		mg/Kg	☼	03/04/19 07:11	03/04/19 17:49	1
Barium	**240**		32		mg/Kg	☼	03/04/19 07:11	03/04/19 17:49	1
Boron	**64**		63		mg/Kg	☼	03/04/19 07:11	03/04/19 17:49	1
Cadmium	ND		3.2		mg/Kg	☼	03/04/19 07:11	03/04/19 17:49	1
Calcium	**30000**		160		mg/Kg	☼	03/04/19 07:11	03/04/19 17:49	1
Chromium	**25**		13		mg/Kg	☼	03/04/19 07:11	03/04/19 17:49	1
Copper	**370**		16		mg/Kg	☼	03/04/19 07:11	03/04/19 17:49	1
Iron	**33000**		63		mg/Kg	☼	03/04/19 07:11	03/04/19 17:49	1
Lead	**9.4**		6.3		mg/Kg	☼	03/04/19 07:11	03/04/19 17:49	1
Magnesium	**5800**		160		mg/Kg	☼	03/04/19 07:11	03/04/19 17:49	1
Manganese	**210**		13		mg/Kg	☼	03/04/19 07:11	03/04/19 17:49	1
Molybdenum	**14**		13		mg/Kg	☼	03/04/19 07:11	03/04/19 17:49	1
Nickel	**21**		13		mg/Kg	☼	03/04/19 07:11	03/04/19 17:49	1
Potassium	**2500**		160		mg/Kg	☼	03/04/19 07:11	03/04/19 17:49	1
Selenium	ND		32		mg/Kg	☼	03/04/19 07:11	03/04/19 17:49	1
Silver	ND		16		mg/Kg	☼	03/04/19 07:11	03/04/19 17:49	1
Sodium	**1100**		320		mg/Kg	☼	03/04/19 07:11	03/04/19 17:49	1
Zinc	**580**		32		mg/Kg	☼	03/04/19 07:11	03/04/19 17:49	1

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfur	**13000**		320		mg/Kg	☼	03/02/19 11:49	03/04/19 16:16	1
Phosphorus	**28000**		130		mg/Kg	☼	03/02/19 11:49	03/04/19 16:16	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.64**		0.59		mg/Kg	☼	03/05/19 15:03	03/05/19 20:30	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**84.6**		0.1		%			02/27/19 13:00	1
Percent Solids	**15.4**		0.1		%			02/27/19 13:00	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	**44000**	**D2 M3 R13**	6100		mg/Kg	☼	03/06/19 07:15	03/08/19 06:39	20
Ammonia	**10000**	**D2 M3**	320		mg/Kg	☼		03/10/19 23:32	10

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**8.2**	**H5**	1.7		SU			02/28/19 11:18	1

TestAmerica Phoenix

Detection Summary

Client: Avra Gro Systems, Inc.
Project/Site: Avra Gro Systems Inc - Solids

Job ID: 550-120091-1

Client Sample ID: JK-9 Lab Sample ID: 550-120091-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	6700		130		mg/Kg	1	☼	9056A	Soluble
Aluminum	2900	M3	63		mg/Kg	1	☼	6010C	Total/NA
Boron	65		63		mg/Kg	1	☼	6010C	Total/NA
Calcium	34000		160		mg/Kg	1	☼	6010C	Total/NA
Iron	35000	M3	63		mg/Kg	1	☼	6010C	Total/NA
Magnesium	5000		160		mg/Kg	1	☼	6010C	Total/NA
Manganese	210		13		mg/Kg	1	☼	6010C	Total/NA
Potassium	2200		160		mg/Kg	1	☼	6010C	Total/NA
Sodium	1100		320		mg/Kg	1	☼	6010C	Total/NA
Sulfur	14000		290		mg/Kg	1	☼	6010D	Total/NA
Phosphorus	48000		110		mg/Kg	1	☼	6010D	Total/NA
Nitrogen, Kjeldahl	74000	D2	5900		mg/Kg	20	☼	351.2	Soluble
pH	7.7	H5	1.7		SU	1		9045D	Soluble
Ammonia	11000	D1	320		mg/Kg	10	☼	SM 4500 NH3 D	Soluble

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Phoenix

Client Sample Results

Client: Avra Gro Systems, Inc.
Project/Site: Avra Gro Systems Inc - Solids

Job ID: 550-120091-1

Client Sample ID: JK-9

Date Collected: 03/27/19 00:00
Date Received: 03/27/19 14:26

Lab Sample ID: 550-120091-1

Matrix: Solid
Percent Solids: 15.5

Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		6.3		mg/Kg	☼		04/04/19 03:08	1
Nitrite as N	ND		6.3		mg/Kg	☼		04/04/19 03:08	1
Nitrate Nitrite as N	ND		6.3		mg/Kg	☼		04/04/19 03:08	1
Chloride	**6700**		130		mg/Kg	☼		04/04/19 03:08	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2900**	**M3**	63		mg/Kg	☼	03/28/19 15:41	04/04/19 21:16	1
Boron	**65**		63		mg/Kg	☼	03/28/19 15:41	04/04/19 21:16	1
Calcium	**34000**		160		mg/Kg	☼	03/28/19 15:41	04/04/19 21:16	1
Iron	**35000**	**M3**	63		mg/Kg	☼	03/28/19 15:41	04/04/19 21:16	1
Magnesium	**5000**		160		mg/Kg	☼	03/28/19 15:41	04/04/19 21:16	1
Manganese	**210**		13		mg/Kg	☼	03/28/19 15:41	04/04/19 21:16	1
Potassium	**2200**		160		mg/Kg	☼	03/28/19 15:41	04/04/19 21:16	1
Silver	ND		16		mg/Kg	☼	03/28/19 15:41	04/04/19 21:16	1
Sodium	**1100**		320		mg/Kg	☼	03/28/19 15:41	04/04/19 21:16	1

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfur	**14000**		290		mg/Kg	☼	04/02/19 15:19	04/08/19 11:29	1
Phosphorus	**48000**		110		mg/Kg	☼	04/02/19 15:19	04/08/19 11:29	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**84.5**		0.1		%			03/28/19 11:54	1
Percent Solids	**15.5**		0.1		%			03/28/19 11:54	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	**74000**	**D2**	5900		mg/Kg	☼	04/08/19 17:55	04/09/19 16:04	20
Ammonia	**11000**	**D1**	320		mg/Kg	☼		04/04/19 21:21	10

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.7**	**H5**	1.7		SU			04/03/19 17:15	1

Eurofins TestAmerica, Phoenix

Client Sample Results

Client: Avra Gro Systems, Inc.
Project/Site: Avra Gro Systems Inc - Solids

Job ID: 550-120181-1

Client Sample ID: JK-9

Date Collected: 03/29/19 09:33
Date Received: 03/29/19 11:22

Lab Sample ID: 550-120181-1

Matrix: Solid
Percent Solids: 16.2

Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		6.1		mg/Kg	☼		04/04/19 03:35	1
Nitrite as N	ND		6.1		mg/Kg	☼		04/04/19 03:35	1
Nitrate Nitrite as N	ND		6.1		mg/Kg	☼		04/04/19 03:35	1
Chloride	**6600**		120		mg/Kg	☼		04/04/19 03:35	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**3000**		60		mg/Kg	☼	04/02/19 15:59	04/09/19 18:22	1
Boron	**64**		60		mg/Kg	☼	04/02/19 15:59	04/09/19 18:22	1
Calcium	**34000**		150		mg/Kg	☼	04/02/19 15:59	04/09/19 18:22	1
Iron	**35000**		60		mg/Kg	☼	04/02/19 15:59	04/09/19 18:22	1
Magnesium	**5000**		150		mg/Kg	☼	04/02/19 15:59	04/09/19 18:22	1
Manganese	**200**		12		mg/Kg	☼	04/02/19 15:59	04/09/19 18:22	1
Potassium	**2100**		150		mg/Kg	☼	04/02/19 15:59	04/09/19 18:22	1
Silver	ND		15		mg/Kg	☼	04/02/19 15:59	04/09/19 18:22	1
Sodium	**1100**		300		mg/Kg	☼	04/02/19 15:59	04/09/19 18:22	1

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfur	**14000**		300		mg/Kg	☼	04/02/19 15:19	04/05/19 13:37	1
Phosphorus	**61000**	**L3**	120		mg/Kg	☼	04/02/19 15:19	04/05/19 13:37	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**83.8**		0.1		%			04/01/19 12:16	1
Percent Solids	**16.2**		0.1		%			04/01/19 12:16	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	**73000**	**D2**	5900		mg/Kg	☼	04/08/19 17:55	04/09/19 16:07	20
Ammonia	**11000**	**D1**	310		mg/Kg	☼		04/04/19 21:29	10

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.8**	**H5**	1.7		SU			04/03/19 17:15	1

Eurofins TestAmerica, Phoenix

Client Sample Results

Client: Avra Gro Systems, Inc.
Project/Site: Avra Gro Systems Inc - Solids

Job ID: 550-121452-1

Client Sample ID: PIMA-2

Date Collected: 04/17/19 14:09
Date Received: 04/18/19 13:50

Lab Sample ID: 550-121452-1

Matrix: Solid
Percent Solids: 15.6

Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		6.3		mg/Kg	☼		04/26/19 06:11	1
Nitrite as N	ND		6.3		mg/Kg	☼		04/26/19 06:11	1
Nitrate Nitrite as N	ND		6.3		mg/Kg	☼		04/26/19 06:11	1
Chloride	**6200**		130		mg/Kg	☼		04/26/19 06:11	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**3100**		63		mg/Kg	☼	04/24/19 04:22	04/25/19 09:34	1
Boron	ND		63		mg/Kg	☼	04/24/19 04:22	04/25/19 09:34	1
Calcium	**34000**		160		mg/Kg	☼	04/24/19 04:22	04/25/19 09:34	1
Iron	**34000**	**B7**	63		mg/Kg	☼	04/24/19 04:22	04/25/19 09:34	1
Magnesium	**5700**		160		mg/Kg	☼	04/24/19 04:22	04/25/19 09:34	1
Manganese	**210**		13		mg/Kg	☼	04/24/19 04:22	04/25/19 09:34	1
Potassium	**2300**		160		mg/Kg	☼	04/24/19 04:22	04/25/19 09:34	1
Silver	ND		16		mg/Kg	☼	04/24/19 04:22	04/25/19 09:34	1
Sodium	**1200**		320		mg/Kg	☼	04/24/19 04:22	04/25/19 09:34	1

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfur	**14000**	**M3**	290		mg/Kg	☼	04/20/19 13:59	04/21/19 02:28	1
Phosphorus	**25000**		110		mg/Kg	☼	04/20/19 13:59	04/21/19 02:28	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**84.4**		0.1		%			04/19/19 12:12	1
Percent Solids	**15.6**		0.1		%			04/19/19 12:12	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	**72000**	**D2 M3**	6000		mg/Kg	☼	04/26/19 09:35	05/02/19 11:16	20
Ammonia	**11000**	**D2 M3**	320		mg/Kg	☼		04/25/19 18:27	10

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.8**	**H5**	1.7		SU			04/22/19 18:15	1

Eurofins TestAmerica, Phoenix

Detection Summary

Client: Avra Gro Systems, Inc.
Project/Site: Avra Gro Systems Inc - Solids

Job ID: 550-122159-1

Client Sample ID: PIMA-1

Lab Sample ID: 550-122159-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7200	M3	150		mg/Kg	1	☼	9056A	Soluble
Aluminum	2700	M1	73		mg/Kg	1	☼	6010C	Total/NA
Calcium	29000		180		mg/Kg	1	☼	6010C	Total/NA
Iron	33000	M3	73		mg/Kg	1	☼	6010C	Total/NA
Magnesium	5500		180		mg/Kg	1	☼	6010C	Total/NA
Manganese	190		15		mg/Kg	1	☼	6010C	Total/NA
Potassium	2300		180		mg/Kg	1	☼	6010C	Total/NA
Sodium	1200		370		mg/Kg	1	☼	6010C	Total/NA
Sulfur	14000	M3	330		mg/Kg	1	☼	6010D	Total/NA
Phosphorus	29000		130		mg/Kg	1	☼	6010D	Total/NA
Nitrogen, Kjeldahl	66000	D2	6600		mg/Kg	20	☼	351.2	Soluble
pH	7.8	H5	1.7		SU	1		9045D	Soluble
Ammonia	13000	D2	370		mg/Kg	10	☼	SM 4500 NH3 D	Soluble

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Phoenix

Client Sample Results

Client: Avra Gro Systems, Inc.
Project/Site: Avra Gro Systems Inc - Solids

Job ID: 550-122159-1

Client Sample ID: PIMA-1

Date Collected: 05/02/19 09:49
Date Received: 05/02/19 14:30

Lab Sample ID: 550-122159-1

Matrix: Solid
Percent Solids: 13.4

Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		7.3		mg/Kg	☼		05/07/19 04:51	1
Nitrite as N	ND		7.3		mg/Kg	☼		05/07/19 04:51	1
Nitrate Nitrite as N	ND		7.3		mg/Kg	☼		05/07/19 04:51	1
Chloride	**7200**	**M3**	150		mg/Kg	☼		05/07/19 04:51	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2700**	**M1**	73		mg/Kg	☼	05/03/19 10:45	05/04/19 03:56	1
Boron	ND		73		mg/Kg	☼	05/03/19 10:45	05/04/19 03:56	1
Calcium	**29000**		180		mg/Kg	☼	05/03/19 10:45	05/04/19 03:56	1
Iron	**33000**	**M3**	73		mg/Kg	☼	05/03/19 10:45	05/20/19 22:08	1
Magnesium	**5500**		180		mg/Kg	☼	05/03/19 10:45	05/04/19 03:56	1
Manganese	**190**		15		mg/Kg	☼	05/03/19 10:45	05/04/19 03:56	1
Potassium	**2300**		180		mg/Kg	☼	05/03/19 10:45	05/04/19 03:56	1
Silver	ND		18		mg/Kg	☼	05/03/19 10:45	05/04/19 03:56	1
Sodium	**1200**		370		mg/Kg	☼	05/03/19 10:45	05/04/19 03:56	1

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfur	**14000**	**M3**	330		mg/Kg	☼	05/07/19 16:03	05/08/19 16:58	1
Phosphorus	**29000**		130		mg/Kg	☼	05/07/19 16:03	05/08/19 16:58	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**86.6**		0.1		%			05/03/19 12:47	1
Percent Solids	**13.4**		0.1		%			05/03/19 12:47	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	**66000**	**D2**	6600		mg/Kg	☼	05/05/19 13:05	05/06/19 16:04	20
Ammonia	**13000**	**D2**	370		mg/Kg	☼		05/09/19 16:32	10

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.8**	**H5**	1.7		SU			05/06/19 16:42	1

Eurofins TestAmerica, Phoenix

Client Sample Results

Client: Avra Gro Systems, Inc.
Project/Site: Avra Gro Systems Inc - Solids

Job ID: 550-125043-1

Client Sample ID: Lawrence 2S

Lab Sample ID: 550-125043-1

Date Collected: 06/27/19 09:20
Date Received: 06/27/19 13:00

Matrix: Solid

Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.99		mg/Kg			07/02/19 06:39	1
Nitrite as N	ND		0.99		mg/Kg			07/02/19 06:39	1
Nitrate Nitrite as N	ND		0.99		mg/Kg			07/02/19 06:39	1
Chloride	**1000**		20		mg/Kg			07/02/19 06:39	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**190**		50		mg/Kg		06/28/19 05:18	06/28/19 20:18	1
Potassium	**320**		25		mg/Kg		06/28/19 05:18	07/12/19 04:38	1
Calcium	**4500**		25		mg/Kg		06/28/19 05:18	06/28/19 20:18	1
Iron	**4200**		9.9		mg/Kg		06/28/19 05:18	07/12/19 04:38	1
Silver	ND		2.5		mg/Kg		06/28/19 05:18	06/28/19 20:18	1
Magnesium	**710**		25		mg/Kg		06/28/19 05:18	07/09/19 07:19	1
Boron	ND		9.9		mg/Kg		06/28/19 05:18	06/28/19 20:18	1
Aluminum	**370**		9.9		mg/Kg		06/28/19 05:18	06/28/19 20:18	1
Manganese	**28**		2.0		mg/Kg		06/28/19 05:18	06/28/19 20:18	1

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfur	**1400**	**R6**	53		mg/Kg		07/09/19 19:30	07/10/19 13:23	1
Phosphorus	**3200**	**R6**	21		mg/Kg		07/09/19 19:30	07/10/19 13:23	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**88.0**		0.1		%			06/28/19 09:52	1
Percent Solids	**12.0**		0.1		%			06/28/19 09:52	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	**11000**	**D2 M3**	960		mg/Kg		07/01/19 18:20	07/03/19 09:12	20
Ammonia	**1300**		50		mg/Kg			07/02/19 19:47	10

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.6**	**H5**	1.7		SU			07/01/19 17:33	1

Eurofins TestAmerica, Phoenix

Client Sample Results

Client: Avra Gro Systems, Inc.
Project/Site: Avra Gro Systems Inc - Solids

Job ID: 550-126755-1

Client Sample ID: Keeling

Date Collected: 07/25/19 11:45
Date Received: 07/25/19 14:40

Lab Sample ID: 550-126755-1

Matrix: Solid

Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.99		mg/Kg			07/30/19 07:23	1
Nitrite as N	ND		0.99		mg/Kg			07/30/19 07:23	1
Nitrate Nitrite as N	ND		0.99		mg/Kg			07/30/19 07:23	1
Chloride	**990**		20		mg/Kg			07/30/19 07:23	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**160**		49		mg/Kg		07/29/19 13:23	07/30/19 23:22	1
Potassium	**280**		25		mg/Kg		07/29/19 13:23	07/30/19 23:22	1
Calcium	**4900**		25		mg/Kg		07/29/19 13:23	07/30/19 23:22	1
Iron	**4100**		9.9		mg/Kg		07/29/19 13:23	08/12/19 17:37	1
Silver	ND		2.5		mg/Kg		07/29/19 13:23	07/30/19 23:22	1
Magnesium	**700**		25		mg/Kg		07/29/19 13:23	07/30/19 23:22	1
Boron	ND		9.9		mg/Kg		07/29/19 13:23	07/30/19 23:22	1
Aluminum	**380**		9.9		mg/Kg		07/29/19 13:23	07/30/19 23:22	1
Manganese	**29**		2.0		mg/Kg		07/29/19 13:23	07/30/19 23:22	1

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfur	**1800**		48		mg/Kg		07/29/19 13:02	07/30/19 17:11	1
Phosphorus	**3200**		19		mg/Kg		07/29/19 13:02	07/30/19 17:11	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**87.1**		0.1		%			07/26/19 13:31	1
Percent Solids	**12.9**		0.1		%			07/26/19 13:31	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	**11000**	**D2**	900		mg/Kg		07/29/19 18:10	07/30/19 12:28	20
Ammonia	**1500**	**D2**	50		mg/Kg			07/30/19 20:49	10

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.8**	**H5**	1.7		SU			07/26/19 17:50	1

Eurofins TestAmerica, Phoenix

Client Sample Results

Client: Avra Gro Systems, Inc.
Project/Site: Avra Gro Systems Inc - Solids

Job ID: 550-132172-1

Client Sample ID: Field # T5-6

Date Collected: 10/24/19 15:05
Date Received: 10/25/19 13:20

Lab Sample ID: 550-132172-1

Matrix: Solid

Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.99		mg/Kg			10/30/19 04:05	1
Nitrite as N	ND		0.99		mg/Kg			10/30/19 04:05	1
Nitrate Nitrite as N	ND		0.99		mg/Kg			10/30/19 04:05	1
Chloride	**1100**		20		mg/Kg			10/30/19 04:05	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**450**		9.8		mg/Kg		10/26/19 14:09	10/30/19 04:38	1
Sulfur	**1700**		51		mg/Kg		10/30/19 06:45	10/30/19 22:05	1
Boron	ND		9.8		mg/Kg		10/26/19 14:09	10/30/19 04:38	1
Calcium	**5300**		25		mg/Kg		10/26/19 14:09	10/30/19 04:38	1
Iron	**4800**		9.8		mg/Kg		10/26/19 14:09	11/06/19 05:57	1
Magnesium	**740**		25		mg/Kg		10/26/19 14:09	10/30/19 04:38	1
Manganese	**34**		2.0		mg/Kg		10/26/19 14:09	10/30/19 04:38	1
Silver	ND		2.5		mg/Kg		10/26/19 14:09	10/30/19 04:38	1
Sodium	**180**		49		mg/Kg		10/26/19 14:09	10/30/19 04:38	1
Potassium	**320**		25		mg/Kg		10/26/19 14:09	10/30/19 04:38	1

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	**3700**		19		mg/Kg		10/30/19 06:45	10/31/19 16:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	**9700**		1800		mg/Kg		11/14/19 14:48	11/14/19 21:24	10
Ammonia (as N)	**2600**	**D2**	1200		mg/Kg		11/18/19 04:00	11/18/19 07:00	5
Ammonia as NH3	**3100**	**D2**	1500		mg/Kg		11/18/19 04:00	11/18/19 07:00	5

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**85.3**		0.1		%			10/29/19 11:41	1
Percent Solids	**14.7**		0.1		%			10/29/19 11:41	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.7**	**H5**	1.7		SU			11/04/19 17:45	1

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Client Sample Results

Client: Avra Gro Systems, Inc.
Project/Site: Avra Gro Systems Inc - Solids

Job ID: 550-134390-1

Client Sample ID: JK9

Lab Sample ID: 550-134390-1
Date Collected: 12/05/19 09:29
Matrix: Solid
Date Received: 12/05/19 15:00

Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.99		mg/Kg			12/18/19 12:16	1
Nitrite as N	ND		0.99		mg/Kg			12/18/19 12:16	1
Nitrate Nitrite as N	ND		0.99		mg/Kg			12/18/19 12:16	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.9		mg/Kg		12/06/19 10:39	12/20/19 06:57	1
Cadmium	ND		0.49		mg/Kg		12/06/19 10:39	12/20/19 06:57	1
Chromium	**4.7**		1.9		mg/Kg		12/06/19 10:39	12/20/19 06:57	1
Copper	**62**		2.4		mg/Kg		12/06/19 10:39	12/20/19 06:57	1
Lead	**1.9**		0.97		mg/Kg		12/06/19 10:39	12/23/19 18:02	1
Molybdenum	**2.5**		1.9		mg/Kg		12/06/19 10:39	12/20/19 06:57	1
Nickel	**3.1**		1.9		mg/Kg		12/06/19 10:39	12/20/19 18:45	1
Selenium	ND		4.9		mg/Kg		12/06/19 10:39	12/20/19 06:57	1
Zinc	**110**		4.9		mg/Kg		12/06/19 10:39	12/20/19 18:45	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.092		mg/Kg		12/10/19 11:37	12/10/19 16:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	**11000**		1300		mg/Kg		12/10/19 20:57	12/12/19 18:50	10

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	**1900**	**D2 M3**	50		mg/Kg			12/15/19 21:11	10

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.7**	**H5**	1.7		SU			12/10/19 17:44	1

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