



3308 Bernice Avenue
Russellville, AR 72802
PO Box 3036 • Russellville, AR 72811
Phone: 479-498-0500

January 17, 2019

Mr. Justin Hall
Executive Director
520 J.M. Ash Drive
Holly Springs, MS 38635

Re: 2018 TDEC Annual Reporting, Chickasaw Trails WWTP – Mandatory Information

Dear Mr. Hall:

Enclosed you will find the above referenced report, which covers land application operations conducted by Denali Water Solutions. This report satisfies the requirements of the State of Tennessee. Due to the size of the Chickasaw Trails facility (<1,000,000 gallons/day and serves <10,000 people), no federal report will be required.

To finalize the report, you will need to do the following:

1. Review the report to ensure it is complete and accurate. Please note that if you have done additional analysis or land application activity during the 2018 calendar year, you will need to supplement the report with the necessary information. Please also note that the generator's signature is required within this report.
2. Make a copy of the report for you records and send two copies to the State of Tennessee by February 19, 2019 as shown below:

One copy to each state address:

Division of Water Resources
Attn: Biosolids Coordinator
William R. Snodgrass – 11th Floor
312 Rosa L. Parks Avenue
Nashville, Tennessee 37243-1102

Mr. Eddy Bouzeid
Environmental Protection Specialist
Division of Water Resources
8383 Wolf Lake Drive
Bartlett, Tennessee 38133-4119

Also enclosed is Denali Water's land applier Certification Statement for 2018. This certification is for your files and does not need to be submitted to TDEC.

If you have any questions or require any additional information, please contact me at 256-503-4300.

Sincerely,

Jeff Retzke
Senior Environmental Manager, East Region

Chickasaw Trails WWTP
Cayce, Mississippi

2018 Annual Report

NPDES Permit No. MS0060046

2018 Annual Report

Facility Physical Address: Chickasaw Trails WWTP
1019 Dogwood Road
Cayce, MS 38611
901.598.2806

NPDES Permit No.: MS0060046-001

Responsible Official: Justin Hall
Executive Director
520 J.M. Ash Drive
Holly Springs, MS 38635
662.252.3916

Facility Operator: Robert Richmond
Project Manager
1019 Dogwood Road
Cayce, MS 38611
901.598.2806

Land Applier: Denali Water Solutions
3308 Bernice Avenue
Russellville, AR 72802
256-503-4300

Dry Tons of Biosolids Used or Disposed:

Land Applied:	<u>10.40 dry tons (OR) 9.43 dry metric tons</u>
Landfilled:	<u>0</u>

Metal Analysis: See Attached.

Pathogen Reduction and Vector Attraction Reduction Test Results or Sample Operational Data: See Attached.

Description of Pathogen Reduction Alternative and Vector Attraction Reduction Option: See Attached Certification Statements.

Field Loadings: See Attached.

Metal Analysis, Pathogen Reduction and Vector Attraction Reduction Data

02809

Metro Desoto WWTP
 Mr. Robert Richmond
 11299 Stateline Rd
 Olive Branch , MS 38654

Project Chickasaw Trails
 Information :

Revised Report Date: 6/11/2018

Report Number : **18-143-9310**

REPORT OF ANALYSIS

Received : 5/23/2018

Lab No : **89429**
 Sample ID : **Digester**

Matrix: **Solids**
 Sampled: **5/23/2018 8:45**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
% Moisture	94.9	%		1	05/25/18 15:08	CJR	2540G-2011
Ammonia Nitrogen	1980	mg/Kg - dry	490	1	06/06/18 15:50	ZBD	4500NH3C-2011
Nitrate (NO3-N)	653	mg/Kg - dry	19.6	1	06/05/18 15:20	CCR	9056
Nitrite (NO2-N)	198	mg/Kg - dry	19.6	1	06/05/18 15:20	CCR	9056
Nitrate+Nitrite-N	851	mg/Kg - dry	19.6	1	06/05/18 15:20		9056
pH	7.8	s.u.		1	05/30/18 09:00	JSL	9045D
Total Solids	5.11	%	0.100	1	05/25/18 15:08	CJR	2540G-2011
Total Kjeldahl Nitrogen	22000	mg/Kg - dry	980	1	06/06/18 12:47	CLP	4500NORGD-2011
Total Nitrogen	22700	mg/Kg - dry	19.6	1	06/05/18 15:20		CALCULATION ~
Arsenic	<19.6	mg/Kg - dry	19.6	1	05/25/18 06:02	KKM	6010D
Cadmium	<1.96	mg/Kg - dry	1.96	1	05/25/18 06:02	KKM	6010D
Chromium	22.0	mg/Kg - dry	4.90	1	05/25/18 06:02	KKM	6010D
Copper	300	mg/Kg - dry	4.90	1	05/25/18 06:02	KKM	6010D
Lead	10.7	mg/Kg - dry	5.88	1	05/25/18 06:02	KKM	6010D
Mercury	<0.261	mg/Kg - dry	0.261	1	05/24/18 17:11	KKM	7471A
Molybdenum	<4.90	mg/Kg - dry	4.90	1	05/25/18 06:02	BKN	6010D
Nickel	16.5	mg/Kg - dry	4.90	1	05/25/18 06:02	KKM	6010D
Selenium	<19.6	mg/Kg - dry	19.6	1	05/25/18 06:02	BKN	6010D
Silver	<4.90	mg/Kg - dry	4.90	1	05/25/18 06:02	KKM	6010D
Zinc	398	mg/Kg - dry	9.80	1	05/25/18 06:02	KKM	6010D
Specific Oxygen Uptake Rate	0.56	(mg/g)/hr		1	05/25/18 08:35	TKM	EPA-1683

**Qualifiers/
Definitions**

DF

Dilution Factor

MQL

Method Quantitation Limit

02809

Metro Desoto WWTP
 Mr. Robert Richmond
 11299 Stateline Rd
 Olive Branch , MS 38654

Project Chickasaw Trails
 Information :

Revised Report Date: 6/11/2018

Report Number : **18-143-9310**

REPORT OF ANALYSIS

Received : 5/23/2018

Lab No : **89430**

Sample ID : **Grab 1**

Matrix: **Solids**

Sampled: **5/23/2018 8:45**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Fecal Coliform	30200	MPN/g - dry	56.6	1	05/24/18 08:12	SBA	9221E-2011
% Moisture	94.7	%		1	05/29/18 17:03	CJH	2540G-2011

Lab No : **89431**

Sample ID : **Grab 2**

Matrix: **Solids**

Sampled: **5/23/2018 8:45**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Fecal Coliform	30200	MPN/g - dry	56.6	1	05/24/18 08:12	SBA	9221E-2011
% Moisture	94.7	%		1	05/29/18 17:03	CJH	2540G-2011

Lab No : **89432**

Sample ID : **Grab 3**

Matrix: **Solids**

Sampled: **5/23/2018 8:45**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Fecal Coliform	>30800	MPN/g - dry	57.6	1	05/24/18 08:12	SBA	9221E-2011
% Moisture	94.8	%		1	05/29/18 17:03	CJH	2540G-2011

Lab No : **89433**

Sample ID : **Grab 4**

Matrix: **Solids**

Sampled: **5/23/2018 8:45**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Fecal Coliform	30800	MPN/g - dry	57.6	1	05/24/18 08:12	SBA	9221E-2011
% Moisture	94.8	%		1	05/29/18 17:03	CJH	2540G-2011

**Qualifiers/
Definitions**

DF

Dilution Factor

MQL

Method Quantitation Limit

02809

Metro Desoto WWTP
 Mr. Robert Richmond
 11299 Stateline Rd
 Olive Branch , MS 38654

Project Chickasaw Trails
 Information :

Revised Report Date: 6/11/2018

Report Number : **18-143-9310**

REPORT OF ANALYSIS

Received : 5/23/2018

Lab No : **89434**

Sample ID : **Grab 5**

Matrix: **Solids**

Sampled: **5/23/2018 8:45**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Fecal Coliform	30200	MPN/g - dry	56.6	1	05/24/18 08:12	SBA	9221E-2011
% Moisture	94.7	%		1	05/29/18 17:03	CJH	2540G-2011

Lab No : **89435**

Sample ID : **Grab 6**

Matrix: **Solids**

Sampled: **5/23/2018 8:45**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Fecal Coliform	30200	MPN/g - dry	56.6	1	05/24/18 08:12	SBA	9221E-2011
% Moisture	94.7	%		1	05/29/18 17:03	CJH	2540G-2011

Lab No : **89436**

Sample ID : **Grab 7**

Matrix: **Solids**

Sampled: **5/23/2018 8:45**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Fecal Coliform	16700	MPN/g - dry	55.5	1	05/24/18 08:12	SBA	9221E-2011
% Moisture	94.6	%		1	05/29/18 17:03	CJH	2540G-2011

**Qualifiers/
Definitions**

DF

Dilution Factor

MQL

Method Quantitation Limit

Cooler Receipt Form

Customer Number: **02809**
 Customer Name: **Metro Desoto WWTP**
 Report Number: **18-143-0310**

Shipping Method

Fed Ex US Postal Lab Other :
 UPS Client Courier Thermometer ID:

Shipping container/cooler uncompromised?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Number of coolers received	<input type="text" value="1"/>		
Custody seals intact on shipping container/cooler?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Not Required
Custody seals intact on sample bottles?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Not Required
Chain of Custody (COC) present?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
COC agrees with sample label(s)?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
COC properly completed	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Samples in proper containers?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Sample containers intact?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Sufficient sample volume for indicated test(s)?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
All samples received within holding time?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Cooler temperature in compliance?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Cooler/Samples arrived at the laboratory on ice. Samples were considered acceptable as cooling process had begun.	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Water - Sample containers properly preserved	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
Water - VOA vials free of headspace	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
Trip Blanks received with VOAs	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
Soil VOA method 5035 – compliance criteria met	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
<input type="checkbox"/> High concentration container (48 hr)		<input type="checkbox"/> Low concentration EnCore samplers (48 hr)	
<input type="checkbox"/> High concentration pre-weighed (methanol -14 d)		<input type="checkbox"/> Low conc pre-weighed vials (Sod Bis -14 d)	
Special precautions or instructions included?	<input type="radio"/> Yes	<input checked="" type="radio"/> No	

Comments:

Signature:

Date & Time:



Metro Desoto WWTP
Chickasaw Trails

18-143-0310
02809
05-23-2018
13:54:47

Kit ID:	0000096582
Initiated By:	Erin Harris
Initiated Date:	5/8/2018
Project Comment	Tests per Jeff Retzke- Denali

CHAIN-OF-CUSTODY

Company Name	Company Number	Client Project Manager/Contact	Purchase Order Number
Metro Desoto WWTP	02809	Mr. Robert Richmond	6550
Site Name	Project Number	<input type="checkbox"/> RUSH – Additional charges apply <input type="checkbox"/> Special Detection Limits(s) Date Results Needed	Method of Shipment
Chickasaw Trails			<input type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Courier <input type="checkbox"/> Client Drop Off Other
LIMS Project ID	Project Manager Phone #	Project Manager Email	Site/Facility ID #
	602-893-0773	rwrmts@yahoo.com	

Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses
5/23/18	0845	Digester	Aqueous	G	1	Plastic - Quart	NONE	pH/TSS/SOUR
5/23/18	0845	Digester	Aqueous	G	1	Plastic - Pint	HNO3 - Nitric Acid	As/Cd/Cr/Cu/Pb/Hg/Ni/Ag/Zn
5/23/18	0845	Grab 1	Solids	G	1	Plastic - 100ml Micro	Sterilized	FC/Moisture
5/23/18	0845	Grab 2	Solids	G	1	Plastic - 100ml Micro	Sterilized	FC/Moisture
5/23/18	0845	Grab 3	Solids	G	1	Plastic - 100ml Micro	Sterilized	FC/Moisture
5/23/18	0845	Grab 4	Solids	G	1	Plastic - 100ml Micro	Sterilized	FC/Moisture
5/23/18	0845	Grab 5	Solids	G	1	Plastic - 100ml Micro	Sterilized	FC/Moisture
5/23/18	0845	Grab 6	Solids	G	1	Plastic - 100ml Micro	Sterilized	FC/Moisture

For Laboratory Use Only			Sampled by (Name - Print)		Client Remarks/Comments					
Ice	Custody Seals	Lab Comments	RWR							
Q/N	X/N		Relinquished by: (SIGNATURE)		Date	Time	Received by: (SIGNATURE)		Date	Time
			[Signature]		5/23/18	1045	[Signature]		5/23/18	1045
			Relinquished by: (SIGNATURE)		Date	Time	Received by: (SIGNATURE)		Date	Time
Blank/Cooler Temp			Relinquished by: (SIGNATURE)		Date	Time	Received by: (SIGNATURE)		Date	Time
T39 2.4°C			[Signature]		5/23/18	1330	[Signature]		5/23/18	1330



Metro Desoto WWTP
Chickasaw Trails

18-143-0310
02809
05-23-2018
13:54:47

CHAIN-OF-CUSTODY

Kit ID:	0000096582
Initiated By:	Erin Harris
Initiated Date:	5/8/2018
Project Comment	Tests per Jeff Retzke- Denali

Company Name		Company Number		Client Project Manager/Contact			Purchase Order Number	
Metro Desoto WWTP		02809		Mr. Robert Richmond			6550	
Site Name		Project Number		<input type="checkbox"/> RUSH – Additional charges apply <input type="checkbox"/> Special Detection Limits(s) Date Results Needed			Method of Shipment	
Chickasaw Trails							<input type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Courier <input type="checkbox"/> Client Drop Off Other	
LIMS Project ID		Project Manager Phone #		Project Manager Email			Site/Facility ID #	
		662-893-0773		rwrmts@yahoo.com				
Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses
5/23/18	0845	Grab 7	Solids	G	1	Plastic - 100ml Micro	Sterilized	FC/Moisture

For Laboratory Use Only			Sampled by (Name - Print)		Client Remarks/Comments					
Ice	Custody Seals	Lab Comments	RWR							
<i>ATN</i>	<i>YTD</i>		Relinquished by: (SIGNATURE)		Date	Time	Received by: (SIGNATURE)		Date	Time
			<i>[Signature]</i>		5/23/18	1045	<i>[Signature]</i>		5/23/18	1045
			Relinquished by: (SIGNATURE)		Date	Time	Received by: (SIGNATURE)		Date	Time
			<i>[Signature]</i>				<i>[Signature]</i>			
Blank/Cooler Temp			Relinquished by: (SIGNATURE)		Date	Time	Received by: (SIGNATURE)		Date	Time
739 2.4°C			<i>[Signature]</i>		5/23/18	1330	<i>[Signature]</i>		5/23/18	1330

Description of Pathogen Reduction Alternative
and Vector Attraction Reduction Option
Certification

Certification

"I certify, under penalty of law, that the information that will be used to determine compliance with the Class B pathogen requirements in Appendix C and the vector attraction reduction requirement in Section 3.1.3(d) 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."

Project(s): Chickasaw Trails WWTP
Reporting Period: January - December 2018
Name: Justin Hall Title: Executive Director

Signature: _____ Date: _____

The Class B pathogen requirements were met through Subsection 3.1.2.2 – Class B Alternative 1. Seven representative samples of the biosolids that were applied to the land were collected and the geometric mean of the density of fecal coliform in the samples collected was less than 2,000,000 MPN or 2,000,000 CFU per gram of total solids (dry weight basis).

The vector attraction reduction requirement was met through Subsection 3.1.3(d). The specific oxygen uptake rate (SOUR) for the biosolids treated in an aerobic process was less than or equal to 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 20 degrees Celsius.

Field Loadings

Field Name: TN-FA-1-1 County: Shelby
 Latitude/Longitude: 35.136145 / -89.553261
 Physical Address: Nuckolls Road, Rossville, TN 38066
 Owner Name: J.E. Nuckolls Trust
 Operator Name: Gary Jamerson
 Crop (1st / 2nd): 1st - Bermuda Hay / 2nd - N/A
 Application Rate: 13,714 Gallons/ Acre
 Allowed PAN Rate: 200 lbs PAN/Acre
 Total Acres: 108.4
 Utilized Acres: 3.5
 Residual Nitrogen: 6.44 lbs PAN/Acre

Application Dates: 5-8-18 to 5-10-18
 Total Gallon Applied: 48,000
 Total Dry Ton Applied: 10.40
 Total DT/Ac Applied: 2.97
 Total Metric DT Applied: 9.43

Reporting Period
1-1-18 to 12-31-18

Customer	Product	Volume	Units	Total Dry Tons	pH	N	P2O5	K2O	As	Cd	Cr	Cu	Pb	Hg	Mo	Ni	Se	Zn
Chickasaw Trails WWTP	Biosolids	48,000	Gallons	10.40	7.80	46.63	N/A	N/A	0.116	0.012	0.131	1.782	0.064	0.002	0.029	0.098	0.116	2.364

Leading Rates (lbs/ac)																		
As	Cd	Cr	Cu	Pb	Hg	Mo	Ni	Se	Zn									
0.175	0.017	0.231	3.426	0.118	0.002	0.044	0.167	0.175	4.253									

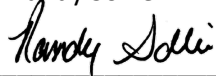
Cumulative Leading Rates (lbs/ac)																		
As	Cd	Cr	Cu	Pb	Hg	Mo	Ni	Se	Zn									
0.175	0.017	0.231	3.426	0.118	0.002	0.044	0.167	0.175	4.253									

Denali Water Solutions
2018 Land Applier
Certification Statements

Certification

"I certify, under penalty of law, that the information that will be used to determine compliance with the management practices in Section 3.2 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."

"I certify, under penalty of law, that the information that will be used to determine compliance with the site restrictions in Subsection 3.1.2.3 for each site on which Class B biosolids were applied 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."

Project(s): Chickasaw Trails WWTP
Reporting Period: January - December 2018
Name: Randy Sollie Denali Water
Signature:  Date: 1-17-19

The following management practices were observed and/or followed:

- (a) Water-Quality Setbacks
- (b) Agronomic Rate for Nitrogen
- (c) Weather-Related Restrictions
- (d) Soils Restrictive Site Conditions
- (e) Threatened and Endangered Species
- (f) Contaminant Loading Rates
- (g) Notification to Land Owners

The following site restrictions were observed and/or followed:

- (a) Food crops with harvested parts that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after application.
- (b) Food crops with harvested parts below the land surface shall not be harvested for 20 months after application if the biosolids remain on the land surface for four months or more prior to incorporation into the soil.
- (c) Food crops with harvested parts below the land surface shall not be harvested for 38 months after application if the biosolids remain on the land surface for less than four months prior to incorporation into the soil.
- (d) Other food crops and feed crops shall not be harvested from the land for 30 days after application.
- (e) Animals shall not be allowed to graze on the land for 30 days after application.
- (f) Turf grown on land where biosolids are applied shall not be harvested for one year after application if the harvested turf is placed on either land with a high potential for public exposure or a lawn.
- (g) Public access to land with a high potential for public exposure shall be restricted for one year after application.
- (h) Public access to land with a low potential for public exposure shall be restricted for 30 days after application.