



PAT MCCRORY

*Governor*

DONALD R. VAN DER VAART

*Secretary*

S. JAY ZIMMERMAN

*Director*

April 28, 2015

Ms. Jane D. Wastewater, PE  
Director of Public Utilities  
Town of Typicalville WWTP  
PO Box 101  
Typicalville, NC 27666

Subject: Permit No. WQ0001234  
Town of Typicalville  
Land Application of Residuals Solids  
Typical County

Dear Ms. Wastewater:

In accordance with a written request made on the Town of Typicalville's behalf by Synagro, Inc. that was received by the Division of Water Resources (Division) on December 29, 2014 and additional information that was received on March 11, 2015, we are forwarding herewith a modified and renewed Permit No. WQ0001234, dated April 28, 2015 to the Town of Typicalville for the subject residuals land application program.

This permit shall be effective from the date of issuance until March 31, 2020; shall void Permit No. WQ0001234 issued on April 22, 2010 and shall be subject to the conditions and limitation as specified therein. Make note of this permit's expiration date and the fact that a permit renewal application is due to the Division no later than 180 days prior to that date (see Condition VI, 7), as the Division does not send reminders to apply for permit renewal.

This permit is being issued to renew and modify the program by removing several hundred acres from the program and performing other changes associated with improving the accuracy of site maps. As always, remember to take the time to review this permit thoroughly, as some of the conditions contained therein may have been added, changed or deleted since the last issuance. Pay particular attention to the monitoring requirements in this permit. Failure to establish and adequate system for collecting and maintaining the required operational information will result in future compliance problems.

If any parts, requirements and/or limitations contained in this permit are unacceptable, you have the right to request and adjudicatory hearing upon written request within 30 days following receipt of this permit. This request shall be in the form of a written petition, conforming to Chapter 150B of the North Carolina General Statutes and filed with the Office of Administrative Hearing at 6714 Mail Service Center, Raleigh, North Carolina 27699-6714. Unless such demands are made, this permit shall be final and binding.

31

If you need any additional information concerning this matter, please contact Mr. David Goodrich by telephone at (919) 715-6162, or via email at [david.goodrich@ncdenr.gov](mailto:david.goodrich@ncdenr.gov).

Sincerely,

*Nathaniel Thornburg*

Nathaniel Thornburg  
Supervisor, Non-Discharge Permitting Branch

CC: Synagro, Inc  
Typical County Health Department  
WSRO – Non-Discharge  
Central Files

NORTH CAROLINA  
ENVIRONMENTAL MANAGEMETN COMMISSION  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
RALEIGH  
LAND APPLICATION OF RESIDUAL SOLIDS (503) PERMIT

---

In accordance with the provision of Article 21 of Chapter 143 143, General Statute of North Carolina as amended, and other applicable Laws, Rules and Regulations

PERMISSION IS HEREBY GRATNTED TO

Town of Typicalville  
Typical County

FOR THE

continued operation of a residuals land application program for the Town of Typicalville and consisting of the land application of residuals generated by the residuals source-generating facilities listed in the most recently-certified Attachment A to the land application sites listed in the most recently-certified Attachment B with no discharge of waste to surface water, pursuant to the permit modification and renewal application package received on December 29, 2014, as well as additional information received on March 11, 2015, and in conformity with the project plan, specifications and other supporting data subsequently files and approved by the Department of Environmental Quality and considered a part of the permit.

This permit shall be effective from the date of issuance until March 31, 2020; shall void Permit No. WQ0001234 issued on April 22, 2010 and shall be subject to the following specified conditions and limitations:

I. PERFORMANCE STANDARDS

1. The residual land application program shall be effectively maintained and operated as a non-discharge system to prevent the discharge of any wastes resulting from the operation of this program.
2. This permit shall become voidable if the soils of the land application sites fail to assimilate the residuals adequately and may be rescinded unless the land application sites are maintained and operated in a manner that will protect the assigned water quality standards of the surface waters and groundwater.
3. The issuance of this permit shall not relieve the Permittee of the responsibility for damages to surface waters of groundwater resulting from the operation of this residuals land application program.

4. In the event that the residuals land application program is not operated satisfactorily, including the creation of nuisance conditions, the Permittee shall cease land applying residuals to the site, contact the Aquifer Protection Section of the appropriate Division of Water Quality's (Division) regional office, and take any immediate corrective actions as may be required by the Division.
5. No residuals other than those generated by the residuals source-generating facilities listed in the most recently-certified Attachment A of this permit shall be approved for land application in accordance with this permit.
6. The pollutant concentrations in any residuals that are land applied to any land application site shall not exceed the following Ceiling Concentrations (i.e., dry weight basis):

Parameter	Ceiling Concentration (milligrams per kilogram)
Arsenic	75
Cadmium	85
Copper	4,300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7,500

7. When residuals are land applied under the conditions of this permit, the Class A pathogen requirements and site restrictions in 40 CFR Part 503.32(a) or the Class B pathogen requirements and site restrictions in 40 CFR Part 503.32(b), and one of vector attraction reduction requirements in 40 CFR Part 503.33 shall be met. Additionally, an evaluation shall be performed that demonstrates the residuals' ability to comply with this requirement. Upon request, a copy of this evaluation, including all test results and calculations, shall be submitted. Only residuals that are generated by the residuals source-generating facilities that are identified as being exempt from this condition in the most recently-certified Attachment A shall not be required to comply with the specified pathogen reduction and vector attraction reduction requirements.
8. Only the land application sites listed in the most recently-certified Attachment B of this permit are approved for residuals land application.
9. This permit shall become voidable unless the agreements between the Permittee and the landowners and lessees or operators of any land application sites listed in the most recently-certified Attachment B of this permit not owned by the Permittee are in full force and effect. These agreements shall be considered expired concurrent with the expiration date of the permit and shall be renewed at the same time the permit is renewed.
10. The appropriate local governmental official (i.e., county manager, city manager, etc.) shall be notified at least 24 hours prior to the initial residuals land application event to any new land application site. In addition, the appropriate county manager's office shall be notified prior to the initial residuals land application event on any new site so that they will be aware that residuals land application activities have commenced on the site.

- h. 10 feet from upslope interceptor drains and surface water diversions for both surface and subsurface application methods; and
- i. 25 feet from downslope interceptor drains, surface water diversions, groundwater drainage systems, and surface drainage ditches for both surface and subsurface application methods.

Some of the buffers specified above may not have been included in previous permits for this residuals land application program. However, any land application sites that are listed in the most recently-certified Attachment B of this permit, but were approved with different buffers shall be reflagged to comply with these buffers.

- 6. Maximum slope for land application of residuals shall be 10 percent for surface application methods and 18 percent for subsurface application methods.
- 7. Specific residuals land application area boundaries shall be clearly marked on each land application site prior to and during a residuals land application event.
- 8. The metal loading rates on any land application site shall not exceed the following Cumulative Pollutant Loading Rates (CPLRs):

Parameter	CPLR (kilograms per hectare)	CPLR (pounds per acre)
Arsenic	41	36
Cadmium	39	34
Copper	1,500	1,338
Lead	300	267
Mercury	17	15
Molybdenum	n/a	n/a
Nickel	420	374
Selenium	100	89
Zinc	2,800	2,498

- 9. An acceptable pH shall be maintained in the soil, residuals, and lime mixture, greater than 6.0, on all land application sites onto which residuals are land applied to ensure optimum yield for the crops specified in Condition II. 13. The agronomist shall provide information on the pH best suited for the specified crop and the soil type.
- 10. Should any of the residuals generated by the residuals source-generating facilities listed in the most recently-certified Attachment A of this permit contain a high salt content (i.e., high sodium adsorption ratio (SAR) of five or higher), the exchangeable sodium percentage (ESP) or other method as approved by the Division, using the results from the annual soils analysis as required by this permit, shall be monitored on all of the land application sites. The local Cooperative Extension Office, the Department of Agriculture and Consumer Services, the Natural Resource Conservation Service, a North Carolina-licensed Soil Scientist, or other agronomist shall review the results and make recommendations regarding soil amendments (e.g., gypsum, etc.) or other ameliorative mechanism for maintaining the integrity of the site in terms of suitability for land application of residuals and maintaining conditions conducive to crop growth. The Permittee shall implement such recommendations accordingly and shall maintain written records of each monitoring event that includes details of the sites covered and rate of soil amendment application.

8. This permit shall not be automatically transferable. In the event that there is a desire for the residuals land application program to change ownership or to change the name of the Permittee, a formal permit request shall be submitted to the Division along with documentation from the parties involved and other supporting material as may be appropriate. The approval of this request shall be considered on its merits and may or may not be approved.

Permit issued this the 28<sup>th</sup> day of April, 2015

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

*Nathaniel Thornburg*

for S. Jay Zimmerman, Director

Division of Water Resources

By Authority of the Environmental Management Commission

Permit Number WQ0001234

**Attachment A- Approved Residual Source-Generating Facilities**

Permit Number: WQ0001234

Town of Typicalville

Town of Typicalville Residuals Land Application Program

Owner	Facility Name	County	Permit Number	Issued By	Is 503?	Maximum Dry Tons Per Year	Monitoring Frequency for Condition III. 2.	Frequency for Condition III. 3. and Condition III.4.	Approved Mineralization Rate
Town of Typicalville	Town of Typicalville WWTP	Typical	WQ0001234	DWQ	503	3612.0	Annually	Every 60 Days	0.3
<b>Total</b>									

If Attachment A of Sludge Permit shows sources in addition to WWTP for this HWA, acres in Attachment B must be adjusted accordingly. Discuss in HWA Narrative.



**Attachment B- Approved Land Application Sites**

Permit Number: WQ0001234

Town of Typicalville

Town of Typicalville Residuals Land Application Program

Site/Field ID	Landowner	Lessee/Operator	County	Latitude	Longitude	Net Acreage	Applicable Restriction in Condition IV. 1.
NC-RC-100-02	Howard, Barry		Typical	36°25'45"	79°49'34"	12.2	GW-A
NC-RC-100-03	Howard, Barry		Typical	36°25'42"	79°49'24"	13.0	GW-A
NC-RC-100-04	Howard, Barry		Typical	36°25'55"	79°49'25"	5.1	GW-A
NC-RC-100-05	Howard, Barry		Typical	36°25'58"	79°49'33"	3.5	GW-A
NC-RC-100-06	Howard, Barry		Typical	36°25'54"	79°49'37"	4.2	GW-A
NC-RC-123-01	Bryant, James		Typical	36°16'18"	79°45'58"	16.1	GW-A
NC-RC-123-02	Bryant, James		Typical	36°16'16"	79°46'04"	15.6	GW-A
NC-RC-123-03	Bryant, James		Typical	36°16'13"	79°46'11"	3.3	GW-A
NC-RC-123-04	Bryant, James		Typical	36°15'54"	79°46'60"	12.7	GW-A
NC-RC-123-05	Bryant, James		Typical	36°16'35"	79°46'12"	5.3	GW-A
<b>Total For County</b>			<b>Typical</b>			<b>1091.0</b>	
<b>Total</b>						<b>1164.9</b>	

<sup>a</sup> These land application sites shall receive residuals at a rate that is 50 percent of the agronomic rate land applied to other sites with similar cover crops.

<sup>b</sup> A 25-foot buffer shall be maintained from the "slope breaks" in the woods on this land application site during residuals land application events.

<sup>c</sup> 25-foot buffers shall be maintained from the edge of the woods next to the pond as well as from all eroded areas on this land application site during

<sup>d</sup> **If Attachment A of Sludge Permit shows**

<sup>e</sup> **sources in addition to WWTP for this HWA, acres in Attachment**

<sup>f</sup> **B must be adjusted accordingly.**

<sup>g</sup> **Discuss in HWA Narrative.**

ents (i.e., see

see approved

application sites

<sup>h</sup> These fields are used for turf production and should not be harvested for at least a one-year period from the last application event.



2016 ANNUAL OPERATIONS SUMMARY - LAND APPLICATION IN NC  
 TYPICALVILLE, NC  
 TYPICALVILLE, NC WWTP LAGOON #1

MONTH/YEAR	AMOUNT	UNIT	DRY TONS	UNIT	DRY METRIC TONS
January 2016	1,253,166	G	246.02	D	223.13
February 2016	629,083	G	72.13	D	65.43
March 2016	269,607	G	30.92	D	28.04
April 2016	356,577	G	78.96	D	71.61
May 2016	226,122	G	50.07	D	45.41
June 2016	691,077	G	144.83	D	131.35
July 2016	311,977	G	53.67	D	48.68
September 2016	52,182	G	9.38	D	8.51
October 2016	553,709	G	108.98	D	98.84
YEARLY TOTAL	4,343,500	G	794.96	D	721

Sludge to disposal flow:  $\frac{4,343,500 \text{ gal/year}}{365 \text{ days/year}} = 11,900 \text{ GPD}$   
 $= 0.0119 \text{ MGD}$



Attach this form to the corresponding Annual Report

Please note that your permit may contain additional parameter to be analyzed than those required to be summarized on this form.

**Permit Number:** WQ0001234  
**Facility Name:** TYPICALVILLE, NC  
**NPDES #:** NC0012345  
**WWTP Name:** TOWN OF TYPICALVILLE WWTP

**Laboratory**  
 Just Right Labs, Inc.

**Residuals Analysis Data**

Product Type	LAG1	LAG1	LAG1	LAG1	LAG1	LAG1	LAG1	LAG1	LAG1
Date Sampled (grab) or Date Compositied	01/03/16	03/06/16	05/06/16	07/02/16	09/08/16	10/01/16	07/02/16	09/08/16	10/01/16
Percent Solids	2.75	5.31	4.93	4.31	4.72	4.38	4.31	4.72	4.38
									average = 4.4%

**PARAMETERS (mg/kg dry weight)**

Arsenic	6.3	5.8	5.5	7.3*	6.9	6.4
Cadmium	1	2	2	6.5*	<5	<5
Mercury	<0.4	0.5	<0.4	<0.4	<0.4	0.8*
Chromium	38	65	54	54	51	48
Copper	1010	1070	1330	1140	1350	1490*
Lead	19	38	40*	37	34	33
Molybdenum	<5	8*	<5	8	<5	5
Nickel	27	44*	51	29	25	<1
Selenium	2.4	2.3	1.7	5*	3.8	<1
Zinc	374	407	434*	415	400	383
Total Phosphorus	16600	18100	19000	15700	13400	15000
TKN	58200	64400	54000	55200	54200	52700
Ammonia-Nitrogen	1100	2400	3200	5300	1500	2700
Nitrate and Nitrite	80	<1	<1	58	<1	34

I certify, under penalty of law, that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

X \_\_\_\_\_  
 (SIGNATURE OF PREPARER)

Date: 11/04/2016

Attach this form to the corresponding Annual Report  
 Please note that your permit may contain additional parameter to be analyzed than those required to be summarized on this form.

**Permit Number:** WQ0001234  
**Facility Name:** TYPICALVILLE, NC  
**NPDES #:** NC0012345  
**WWTP Name:** TOWN OF TYPICALVILLE WWTP

**Laboratory**  
 Just Right Labs, Inc.

**Residuals Analysis Data**

Product Type	LAG1	LAG1	LAG1	LAG1	LAG1	LAG1	LAG1	LAG1	LAG1
Date Sampled (grab) or Date Compositied	01/03/16	03/06/16	05/06/16	07/02/16	09/08/16	10/01/16			
Percent Solids	2.75	5.31	4.93	4.31	4.72	4.38			average = 4.4%

**PARAMETERS (mg/kg dry weight)**

Aluminum	25000	34400	33800	34700	27900	33800
Calcium	7700	8000	10200	10800	10700	10000
Magnesium	3800	3900	4900	3400	2500	2800
pH	7.20	6.90	6.80	7.10	7.16	7.05
Potassium	4500	4200	5000	4000	2900	3300
Sodium	27700	13700	21500	17000	14900	14100

I certify, under penalty of law, that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

X \_\_\_\_\_ Date: 11/04/2016  
 (SIGNATURE OF PREPARER)

NR - Data Not Reported or Data Not Required

ANNUAL LAND APPLICATION FIELD SUMMARY FORM

Facility Name: James Bryant Typicalville, NC Operator: RC 00123 0002 Annual Dry Tons Applied: 19.07113263  
 Owner: NC RC 00123 James Bryant Permit #: WQ0001234 Cation Exchange Capacity (non 503): 15.6  
 Site #: NC RC 00123 Field #: RC 00123 0002 Acres Utilized: 15.6 Acres Permitted: 15.6

Date or Month	Specify Gal. Cu. Yd. Report Totals in Gal.	Totals Per Acre	% Solids	Dry Tons Per Acre	Residual Sources (Summanze)	Site Cond. Dry, Wet, Moist	Inches Precip. Past 24 Hrs.	Application Method*	Volatilization Rate	Crop
6/13/2016	43485	2787.5	4.93	0.573057	TYPLAG1	DRY	0-<1/2"	S	0	FESCUE
6/14/2016	49282	3159.1026	4.93	0.6494515	TYPLAG2	MOIST	0-<1/2"	S	0	FESCUE
<p><b>Field RC 00123 0002 has 0.186 lbs/acre of arsenic land applied so far. Is there another field with more arsenic?</b></p>										
<p><b>TOTALS:</b> Annual lbs/acre: 5946.6 As: 0.034 Cd: 0.012 Cr: 0.384 Cu: 6.318 Hg: 0.003 Ni: 0.26 Mo: 0.047 Pb: 0.224 Se: 0.014 Zn: 2.403</p>										
<p>Cumulative lbs/acre: 0.186 0.246 1.69 40.907 6.124 0.133 5.347 1.002 0.284 46.185</p>										
<p>Permitted C. P. L. R. *** 36 34 34 1338 267 15 89 2498</p>										
<p>Permit PAN Limit 1st/2nd Crop TYPLAG1= TYPICALVILLE, NC WWTP LAGOON #1 PAN 117 Date lbs/ac 250</p>										

"I certify, under penalty of law, that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations."

\*Application Method: S - Surface, IN - Injection, INC - Incorporation  
 \*\*Volatilization Rate: Surface - 0.5, Injection/Incorporation - 1.0  
 \*\*\*C.P.L.R.: Cumulative Pollutant Loading Rate

Signature of Land Applier \_\_\_\_\_ Date \_\_\_\_\_



ANNUAL LAND APPLICATION FIELD SUMMARY FORM

Facility Name: Typicalville, NC Permit #: WQ0001234 Annual Dry Tons Applied: 19,0713382  
 Owner: James Bryant Operator: RC 00123 0001 Cation Exchange Capacity (non 503): 16.1  
 Site #: NC RC 00123 Field #: RC 00123 0001 Acres Utilized: 16.1 Acres Permitted: 16.1

Date or Month	Specify Gal. Cu.Yd. Report Totals in Gal.	Totals Per Acre	% Solids	Dry Tons Per Acre	Residual Sources (Summarize)	Site Cond. Dry, Wet, Moist	Inches Precip. Pa st 24 Hrs.	Appli- cation Meth- od*	Vola-tili- zation Rate**	Mimer-ali- zation Rate	TKN	Ammo- nia- Ni- trogen (ppm)	Ni-trate and Nitrite (ppm)	PAN (ppm)	Crop
6/13/2016	92768	5761.9876	4.93	1.1845552	TYPLAG1	DRY	0-<1/2"	S							E
<b>TOTALS:</b>															
		5761.99													
		Annul lbs/acre		0.033	0.011	0.372	6.122	0.003	0.046	0.252	0.013	2.329	103.556	113	
		Cumulative lbs/acre		0.466	0.234	2.178	135.7	0.134	0.832	4.768	0.277	42.728			
		Permitted C. P. L. R. ***		36	34		1338	15		374	89	2498			
		Permit PAN Limit 1st/2nd Crop												250	

**Field RC 00123 0001 has  
 0.466 lbs/acre of arsenic.  
 Note also most heavily  
 loaded for copper and  
 mercury.**

"I certify, under penalty of law, that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations."

\*Application Method: S - Surface, IN - Injection, INC - Incorporation  
 \*\*Volatilization Rate: Surface - 0.5, Injection/Incorporation - 1.0  
 \*\*\*C.P.L.R.: Cumulative Pollutant Loading Rate

Signature of Land Applier \_\_\_\_\_ Date \_\_\_\_\_

**Headworks Addendum for Sludge Loadings (HASL) worksheet**

Spreadsheet Instructions:

- 1) Data entered only in Heavy Bordered cells. Rest of worksheet is protected, password is "2".
- 2) This spreadsheet changes based on the class of sludge generated inputted in cell C13 of the HWA spreadsheet. The title and the limits in column G of this spreadsheet are updated automatically.
- 3) Formulas in Comprehensive Guidance HWA Chapter, Section K.

POTW Name =>	Typicalville
POTW NPDES # =>	NC0012345
POTW Sludge Permit # =>	WQ0001234
Date =>	1/4/2017
POTW Average Flow =>	2.81 mgd
Avg. sludge flow to Disposal =>	0.0119 mgd
Average % Solids to Disposal =>	4.40 %
Sludge Site Area permitted =>	1164.9 acres

$$MAHL_{sv} = (Q_{potw} * C_{inf} * 8.34) / (\%_{adj}) \text{ lbs/day}$$

$Q_{potw}$  = Average POTW flow (mgd)  
 $C_{inf}$  = Average influent concentration (mgd)  
 $\%_{adj}$  = Per percentage of Sludge Limit as decimal (example: enter 117% as 1.17)  
 8.34 = Conversion Factor

POLLUTANT	CUMULATIVE SLUDGE LOADING LIMITS lbs/acre	Enter actual CUMULATIVE LOADING data from most recent Sludge Report for the most heavily loaded field <sup>1</sup> lbs/acre	% of Cumulative Limit	Flag if Greater than 80%	Sludge Ceiling Concentrations mg/dry kg	Enter actual MAXIMUM SLUDGE CONC. from most recent Sludge Report or LTMP Data mg/dry kg	% of Applicable Ceiling Conc. Limit	Flag if > 80% of Applicable Ceiling Conc. Limit	Enter Average POTW Influent Conc. mg/l	Calculate MAHL <sub>sv</sub> based on % of Monthly Average Concentration Limits to Protect Sludge Quality (insert these values into HWA) lbs/day
Arsenic	36	0.466	1.29 %		75	7.300	9.7 %		0.0050	1.2034
Cadmium	34	0.246	0.72 %		85	6.500	7.6 %		0.001	0.1532
Chromium	1338	135.7	10.14 %		4300	1490.000	34.7 %		0.048	3.2182
Copper	267	6.12	2.29 %		840	40.00	4.8 %		0.003	1.4759
Lead	15	0.134	0.89 %		57	0.800	1.4 %		0.0002	0.2838
Mercury	374	5.347	1.43 %		75	8.000	10.7 %		0.003	0.6808
Molybdenum	89	0.284	0.32 %		420	44.000	10.5 %		0.002	0.5143
Nickel	2498	46.185	1.85 %		100	5.000	5.0 %		0.005	2.3427
Selenium					7500	434.000	5.8 %		0.392	158.4970
Zinc										

If Greater than 80% Flag POTW MUST SUBMIT LAND APP & METALS MANAGEMENT PLAN

n/a

If Greater than 80% of the concentration limit POTW MUST SUBMIT METALS MANAGEMENT PLAN

n/a

If over ceiling conc. POTW must reduce MAHL

n/a

<sup>1</sup> The most heavily loaded field is determined for each pollutant individually, and is the field that contains the highest amount (lbs/acre) of that pollutant.

