



Delaware Department of Natural Resources and Environmental Control

Division of Water, Groundwater Discharges Section
89 Kings Highway, Dover DE 19901 (302) 739-9948

Annual Report for Reporting Year 20 22

Permittee Town of Millsboro
 Facility Name Town of Millsboro WWT Date 2-21-23
 Mailing Address 322 Wilson Hwy Permit Number 528516
Millsboro Del 19966

Attached Documentation (Please check)

- | | |
|---|---|
| <input checked="" type="checkbox"/> 6.8.2.4.1.3 QA/QC Report | <input type="checkbox"/> 6.9.14.2 Design Nitrogen Balance |
| <input checked="" type="checkbox"/> 6.9.1.9 Biosolids Removed | <input checked="" type="checkbox"/> 6.9.14.3 Soils Chemical Data |
| <input checked="" type="checkbox"/> 6.9.1.12 Vegetative Management | <input checked="" type="checkbox"/> 6.9.14.4 Map - Ponding, Pooling or Runoff Areas |
| <input checked="" type="checkbox"/> 6.9.1.13 Calibration Certificates | <input checked="" type="checkbox"/> 6.9.14.5 NRCS Nutrient Removal by Crop Tool |

Principal Executive Officer

Name Faye Lingo Phone Number 302-934 8171
 Title Mayor

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete and the analyses has been conducted in accordance with the requirements of Section 6.8 of the Regulations Governing The Design, Installation and Operation of On-Site Wastewater Treatment and Disposal Systems.

I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment. See 7 Del. C. Chapter 60 §6013 (b). Penalties under these statutes may include fines up to \$5,000 and or maximum imprisonment of up to 6 months.

Operator Completing Reporting Documentation

Name Richard L. Buckler Phone Number 302 249 9831
 License Number 199 Expiration Date 7-1-24 Operator Classification 4
 Signature R L Buckler Date 2-21-23

Direct Responsible Charge Operator

Name Richard L. Buckler Phone Number 302 249 9831
 License Number 199 Expiration Date 7-1-24 Operator Classification 4
 Signature R L Buckler Date 2-21-23

Worksheet 1

2022

Where applicable, data may be transferred from the DMIR's.

Parameter	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Annual Daily Average (Total/365 mos.)	Annual Monthly Average (Total/12 mos.)	Peak Monthly Flow (gall)	Permit Design Limit:	Max Depth Not Including Freeboard:
Influent Flow to Treatment	gall/mo	5582	3162	7392	6345	8084	8161	8558	7365	8453	22959	8494	10502	96497	264.38	8083	12999		
Effluent Flow to all Spray areas combined	gall/mo	20390	18523	16575	19525	19368	20358	22563	21954	21624	22319	19062	19158	239273	655.53	19934	228563		
Total nitrogen in spray effluent	mg/L	34.70	32.86	33.44	33.10	34.33	27.69	24.93	31.33	32.44	30.75	24.7	34.70	374.39	1.03	31.07	34.70		
Ammonia in spray effluent	mg/L	0.05	0.94	1.56	1.50	N/A	2.93	4.58	2.67	13.66	4.40	0.84	5.44	6824	5.43	59.008	13.61		
Total phosphorus in spray effluent	mg/L	1.79	2.57	2.38	2.76	1.80	2.93	3.04	2.81	2.43	1.81	1.14	1.49	26.15	0.071	2.18	3.04		
BOD ₅ ¹	mg/L	N/A	37.61	32.88	32.90	30.24	11.23	28.08	16.40	12.54	9.55	10.13	N/A	213.56	0.59	17.006	37.64		
TSS ²	mg/L	1.6	40.99	40.42	33.46	43.3	25.80	42.7	24.78	23.89	13.93	13.8	1.0	325.29	0.89	82.15	63.3		
Monthly Total Precipitation ³	in	4.25	2.15	2.0	3.50	2.15	4.40	1.50	2.63	2.15	6.50	2.25	2.6	36.75	3.06	0.10	6.25		
Storage Lagoon 1 Monthly Average	feet																		
Total Volume Stored Storage Lagoon 2	feet																		
Monthly Average Treatment Lagoon and Storage Surface Acreage	acres	8.5/82	8.5/82	8.5/82	8.5/82	8.5/82	8.5/82	8.5/82	8.5/82	8.5/82	8.5/82	8.5/82	8.5/82	8.5/82					

School 8.5 acres
11-80 P. Wet 82 acres

¹⁾ Facilities that are not required to collect effluent BOD₅ are exempt from 6.9.1.5
²⁾ Facilities that are not required to collect effluent TSS are exempt from 6.9.1.6
³⁾ 6.9.1.10 specifies daily rainfall, temperature, wind speed and direction. Only submit monthly precipitation in the above table. The GWDS will review this information during the Annual Inspection. Continue to maintain this information in the operator's log book, as noted in 6.7.3. For any given month, if samples are not taken for Nitrogen, Ammonia, Phosphorus, BOD or TSS, please leave those cells blank for that month.

This Worksheet satisfies: 6.9.1.1, 6.9.1.2, 6.9.1.5, 6.9.1.6, 6.9.1.7 (in part), 6.9.1.8 (in part), 6.9.1.10 (in part), and 6.9.1.14.2 (in part)

Worksheet 2

Zone, pivot or field

Wetted Area (acres):

2022
 M. Ishore Middle School Stake St
 Georgetown

8.5
 Nearest Weather Station:

Default Yield (bu/acre)
 Measured Yield If Known (bu/acre)
 Actual N Removal If Known (lbs/acre/year)
 Actual P Removal If Known (lbs/acre/year)

Crop 1:	N/A
Crop 2:	N/A
Crop 3:	N/A

Parameter	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Average	Permit Limit / Design Value
Crop		Turf Grass	Turf Grass	Turf Grass	Turf Grass	Turf Grass	Turf Grass	Turf Grass	Turf Grass	Turf Grass	Turf Grass	Turf Grass	Turf Grass			
Effluent to Spray	gal/mo	0	0	0	0.096	0.162	0.714	0.645	0.389	0.011	0	0	0	2.023	0.168	
Effluent to Spray	gal/acre	0	0	0	0.019	0.019	0.084	0.085	0.045	0.002	0	0	0	0.286	0.019	
Days Sprayed	days/mo	0	0	0	3	3	11	15	24	6	0	0	0	68	5.0	
Total nitrogen in spray effluent	lb/acre-mo	0	0	0	3.310	3.333	3.316	3.333	3.333	3.314	0	0	0	18.239	13.288	
Total nitrogen from commercial fertilizer	lb/acre-mo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total nitrogen from biosolids	lb/acre-mo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total nitrogen applied	lb/acre-mo	0	0	0	3.310	3.333	3.316	3.333	3.333	3.314	0	0	0	18.239	13.288	
Crop nitrogen removal	lb/acre-mo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total nitrogen removal	lb/acre-mo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Nitrogen Percollate	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10.0
Total phosphorus in spray effluent	lb/acre-mo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total phosphorus from commercial fertilizer	lb/acre-mo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total phosphorus from biosolids	lb/acre-mo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total phosphorus applied	lb/acre-mo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Instructions:
 1) Each zone, pivot, or field should have a separate worksheet. Worksheet 2 may be copied and pasted to accommodate multiple areas.
 2) Where applicable, data may be transferred from the DMR's.
 3) Fill out all orange cells that are applicable.
 4) The order of the crop list (Crop 1, Crop 2, Crop 3) does not matter. If fewer than three crops are planted, the remaining crop listings can either be set to 'Cover' or left blank.
 5) Total Nitrogen Applied is compared (without adjustment) to your Permitted Nitrogen Loading Limit.

Notes:
 1) 75% of nitrogen from fertilizer and biosolids is considered available the current month, and 25% available the following month. (With the exception of January)
 2) This worksheet uses a standard set of assumptions for monthly uptake based on a typical planting cycle. If crops are planted ahead or behind this schedule, these assumptions may not be valid.
 3) For cases where non-standard conditions are present, alternate calculations with appropriate justification may be submitted for approval.
 4) This Worksheet satisfies: 6.9.1.7 (in part), 6.9.1.8 (in part), 6.9.1.14.1, 6.9.1.14.2 (in part), and 6.9.1.14.5

Grass clippings recycled onsite

2022

Worksheet 2

1420 Pivot between 143/ & 1432

Zone, pivot or field

Wetted Area (acres): 82

Nearest Weather Station:

Georgetown

Default Yield If Known (bu/acre) N/A

Crop 1: N/A
Crop 2: N/A
Crop 3: N/A

Measured Yield If Known (bu/acre)

Actual N Removal If Known (lbs/acre/year)

Parameter	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Average	Permit Limit / Design Value
Crop		Wheat	Wheat	Wheat	Corn	Corn	Corn	Corn	Corn	Corn	Vetch	Vetch	Vetch			
Effluent to Spray	gal/mo	0	0	3,786	0	1,367	5,656	14,302	8,701	1,345	0	4,365	0	39,52	3.29	
Effluent to Spray	gal/acre	0	0	0.046	0	0.046	0.046	0.046	0.046	0.046	0	0.046	0	0.418	0.04	
Days Sprayed	days/mo	0	0	5	0	3	10	22	18	2	0	5	0	65	5.4	
Total nitrogen in spray effluent	lb/acre-mo	0	0	3,786	0	3,786	3,786	3,786	3,786	3,786	0	3,786	0	208,43	17.39	
Total nitrogen from commercial fertilizer	lb/acre-mo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total nitrogen from biosolids	lb/acre-mo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total nitrogen applied	lb/acre-mo	0	0	3,786	0	3,786	3,786	3,786	3,786	3,786	0	3,786	0	208,43	17.39	
Crop nitrogen removal	lb/acre-mo	0	0	1,288	0	4,071	15,611	3,571	2,773	1,440	0	7,096	0	90,02	7.52	
Total nitrogen removal	lb/acre-mo	0	0	1,288	0	4,071	15,611	3,571	2,773	1,440	0	7,096	0	90,02	7.52	
Nitrogen Percolate	mg/L	0	0	2,498	0	1,715	2,175	3,214	2,013	2,346	0	1,644	0	15,44	1.33	10.0
Total phosphorus in spray effluent	lb/acre-mo	0	0	2,338	0	1,180	2,410	3,104	2,187	2,443	0	1,744	0	15,44	1.33	
Total phosphorus from commercial fertilizer	lb/acre-mo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total phosphorus from biosolids	lb/acre-mo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total phosphorus applied	lb/acre-mo	0	0	2,338	0	1,180	2,410	3,104	2,187	2,443	0	1,744	0	15,44	1.33	

Instructions: 1) Each zone, pivot, or field should have a separate worksheet. Worksheet 2 may be copied and pasted to accommodate multiple areas.

2) Where applicable, data may be transferred from the DMRS.

3) Fill out all orange cells that are applicable.

4) The order of the crop list (Crop 1, Crop 2, Crop 3) does not matter. If fewer than three crops are planted, the remaining crop listings can either be set to 'Cover' or left blank.

5) Total Nitrogen Applied is compared (without adjustment) to your Permitted Nitrogen Loading Limit.

Notes: 1) 75% of nitrogen from fertilizer and biosolids is considered available the current month, and 25% available the following month. (With the exception of January.)

2) This worksheet uses a standard set of assumptions for monthly uptake based on a typical planting cycle. If crops are planted ahead of or behind this schedule, these assumptions may not be valid.

3) For cases where non-standard conditions are present, alternate calculations with appropriate justification may be submitted for approval.

4) This Worksheet satisfies: 6.9.1.7 (in part), 6.9.1.14.1, 6.9.1.14.2 (in part), and 6.9.1.14.5

2022

Worksheet 3

Total number of dwelling units connected to the system ¹

4983

Number of dwelling units connected this calendar year ²

249

Biosolids removed 298.2 TONS ~~gallons~~ Dry solids from centrifuge

Date 2022

Hauler Town of Millsboro

Destination Delaware Solid Waste Land Fill Sr.20 Hardscrabble Del

Attach map, if applied to any spray irrigation field

Operational and Maintenance Activities.

Please check here if additional attachments are included.

[1] Permittees that do not have a permit restriction related to dwellings/units are exempt from 6.9.1.3.

[2] Permittees that do not have a permit restriction related to dwellings/units are exempt from 6.9.1.4.

This Worksheet satisfies: 6.9.1.3, 6.9.1.4, 6.9.1.9 and 6.9.1.11

Design Nitrogen Balance

If available, compare the most recent Design Nitrogen Balance for the facility to the actual operating data summarized in Worksheets 1 & 2. Provide any comments relative to major discrepancies. Attach a copy with the Annual Report. (Check one of the following)



I do not have a copy of the Design Nitrogen Balance and have exhausted all measures of acquiring one, even contacting the DNREC - GWDS.



I have attached a copy of the most recent Design Nitrogen Balance and have compared the design values to this year's operation of the facility.

Comments:

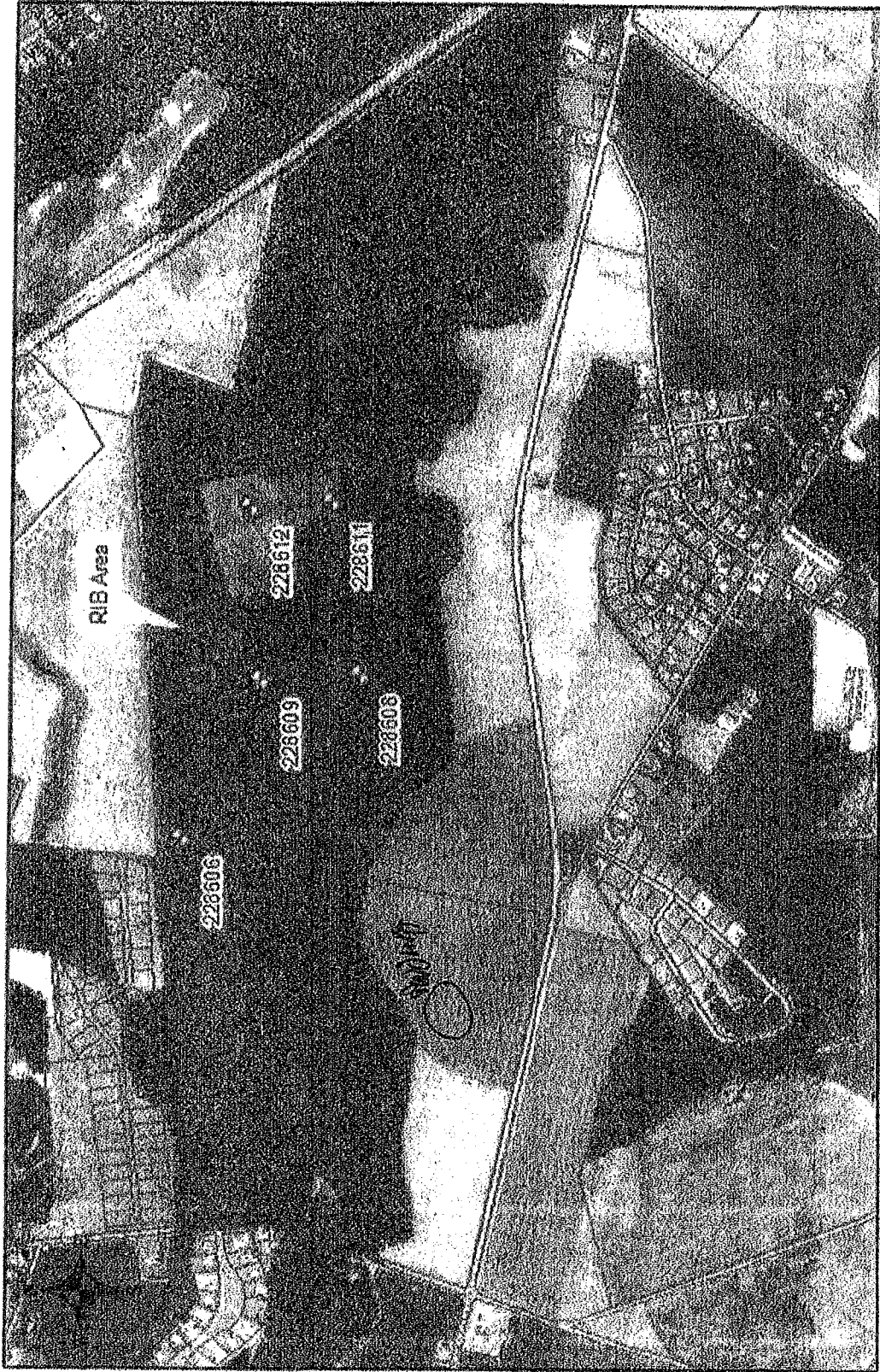
Annual Report General Requirements

Permittees covered under the State of Delaware *Regulations Governing the Design, Installation and Operation of On-Site Wastewater Treatment and Disposal Systems* must submit an annual report. The permittee shall submit to the Department an annual report summarizing the operations, management, administration and maintenance of the facility for the calendar year. The annual report must be submitted to the Department on or before February 28th of each year. The report **must be free of staples** and must be submitted to the address identified in Section 6.8.4 unless otherwise specified in the facility's permit.

The report must, at a minimum, include the following applicable items. The report must also include any additional items specified in the facility's permit.

Regulations	Annual Report Components	Worksheet	<input checked="" type="checkbox"/>
6.8.2.4.1.3	QA/QC Confirmation ¹		<input checked="" type="checkbox"/>
6.9.1.1.1 - 6.9.1.1.4	Influent Flow to Treatment	1	<input checked="" type="checkbox"/>
6.9.1.2.1 - 6.9.1.2.4	Effluent Flow to Disposal	1	<input checked="" type="checkbox"/>
6.9.1.3	Total Number of Dwellings/Units	3	<input checked="" type="checkbox"/>
6.9.1.4	Number of Dwellings/Units connected this year	3	<input checked="" type="checkbox"/>
6.9.1.5	Effluent BOD5 annual average concentration, mg/L	1	<input checked="" type="checkbox"/>
6.9.1.6	Effluent TSS annual average concentration, mg/L	1	<input checked="" type="checkbox"/>
6.9.1.7	Effluent Total Nitrogen average and loading	1	<input checked="" type="checkbox"/>
		2	<input checked="" type="checkbox"/>
6.9.1.8	Effluent Total Phosphorus average and loading	1	<input checked="" type="checkbox"/>
		2	<input checked="" type="checkbox"/>
6.9.1.9	Biosolids Information ¹	3	<input checked="" type="checkbox"/>
6.9.1.10	Weather Related Information	1	<input type="checkbox"/>
6.9.1.11	Operational and Maintenance Activities	3	<input checked="" type="checkbox"/>
6.9.1.12	Vegetative Management Practices ¹		<input checked="" type="checkbox"/>
6.9.1.13	Calibration Certificates ¹		<input checked="" type="checkbox"/>
6.9.1.14.1 (Spray only)	Loading Calculations	2	<input checked="" type="checkbox"/>
6.9.1.14.2 (Spray only)	Nitrogen Balance ¹	2	<input type="checkbox"/>
6.9.1.14.3 (Spray only)	Soils Report ¹		<input type="checkbox"/>
6.9.1.14.4 (Spray only)	Map- ponding/pooling in spray areas ¹		<input checked="" type="checkbox"/>
6.9.1.14.5 (Spray only)	Crop Removal Information ¹	2	<input checked="" type="checkbox"/>

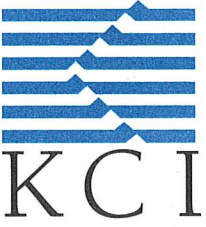
[1] Operator to include supplemental information as an attachment



Town of Millsboro
 White Farm - Ponding

Legend
 ● Monitoring Wells

Farmer graded ponding area to reduce ponding in area



SUBJECT _____

JOB NUMBER _____ SHEET _____ OF _____

DESIGN _____ DATE _____

CHECK _____ DATE _____

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2022	Flow	BDD	7SS	7ND	7P	Row	Fertilizer	Power	Slide	Crop
Flow Prod 0	26350300	ND	1.0	34.00	1.49	4.25"		0.05	39.47	Wheat
Flow 0	18553905	3764	4498	32.86	2.89	2.15		9.94	54.35	Wheat
Mar 5	11515920 3786180	22.88	42.42	33.44	2.38	2.6"		9.50	90.76	Wheat
Apr 0	19539401 D	22.90	31.46	33.10	2.76	3.50"	20015 Put 100% N2-H2O	4.30	68.04	Corn
May 3	19368592 1369843	30.25	63.3	34.33	1.80	2.15"		ND	58.66	Corn
June 10	20345666 5656596	11.23	25.80	29.66	2.93	4.40"		8.5	41.23	Corn
July 22	22662800 14362970	22.05	42.7	24.83	3.04	1.50"		4.58	80.61	Corn
Aug 18	21944800 57701482	16.40	24.18	31.33	2.27	2.65"		8.67	53.53	Corn
Sept 2	21624500 1345135	12.94	22.80	22.44	2.43	2.75		13.61	91.90	Corn
Oct 0	20345666 D	9.55	12.75	30.75	1.89	6.50"		4.40	59.59	Wheat
Nov 5	19624500 4266245	10.13	12.8	24.1	1.14	2.25"		5.45	69.11	Wheat
Dec 6	19624500 16165200	ND	1.0	34.00	1.49	2.65		0.05	80.13	Wheat
Total	239213053	21.556	326.19	374.54	26.14	36.95			758.2	
Row	15534421	17.96	29.15	31.21	2.18	3.06"			705.5	
Plant Tot	39525425									

15 Days

758.2
705.5
Leachings



SUBJECT _____

JOB NUMBER _____ SHEET _____ OF _____

DESIGN _____ DATE _____

CHECK _____ DATE _____

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2022

RT20 P:oot

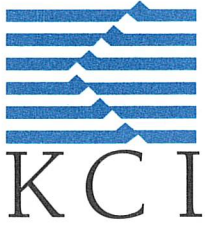
March	3786180	÷ 82 Acres =	46.173 gal per Acre
May	1367843		16.681
June	5656536		68.983
July	14362470		174.426
Aug	8701482		106.116
Sept	1348129		16.404
NOV	4365245		53.235

School Spray

April	95,559	÷ 8.5 acres	11,247 gallons per Acre
May	162,085		19,069
June	714,517		84,068
July	645,069		75,890
Aug	389,440		45,816
Sept	17,476		2,056

RT20 P:oot TR

Month	TR	lbs/TR	÷ 82	lbs Per Acre TR
Mar	33.44	1,050	12.88	
May	34.33	391	4.77	
June	27.66	1,305	15.91	
July	24.83	293	3.57	
Aug	31.33	2,274	27.73	
Sept	32.44	1,181	14.40	
NOV	24.17	899	10.96	
TR Mar	2.38	15.15	0.91	
TR May	1.80	20.52	0.25	
TR June	2.93	138.	1.68	
TR July	3.04	36.2	0.44	
TR Aug	2.27	165	2.01	
TR Sept	2.43	27.25	0.33	
TR NOV	1.14	41.50	0.51	



SUBJECT _____

JOB NUMBER _____ SHEET _____ OF _____

DESIGN _____ DATE _____

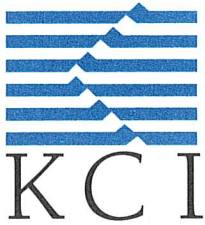
CHECK _____ DATE _____

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School Spray

	<u>TN</u>					<u>Notes</u>
April	33.10	33.10	x 95599	x 8.34 =	26.23	÷ 8.5 = 3.08 <u>lb per A</u>
May		34.33			46.38	5.45
June		27.66			164.7	19.38
July		24.53			131.4	15.52
Aug		31.33			101.64	11.95
Sept		32.44			4.60	0.54
		<u>183.15.28</u>				<u>55.92/4.60</u>

	<u>TP</u>					
April		2.76	x 95599	x 8.34 =	2.19	÷ 8.5 = 0.26
May		1.80			2.43	0.29
June		2.93			17.45	2.05
July		3.04			16.35	1.92
Aug		2.27			7.36	0.88
Sept		2.43			0.34	0.04
		15.23				
		<u>15.23/1.27</u>				<u>5.44/0.45</u>



SUBJECT _____

JOB NUMBER _____ SHEET _____ OF _____

DESIGN _____ DATE _____

CHECK _____ DATE _____

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Sludge Tons 2022

Jan 6.11
4.03
6.98
6.69
5.19
3.47
32.47

Feb 5.45
6.80
3.39
5.67
7.80
3.18
2.95
4.85
4.43
4.48
5.33
54.35

Mar 6.18
6.14
4.60
6.00
5.99
5.69
8.44
5.38
6.22
6.10
6.64
4.15
7.33
6.89
50.1
90.76

Apr 6.17
7.54
5.83
6.80
4.63
7.10
8.59
5.86
6.10
7.42
68.04

May 7.30
6.63
6.29
5.74
3.69
5.74
4.01
6.78
5.06
5.42
58.66

June 3.29
5.93
4.55
6.41
3.15
6.38
4.27
7.25
41.23

July 4.24
6.38
8.82
4.10
5.03
3.52
5.24
4.93
6.47
6.70
6.40
6.60
5.22
6.66
80.61

Aug 5.31
5.64
4.99
5.94
3.67
8.07
6.53
7.76
5.62
53.53

Sept 7.36
6.68
8.16
8.21
5.42
4.08
6.19
4.85
5.92
4.17
4.84
6.02
71.70

Oct 7.06
3.76
5.62
5.36
4.54
6.97
5.32
4.94
5.66
5.36
5.00
59.59

Nov 6.74
4.84
8.26
5.96

6.05
6.67 7.63
6.45 7.10
7.41 67.11

Dec 7.23
5.04
6.61
6.55

6.60
6.69
6.17
5.21

7.70
6.52
6.59
8.84
80.15

Yearly Total
758.2 Tons
Dryed Sludge
Centrifuge



Month	Flow Days	Total	School	RFD	Rain
Jan	18	20,390,300	0	0	4.25" / 185
Feb		18,583,700			
Mar		16,519,900	0	3,786,180	2.0"
Apr		19,529,401	96549 3	0	
May	3	19,368,872	162,088 3	1,367,843	
June	10	20,398,600	714,577 17	565,6576	2.15"
July	22	22,563,000	643,069 15	14,302,970	4.40"
Aug	18	21,744,500	389,440 24	8,701,482	1.50"
Sept	2	21,624,800	17,476 6	1,345,129	2.60"
Oct	0	18,104 20,319,200	0	0	0
Nov	5	19,062,400	0	0	4,365,245
Dec	0	19,198,200	0	0	0
	60 Days			65	School

INF 2022

Jan	5,882,983	July	8,558,651
Feb	3,692,013	Aug	7,635,425
March	7,392,878	Sept	8,453,356
April	6,345,900	Oct	12,999,682
May	8,084,747	Nov	8,994,031
June	8,161,291	Dec	10,802,615

96,997,000

÷ 12

÷ 365

Annual Quality Assurance Summary
January 1, 2022 - December 31, 2022

Town of Millsboro
322 Wilson Highway
Millsboro, DE 19966
Completed by: ERA

Wastewater
School Spray / White Farm RIBS - Duplicate
Alkalinity as CaCO₃
SM2320-B

Date	Sample Number	Analyst	Analysis (ppm)	Dup Analysis (ppm)	diff (d)	d ²	Spike Amount (ppm)	Spike Sample Result (ppm)	% Recovery	% Recovery Variance From Mean	Diff ²
1/5/2022	2200072-01/02	JB	39.6	48.5	8.9000	79.2100	N/A	N/A	N/A	N/A	N/A
7/6/2022	2206590-01/02	JB	117	124	7.0000	49.0000	N/A	N/A	N/A	N/A	N/A
10/5/2022	2209923-01/02	ML	71.7	70.0	-1.7000	2.8900	N/A	N/A	N/A	N/A	N/A

STANDARD DEVIATION DATA

TOTAL of d² 131.1000
Number of Duplicates 3
Standard Deviation +/- 8.10

Annual Quality Assurance Summary
January 1, 2022 - December 31, 2022

Town of Millsboro
322 Wilson Highway
Millsboro, DE 19966
Completed by: ERA

Wastewater
School Spray / White Farm RIBS - Duplicate
BOD5
SM5210-B

Date	Sample Number	Analyst	Analysis (ppm)	Dup Analysis (ppm)	diff (d)	d ²	Spike Amount (ppm)	Spike Sample Result (ppm)	% Recovery	% Recovery Variance From Mean	Diff ²
1/5/2022	2200072-01/02	MEM	5.1	5.5	0.4000	0.1600	N/A	N/A	N/A	N/A	N/A
2/2/2022	2201039-01/02	HM	65.5	63.5	-2.0000	4.0000	N/A	N/A	N/A	N/A	N/A
3/2/2022	2201985-01/02	MEM	4.0	4.0	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
4/6/2022	2203314-01/02	MA	4.0	4.0	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
5/4/2022	2204288-01/02	MA	4.0	4.0	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
6/8/2022	2205581-01/02	MA	29.4	29.1	-0.3000	0.0900	N/A	N/A	N/A	N/A	N/A
6/15/2022	2205855-01/02	MEM	4.3	4.2	-0.1000	0.0100	N/A	N/A	N/A	N/A	N/A
7/6/2022	2206590-01/02	MA	4.0	4.0	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
8/3/2022	2207598-01/02	MA	5.0	4.9	-0.1000	0.0100	N/A	N/A	N/A	N/A	N/A
8/7/2022	2207782-01/02	ML	33.3	36.4	3.1000	9.6100	N/A	N/A	N/A	N/A	N/A
10/5/2022	2209923-01/02	MA	4.0	4.0	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
11/2/2022	2210949-01/02	MA	4.0	4.0	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
12/21/2022	2212720-01/02	TAS	4.0	4.0	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A

STANDARD DEVIATION DATA

TOTAL of d2 13.8800
Number of Duplicates 13
Standard Deviation +/- 1.08

Annual Quality Assurance Summary
January 1, 2022 - December 31, 2022

Town of Millsboro
322 Wilson Highway
Millsboro, DE 19966
Completed by: ERA

Wastewater
School Spray / White Farm RIBS - Duplicate
Chloride
EPA 300.0 or SM4500-CL-C

Date	Sample Number	Analyst	Analysis (ppm)	Dup Analysis (ppm)	diff (d)	d ²	Spike Amount (ppm)	Spike Sample Result (ppm)	% Recovery	% Recovery Variance From Mean	Diff ²
1/5/2022	2200072-01/02	MEM	93.0	93.2	0.2000	0.0400	40.0	134.000	102.00%	-0.038	0.0014
4/6/2022	2203314-01/02	MEM	80.8	80.1	-0.7000	0.4900	40.0	121.700	104.00%	-0.018	0.0003
7/6/2022	2206590-01/02	MEM	83.4	82.6	-0.8000	0.6400	40.0	126.200	109.00%	0.033	0.0011
10/5/2022	2209923-01/02	MEM	85.2	84.9	-0.3000	0.0900	40.0	128.100	108.00%	0.023	0.0005

STANDARD DEVIATION DATA

TOTAL of d2 1.2600
Number of Duplicates 4
Standard Deviation +/- 0.6481

SPIKE RECOVERY DATA

Mean % Recovery (X) 1.06
Mean Converted 105.7500
of Data Points 4
SUM of Diff² = 0.00
Standard Deviation +/- 3.30

Annual Quality Assurance Summary
January 1, 2022 - December 31, 2022

Town of Millsboro
322 Wilson Highway
Millsboro, DE 19966
Completed by: ERA

Wastewater
School Spray / White Farm RIBS - Grab - Duplicate
Fecal Coliform
SM9222-D

Date	Sample Number	Analyst	Analysis (#/100 mls)	Dup Analysis (#/100 mls)	diff (d)	d ²	Spike Amount (ppm)	Spike Sample Result (ppm)	% Recovery	% Recovery Variance From Mean	Diff ²
1/5/2022	2200072-03/04	RD	380	300	-80.0000	6400.0000	N/A	N/A	N/A	N/A	N/A
2/2/2022	2201039-03/04	RD	8000	8000	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
3/2/2022	2201985-03/04	RD	10	10	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
4/6/2022	2203314-03/04	RD	10	10	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
5/4/2022	2204288-03/04	RD	10	10	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
6/8/2022	2205581-03/04	HJG3	800	800	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
6/15/2022	2205855-03/04	HJG3	2	2	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
7/6/2022	2206590-03/04	RD	50	40	-10.0000	100.0000	N/A	N/A	N/A	N/A	N/A
8/3/2022	2207598-03/04	RD	10	10	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
8/8/2022	2207782-03/04	RD	6	10	4.0000	16.0000	N/A	N/A	N/A	N/A	N/A
10/5/2022	2209923-03/04	RD	10	10	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
11/2/2022	2210949-03/04	RD	10	10	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
12/21/2022	2212720-03/04	RD	10	10	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A

STANDARD DEVIATION DATA

TOTAL of d2 6516.0000
Number of Duplicates 13
Standard Deviation +/- 23.30

Annual Quality Assurance Summary
January 1, 2022 - December 31, 2022

Town of Millsboro
322 Wilson Highway
Millsboro, DE 19966
Completed by: ERA

Wastewater
School Spray / White Farm RIBS - Grab - Duplicate
Fecal Enterococcus
Enterolert

Date	Sample Number	Analyst	Analysis (#/100 mls)	Dup Analysis (#/100 mls)	diff (d)	d ²	Spike Amount (ppm)	Spike Sample Result (ppm)	% Recovery	% Recovery Variance From Mean	Diff ²
1/5/2022	2200072-03/04	RD	14.8	16	1.2000	1.4400	N/A	N/A	N/A	N/A	N/A
2/2/2022	2201039-03/04	RD	24196	24196	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
3/2/2022	2201985-03/04	RD	1	1	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
4/6/2022	2203314-03/04	RD	3.1	12.2	9.1000	82.8100	N/A	N/A	N/A	N/A	N/A
5/4/2022	2204288-03/04	RD	1	1	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
6/8/2022	2205581-03/04	HJG3	2419.6	2419.6	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
6/15/2022	2205855-03/04	HJG3	1	1	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
7/6/2022	2206590-03/04	RD	10.8	8.6	-2.2000	4.8400	N/A	N/A	N/A	N/A	N/A
8/3/2022	2207598-03/04	HM	1	1	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
8/8/2022	2207782-03/04	RD	1	1	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
10/5/2022	2209923-03/04	RD	1	1	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
11/2/2022	2210949-03/04	RD	1	1	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
12/21/2022	2212720-03/04	RD	1	1	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A

STANDARD DEVIATION DATA

TOTAL of d ²	89.0900
Number of Duplicates	13
Standard Deviation +/-	2.72

Annual Quality Assurance Summary
January 1, 2022 - December 31, 2022

Town of Millsboro
322 Wilson Highway
Millsboro, DE 19966
Completed by: ERA

Wastewater
School Spray / White Farm RIBS - Duplicate
Potassium
EPA 200.7

Date	Sample Number	Analyst	Analysis (ppm)	Dup Analysis (ppm)	diff (d)	d ²	Spike Amount (ppm)	Spike Sample Result (ppm)	% Recovery	% Recovery Variance From Mean	Diff ²
1/5/2022	2200072-01/02	JMW	14.1	14.8	0.7000	0.4900	100	111.600	96.80%	0.036	0.0013
4/6/2022	2203314-01/02	JMW	13.1	12.5	-0.6000	0.3600	100	96.700	84.20%	-0.090	0.0081
7/6/2022	2206590-01/02	JMW	14.5	13.8	-0.7000	0.4900	100	113.800	100.00%	0.068	0.0046
10/5/2022	2209923-01/02	JMW	12.1	12.3	0.2000	0.0400	100	104.100	91.80%	-0.014	0.0002

STANDARD DEVIATION DATA

TOTAL of d2 1.3800
Number of Duplicates 4
Standard Deviation +/- 0.6782

SPIKE RECOVERY DATA

Mean % Recovery (X) 0.93
Mean Converted 93.2000
of Data Points 4
SUM of Diff² = 0.01
Standard Deviation +/- 6.88

Annual Quality Assurance Summary
January 1, 2022 - December 31, 2022

Town of Millsboro
322 Wilson Highway
Millsboro, DE 19966
Completed by: ERA

Wastewater
School Spray / White Farm RIBS - Duplicate
Sodium
EPA 200.7

Date	Sample Number	Analyst	Analysis (ppm)	Dup Analysis (ppm)	diff (d)	d ²	Spike Amount (ppm)	Spike Sample Result (ppm)	% Recovery	% Recovery Variance From Mean	Diff ²
1/5/2022	2200072-01/02	JMW	133	130	-3.0000	9.0000	100	215.000	85.00%	0.044	0.0019
4/6/2022	2203314-01/02	JMW	223	223	0.0000	0.0000	100	297.400	74.40%	-0.062	0.0038
7/6/2022	2206590-01/02	JMW	147	138	-9.0000	81.0000	100	222.500	84.50%	0.039	0.0015
10/5/2022	2209923-01/02	JMW	112	114	2.0000	4.0000	100	192.500	78.50%	-0.021	0.0004

STANDARD DEVIATION DATA

TOTAL of d² 94.0000
Number of Duplicates 4
Standard Deviation +/- 5.5976

SPIKE RECOVERY DATA

Mean % Recovery (X) 0.81
Mean Converted 80.6000
of Data Points 4
SUM of Diff² = 0.01
Standard Deviation +/- 5.08

Annual Quality Assurance Summary
January 1, 2022 - December 31, 2022

Town of Millsboro
322 Wilson Highway
Millsboro, DE 19966
Completed by: ERA

Wastewater
School Spray / White Farm RIBS - Duplicate
Ammonia as N
SM4500-NH3-G

Date	Sample Number	Analyst	Analysis (ppm)	Dup Analysis (ppm)	diff (d)	d ²	Spike Amount (ppm)	Spike Sample Result (ppm)	% Recovery	% Recovery Variance From Mean	Diff ²
1/5/2022	2200072-01/02	CK	0.20	0.22	0.0200	0.0004	1.00	1.340	112.00%	0.104	0.0108
2/2/2022	2201039-01/02	CK	9.26	9.35	0.0900	0.0081	10.0	19.550	102.00%	0.004	0.0000
3/2/2022	2201985-01/02	CK	0.05	0.05	0.0000	0.0000	1.00	1.090	104.00%	0.024	0.0006
4/6/2022	2203314-01/02	CK	0.34	0.36	0.0200	0.0004	1.00	1.255	89.50%	-0.121	0.0146
5/4/2022	2204288-01/02	CK	0.05	0.05	0.0000	0.0000	1.00	0.946	89.60%	-0.120	0.0144
6/8/2022	2205581-01/02	CK	17.0	17.0	0.0000	0.0000	10.0	28.700	117.00%	0.154	0.0237
6/15/2022	2205855-01/02	CK	0.05	0.05	0.0000	0.0000	1.00	1.039	98.90%	-0.027	0.0007
7/6/2022	2206590-01/02	CK	0.14	0.10	-0.0400	0.0016	1.00	1.083	98.30%	-0.033	0.0011
8/3/2022	2207598-01/02	CK	0.06	0.08	0.0200	0.0004	1.00	1.019	93.90%	-0.077	0.0059
8/7/2022	2207782-01/02	CK	11.7	11.7	0.0000	0.0000	10.0	22.200	105.00%	0.034	0.0012
10/5/2022	2209923-01/02	CK	0.34	0.38	0.0400	0.0016	1.00	1.490	111.00%	0.094	0.0089
11/2/2022	2210949-01/02	CK	0.05	0.07	0.0200	0.0004	1.00	1.090	102.00%	0.004	0.0000
12/21/2022	2212720-01/02	CK	0.08	0.06	-0.0200	0.0004	1.00	1.035	97.50%	-0.041	0.0017

STANDARD DEVIATION DATA

TOTAL of d2 0.0133
Number of Duplicates 13
Standard Deviation +/- 0.0333

SPIKE RECOVERY DATA

Mean % Recovery (X) 1.02
Mean Converted 101.5923
of Data Points 13
SUM of Diff² = 0.08
Standard Deviation +/- 8.35

Annual Quality Assurance Summary
January 1, 2022 - December 31, 2022

Town of Millsboro
322 Wilson Highway
Millsboro, DE 19966
Completed by: ERA

Wastewater
School Spray / White Farm RIBS - Duplicate
Nitrate + Nitrite
EPA 300.0 or SM4500-NO3-H

Date	Sample Number	Analyst	Analysis (ppm)	Dup Analysis (ppm)	diff (d)	d ²	Spike Amount (ppm)	Spike Sample Result (ppm)	% Recovery	% Recovery Variance From Mean	Diff ²
1/5/2022	2200072-01/02	CK	39.2	41.0	1.8000	3.2400	20.0	61.800	104.00%	-0.007	0.0001
2/2/2022	2201039-01/02	CK	17.2	17.5	0.3000	0.0900	5.00	22.650	103.00%	-0.017	0.0003
3/2/2022	2201985-01/02	CK	29.1	29.3	0.2000	0.0400	5.00	33.900	92.00%	-0.127	0.0162
4/6/2022	2203314-01/02	CK	33.3	33.4	0.1000	0.0100	20.0	56.000	113.00%	0.083	0.0068
5/4/2022	2204288-01/02	CK	28.7	27.8	-0.9000	0.8100	10.0	38.600	108.00%	0.033	0.0011
6/8/2022	2205581-01/02	CK	18.3	18.8	0.5000	0.2500	10.0	30.200	114.00%	0.093	0.0086
6/15/2022	2205855-01/02	CK	17.1	16.8	-0.3000	0.0900	10.0	28.000	112.00%	0.073	0.0053
7/6/2022	2206590-01/02	CK	10.4	10.5	0.1000	0.0100	10.0	22.100	116.00%	0.113	0.0127
8/3/2022	2207598-01/02	JMW	23.9	23.9	0.0000	0.0000	5.00	28.400	90.00%	-0.147	0.0217
8/7/2022	2207782-01/02	CK	20.6	20.5	-0.1000	0.0100	10.0	31.400	109.00%	0.043	0.0018
10/5/2022	2209923-01/02	CK	28.3	28.3	0.0000	0.0000	5.00	33.500	104.00%	-0.007	0.0001
11/2/2022	2210949-01/02	CK	35.4	34.3	-1.1000	1.2100	10.0	44.900	106.00%	0.013	0.0002
12/21/2022	2212720-01/02	CK	26.0	26.6	0.6000	0.3600	10.0	35.660	90.60%	-0.141	0.0200

STANDARD DEVIATION DATA

TOTAL of d² 6.1200
Number of Duplicates 13
Standard Deviation +/- 0.7141

SPIKE RECOVERY DATA

Mean % Recovery (X) 1.05
Mean Converted 104.7385
of Data Points 13
SUM of Diff² = 0.09
Standard Deviation +/- 8.89

Annual Quality Assurance Summary
January 1, 2022 - December 31, 2022

Town of Millsboro
322 Wilson Highway
Millsboro, DE 19966
Completed by: ERA

Wastewater
School Spray / White Farm RIBS - Duplicate
Organic Nitrogen as N
CALC

Date	Sample Number	Analyst	Analysis (ppm)	Dup Analysis (ppm)	diff (d)	d ²	Spike Amount (ppm)	Spike Sample Result (ppm)	% Recovery	% Recovery Variance From Mean	Diff ²
1/5/2022	2200072-01/02	CK	1.34	1.37	0.0300	0.0009	N/A	N/A	N/A	N/A	N/A
2/2/2022	2201039-01/02	JMW	8.62	8.03	-0.5900	0.3481	N/A	N/A	N/A	N/A	N/A
3/2/2022	2201985-01/02	CK	1.27	1.26	-0.0100	0.0001	N/A	N/A	N/A	N/A	N/A
4/6/2022	2203314-01/02	CK	0.817	0.893	0.0760	0.0058	N/A	N/A	N/A	N/A	N/A
5/4/2022	2204288-01/02	JMW	0.684	0.622	-0.0620	0.0038	N/A	N/A	N/A	N/A	N/A
6/8/2022	2205581-01/02	JMW	0.110	0.0500	-0.0600	0.0036	N/A	N/A	N/A	N/A	N/A
6/15/2022	2205855-01/02	CK	1.18	1.16	-0.0200	0.0004	N/A	N/A	N/A	N/A	N/A
7/6/2022	2206590-01/02	CK	0.877	0.889	0.0120	0.0001	N/A	N/A	N/A	N/A	N/A
8/3/2022	2207598-01/02	JMW	0.839	0.831	-0.0080	0.0001	N/A	N/A	N/A	N/A	N/A
8/7/2022	2207782-01/02	CK	2.31	1.75	-0.5600	0.3136	N/A	N/A	N/A	N/A	N/A
10/5/2022	2209923-01/02	JMW	0.466	0.348	-0.1180	0.0139	N/A	N/A	N/A	N/A	N/A
11/2/2022	2210949-01/02	CK	0.615	0.596	-0.0190	0.0004	N/A	N/A	N/A	N/A	N/A
12/21/2022	2212720-01/02	CK	0.759	0.737	-0.0220	0.0005	N/A	N/A	N/A	N/A	N/A

STANDARD DEVIATION DATA

TOTAL of d2 0.6913
Number of Duplicates 13
Standard Deviation +/- 0.24

Annual Quality Assurance Summary
 January 1, 2022 - December 31, 2022

Town of Millsboro
 322 Wilson Highway
 Millsboro, DE 19966
 Completed by: ERA

Wastewater
 School Spray / White Farm RIBS - Grab Duplicate
 Total Dissolved Solids
 SM2540-C

Date	Sample Number	Analyst	Analysis (ppm)	Dup Analysis (ppm)	diff (d)	d ²	Spike Amount (ppm)	Spike Sample Result (ppm)	% Recovery	% Recovery Variance From Mean	Diff ²
1/5/2022	2200072-03/04	TAS	508	512	4.0000	16.0000	N/A	N/A	N/A	N/A	N/A
4/6/2022	2203314-03/04	TAS	420	442	22.0000	484.0000	N/A	N/A	N/A	N/A	N/A
7/6/2022	2206590-03/04	TAS	512	502	-10.0000	100.0000	N/A	N/A	N/A	N/A	N/A
10/5/2022	2209923-03/04	TAS	655	660	5.0000	25.0000	N/A	N/A	N/A	N/A	N/A

STANDARD DEVIATION DATA

TOTAL of d2 625.0000
 Number of Duplicates 4
 Standard Deviation +/- 14.43

Annual Quality Assurance Summary
January 1, 2022 - December 31, 2022

Town of Millsboro
322 Wilson Highway
Millsboro, DE 19966
Completed by: ERA

Wastewater
School Spray / White Farm RIBS - Duplicate
TKN
SM4500-Norg-C

Date	Sample Number	Analyst	Analysis (ppm)	Dup Analysis (ppm)	diff (d)	d ²	Spike Amount (ppm)	Spike Sample Result (ppm)	% Recovery	% Recovery Variance From Mean	Diff ²
1/5/2022	2200072-01/02	CK	1.54	1.59	0.0500	0.0025	1.00	2.518	92.80%	-0.095	0.0090
2/2/2022	2201039-01/02	JMW	17.9	17.4	-0.5000	0.2500	5.00	22.500	102.00%	-0.003	0.0000
3/2/2022	2201985-01/02	CK	1.27	1.26	-0.0100	0.0001	1.00	2.290	103.00%	0.007	0.0001
4/6/2022	2203314-01/02	CK	1.16	1.25	0.0900	0.0081	1.00	2.164	91.40%	-0.109	0.0119
5/4/2022	2204288-01/02	JMW	0.68	0.62	-0.0600	0.0036	1.00	1.730	111.00%	0.087	0.0076
6/8/2022	2205581-01/02	JMW	17.1	17.1	0.0000	0.0000	10.0	27.200	101.00%	-0.013	0.0002
6/15/2022	2205855-01/02	CK	1.18	1.16	-0.0200	0.0004	1.00	2.094	93.40%	-0.089	0.0079
7/6/2022	2206590-01/02	CK	1.01	0.99	-0.0200	0.0004	0.500	1.560	114.00%	0.117	0.0137
8/3/2022	2207598-01/02	JMW	0.90	0.91	0.0100	0.0001	1.00	1.960	105.00%	0.027	0.0007
8/7/2022	2207782-01/02	CK	14.0	13.4	-0.6000	0.3600	5.00	18.270	97.40%	-0.049	0.0024
10/5/2022	2209923-01/02	JMW	0.80	0.73	-0.0700	0.0049	1.00	1.840	111.00%	0.087	0.0076
11/2/2022	2210949-01/02	CK	0.67	0.67	0.0000	0.0000	1.00	1.860	119.00%	0.167	0.0279
12/21/2022	2212720-01/02	CK	0.84	0.80	-0.0400	0.0016	0.500	1.244	88.80%	-0.135	0.0182

STANDARD DEVIATION DATA

TOTAL of d2 0.6317
Number of Duplicates 13
Standard Deviation +/- 0.2294

SPIKE RECOVERY DATA

Mean % Recovery (X) 1.02
Mean Converted 102.2923
of Data Points 13
SUM of Diff² = 0.11
Standard Deviation +/- 9.45

Annual Quality Assurance Summary
January 1, 2022 - December 31, 2022

Town of Millsboro
322 Wilson Highway
Millsboro, DE 19966
Completed by: ERA

Wastewater
School Spray / White Farm RIBS - Duplicate
Total Nitrogen as N
CALC

Date	Sample Number	Analyst	Analysis (ppm)	Dup Analysis (ppm)	diff (d)	d ²	Spike Amount (ppm)	Spike Sample Result (ppm)	% Recovery	% Recovery Variance From Mean	Diff ²
1/5/2022	2200072-01/02	CK	40.8	42.6	1.8000	3.2400	N/A	N/A	N/A	N/A	N/A
2/2/2022	2201039-01/02	JMW	35.1	34.9	-0.2000	0.0400	N/A	N/A	N/A	N/A	N/A
3/2/2022	2201985-01/02	CK	30.4	30.6	0.2000	0.0400	N/A	N/A	N/A	N/A	N/A
4/6/2022	2203314-01/02	CK	34.4	34.7	0.3000	0.0900	N/A	N/A	N/A	N/A	N/A
5/4/2022	2204288-01/02	JMW	29.4	28.5	-0.9000	0.8100	N/A	N/A	N/A	N/A	N/A
6/8/2022	2205581-01/02	JMW	35.5	35.8	0.3000	0.0900	N/A	N/A	N/A	N/A	N/A
6/15/2022	2205855-01/02	CK	18.2	18.0	-0.2000	0.0400	N/A	N/A	N/A	N/A	N/A
7/6/2022	2206590-01/02	CK	11.4	11.5	0.1000	0.0100	N/A	N/A	N/A	N/A	N/A
8/3/2022	2207598-01/02	JMW	24.8	24.8	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
8/7/2022	2207782-01/02	CK	34.6	34.0	-0.6000	0.3600	N/A	N/A	N/A	N/A	N/A
10/5/2022	2209923-01/02	JMW	29.1	29.0	-0.1000	0.0100	N/A	N/A	N/A	N/A	N/A
11/2/2022	2210949-01/02	CK	36.0	35.0	-1.0000	1.0000	N/A	N/A	N/A	N/A	N/A
12/21/2022	2212720-01/02	CK	26.8	27.4	0.6000	0.3600	N/A	N/A	N/A	N/A	N/A

STANDARD DEVIATION DATA

TOTAL of d2 6.0900
Number of Duplicates 13
Standard Deviation +/- 0.71

Annual Quality Assurance Summary
January 1, 2022 - December 31, 2022

Town of Millsboro
322 Wilson Highway
Millsboro, DE 19966
Completed by: ERA

Wastewater
School Spray / White Farm RIBS - Duplicate
Total Phosphorus as P
SM4500-P-F (dig)

Date	Sample Number	Analyst	Analysis (ppm)	Dup Analysis (ppm)	diff (d)	d ²	Spike Amount (ppm)	Spike Sample Result (ppm)	% Recovery	% Recovery Variance From Mean	Diff ²
1/5/2022	2200072-01/02	CK	2.31	2.37	0.0600	0.0036	2.00	4.206	91.80%	-0.056	0.0032
2/2/2022	2201039-01/02	JMW	2.57	2.54	-0.0300	0.0009	10.0	12.740	102.00%	0.046	0.0021
3/2/2022	2201985-01/02	CK	1.21	1.25	0.0400	0.0016	2.00	3.172	96.10%	-0.013	0.0002
4/6/2022	2203314-01/02	CK	1.78	1.78	0.0000	0.0000	2.00	3.840	103.00%	0.056	0.0031
5/4/2022	2204288-01/02	JMW	1.80	1.99	0.1900	0.0361	2.00	3.798	90.40%	-0.070	0.0049
6/8/2022	2205581-01/02	JMW	3.80	3.77	-0.0300	0.0009	4.00	7.850	102.00%	0.046	0.0021
6/15/2022	2205855-01/02	CK	2.06	2.10	0.0400	0.0016	2.00	4.014	95.70%	-0.017	0.0003
7/6/2022	2206590-01/02	CK	2.38	2.38	0.0000	0.0000	1.00	3.365	98.50%	0.011	0.0001
8/3/2022	2207598-01/02	JMW	1.50	1.50	0.0000	0.0000	2.00	3.560	103.00%	0.056	0.0031
8/7/2022	2207782-01/02	CK	1.57	1.57	0.0000	0.0000	10.0	11.320	97.50%	0.001	0.0000
10/5/2022	2209923-01/02	JMW	1.40	1.39	-0.0100	0.0001	2.00	3.186	89.80%	-0.076	0.0058
11/2/2022	2210949-01/02	CK	1.49	1.50	0.0100	0.0001	2.00	3.600	105.00%	0.076	0.0057
12/21/2022	2212720-01/02	CK	1.12	1.11	-0.0100	0.0001	1.00	2.028	91.80%	-0.056	0.0032

STANDARD DEVIATION DATA

TOTAL of d² 0.0450
Number of Duplicates 13
Standard Deviation +/- 0.0612

SPIKE RECOVERY DATA

Mean % Recovery (X) 0.97
Mean Converted 97.4308
of Data Points 13
SUM of Diff² = 0.03
Standard Deviation +/- 5.31

Annual Quality Assurance Summary
January 1, 2022 - December 31, 2022

Town of Millsboro
322 Wilson Highway
Millsboro, DE 19966
Completed by: ERA

Wastewater
School Spray / White Farm RIBS - Duplicate
Total Susp. Solids
SM2540-D

Date	Sample Number	Analyst	Analysis (ppm)	Dup Analysis (ppm)	diff (d)	d ²	Spike Amount (ppm)	Spike Sample Result (ppm)	% Recovery	% Recovery Variance From Mean	Diff ²
1/5/2022	2200072-01/02	HJG3	6.0	4.8	-1.2000	1.4400	N/A	N/A	N/A	N/A	N/A
2/2/2022	2201039-01/02	HM	78.3	71.7	-6.6000	43.5600	N/A	N/A	N/A	N/A	N/A
3/2/2022	2201985-01/02	HM	2.8	4.0	1.2000	1.4400	N/A	N/A	N/A	N/A	N/A
4/6/2022	2203314-01/02	HM	3.3	3.3	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
5/4/2022	2204288-01/02	HJG3	2.5	2.5	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
6/8/2022	2205581-01/02	HM	69.0	75.0	6.0000	36.0000	N/A	N/A	N/A	N/A	N/A
6/15/2022	2205855-01/02	HM	3.6	3.6	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
7/6/2022	2206590-01/02	HM	2.8	3.2	0.4000	0.1600	N/A	N/A	N/A	N/A	N/A
8/3/2022	2207598-01/02	HJG3	7.2	6.4	-0.8000	0.6400	N/A	N/A	N/A	N/A	N/A
8/7/2022	2207782-01/02	HM	28.7	28.0	-0.7000	0.4900	N/A	N/A	N/A	N/A	N/A
10/5/2022	2209923-01/02	HM	2.0	2.8	0.8000	0.6400	N/A	N/A	N/A	N/A	N/A
11/2/2022	2210949-01/02	HM	2.0	2.0	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A
12/21/2022	2212720-01/02	HM	2.0	2.0	0.0000	0.0000	N/A	N/A	N/A	N/A	N/A

STANDARD DEVIATION DATA

TOTAL of d ²	84.3700
Number of Duplicates	13
Standard Deviation +/-	2.65

HORNEY INDUSTRIAL ELECTRONICS, INC.
BRIDGEVILLE, DE 19933

Invoice



www.horneyonline.com

EIN #
52-1836183

Phone #
302-337-3600

Fax #
302-337-8560

Date	Invoice #
1/25/2022	613384
Rep	SAH

Bill To
Millsboro Town Office 322 Wilson Hwy. Millsboro, DE 19966

Ship To
Millsboro WWTP 361 E. State Street Millsboro, DE 19966

P.O. No.	Terms	Due Date	Ship Date	Ship Via	Contact
35757	Net 30	2/24/2022	1/25/2022		Richard

Qty	Item	Description	Price Each	Amount
1	LMBS	Min. Billing 4 Hrs. Labor Monday - Friday	500.00	500.00
50	T	Travel Expenses	0.97	48.50
		Calibration - see worksheet #2828		

RECEIVED
JAN 27 2022
MILLSBORO TOWN HALL

Thank you for your business.	Total \$548.50
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Past due balances are subject to late charge of 2% per month. Clients tax exempt, please send certificate. Thank you for your business



Richard Buckler-302-249-9831

HORNEY INDUSTRIAL ELECTRONICS

Process Control Technology



Nº 002828

CALIBRATION WORKSHEET

P.O. Box 700 Bridgeville, DE 19933
Phone (302) 337-3600 Fax (302) 337-8560

Customer Name	Millsboro WWTP	Customer PO No.	35757
Address	361 E State St.	Account No.	
City, State, Zip	Millsboro, DE 19966	Date	01/25/22
Job Description	Calibration	Terms	Net 30

Manufacturer		Serial Number	Range	Departure
Siemens 5000	93.4	NIK2210083	0-1761.1 Gpm	P
Siemens 5100w	8"	PBD/KO024907		

Comments	Hours
	MTN

Seth Hargrave

 Service Engineer

1-25-22

 Date

Customer Signature
 Above work was completed to our satisfaction



RECEIVED

JAN 28 2022

HORNEY INDUSTRIAL ELECTRONICS

Process Control Technology

MILLSBORO TOWN HALL

CERTIFICATE OF CALIBRATION

DATE: January 25, 2022

Millsboro WWTP
361 E. State Street
Millsboro, DE 19966

P.O. # 35757

Job #: 613384

<u>UUT</u>	<u>Serial Number</u>	<u>Range</u>	<u>Departure</u>
Siemens Mag 5000	N1K2210083	0-1761.1 GPM	0
Siemens Mag 5100W 8"	PBD/KO024807		

Equipment Used For Calibration Is Traceable To N.I.S.T.
Calibration Standard Information Is Available Upon Request

