



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397

JB PRITZKER, GOVERNOR

JOHN J. KIM, DIRECTOR

847/294-4000
847/294-4018 (Fax)

September 16, 2022

Mr. Jason Treat, Supervisor of WW Operations
Village of Antioch STP
796 Holbek Drive
Antioch, Illinois 60002

RE: Village of Antioch STP
NPDES Number: IL0020354
BOW ID Number: W0970050001

Dear Mr. Treat:

On July 22, 2022, an inspection of the Antioch STP was conducted by Sarah E. Wiedel representing the Illinois Environmental Protection Agency. The purpose of the visit was to review facility operations with regard to applicable state and federal water pollution control laws and regulations.

A copy of the inspection report is enclosed for your information.

Please contact Sarah E. Wiedel at 847/294-4000 if you have any questions regarding this inspection.

Sincerely,

DIVISION OF WATER POLLUTION CONTROL

Jay Patel, Regional Manager
Field Operations Section – Des Plaines

bc: Record Unit
Regional File



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JB PRITZKER, GOVERNOR

JOHN J. KIM, DIRECTOR

MEMORANDUM

DATE: September 8, 2022
TO: Regional File
FROM: Sarah E. Wiedel, EPS
SUBJECT: Village of Antioch STP
Lake County
NPDES No. IL0020354
BOW ID W0970050001

cc: DWPC/RU

On July 22, 2022, a **Compliance Evaluation Inspection** and a **Sludge Inspection** were conducted at the subject facility.

Attached are copies of the reports.

United States Environmental Protection Agency

Water Compliance Inspection Report

United States Environmental Protection Agency

IEPA DIVISION OF RECORDS

Facility Name: Village of Antioch STP

BOW ID: W 097 005 000 1

Records Category: 01 Field Operations/Inspections

Section A: National System Coding (i.e., PCS)

[illegible]

Section B: Facility Data

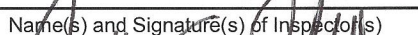

Name and Location of Facility Inspected <i>(For industrial users discharging to POTW, also include POTW name and NPDES permit number)</i> Village of Antioch STP 796 Holbek Drive Antioch, IL. 60002	Entry Time/Date 7/22/22	Permit Effective Date 1/1/15
	Exit Time/Date 7/22/22	Permit Expiration Date 12/31/19
	Other Facility Data	
Name(s) of On-Site Representative(s)/Title(s)/Phone and Fax Number(s) Jason Treat/Supervisor of WW Operations		
Name, Address of Responsible Official/Title/Phone and Fax Number Scott Gartner/Mayor Village of Antioch 847 Main Street Antioch, IL. 60002 <div style="text-align: right;"> Contacted <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No </div>		

Section C: Areas Evaluated During Inspections (Check only those areas evaluated)

<input checked="" type="checkbox"/> Permit	<input checked="" type="checkbox"/> Flow Measurement	<input checked="" type="checkbox"/> Operations & Maintenance	<input checked="" type="checkbox"/> CSO/SSO (Sewer Overflow)
<input checked="" type="checkbox"/> Records/Reports	<input checked="" type="checkbox"/> Self-Monitoring Program	<input type="checkbox"/> Sludge Handling/Disposal	<input type="checkbox"/> Pollution Prevention
<input checked="" type="checkbox"/> Facility Site Review	<input type="checkbox"/> Compliance Schedules	<input type="checkbox"/> Pretreatment	<input type="checkbox"/> Multimedia
<input checked="" type="checkbox"/> Effluent/Receiving Waters	<input checked="" type="checkbox"/> Laboratory	<input checked="" type="checkbox"/> Storm Water	<input type="checkbox"/> Other:

Section D: Summary of Findings/Comments (Attach additional sheets if necessary)

SEV Codes					SEV Description
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Name(s) and Signature(s) of Inspector(s)  Sarah E. Wiedel, EPS	Agency/Office/Phone and Fax Numbers IEPA / BOW / DWPC / FOS - Des Plaines (847) 294-4000	Date 9/9/22
Signature of Management Q A Reviewer 	Agency/Office/Phone and Fax Numbers IEPA / BOW / DWPC / FOS	Date 9/14/22



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JOHN J. KIM, DIRECTOR

INSPECTION NOTES

Facility Name: Village of Antioch STP
NPDES Permit No.: IL0020354
Inspection Type: Compliance Evaluation
Date of Inspection: July 22, 2022
Inspected By: Sarah E. Wiedel, EPS
Interviewed: Jason Treat, Supervisor of WW Operations
(847) 395-2599

GENERAL INFORMATION

Responsible Officials:

Scott Gartner, Mayor
847 Main Street
Antioch, IL. 60002

Plant Personnel and Certification Status:

Jason Treat, Operator/Supervisor of WW Operations	Class 1
Mike Elfering, Sr. Operator	Class 2
Lee Shannon, Operator	Uncertified

Plant Location:

The plant is located at 796 Holbek Drive, in Antioch, Illinois. The entrance to the facility is located at the northside intersection of Holbek Drive and Depot Street.

Receiving Waters:

This facility discharges to Sequoit Creek which is tributary to Lake Marie which eventually discharges to the Fox River. It has a 7Q10 of 0.13 cfs.

NPDES Permit Requirements:

This permit was issued on December 19, 2014, became effective on January 1, 2015 and expired on December 31, 2019. This facility is currently rated at 2.0 MGD (DAF) and 9.2 MGD (DMF). The permitted organic loading is 2,846 lbs/day and the solids loading is 3,067 lbs/day.

Plant Loading:

This facility services the majority of the Village of Antioch with Lake County Public Works servicing the rest of the village (east of Deep Lake Road). The population serviced in the Village of Antioch has an approximate population of 14,000.

Area Served:

The Village of Antioch has a separate sewer system.

Lift Stations:

There are 21 lift stations that serve this facility. The information for them is as follows:

South Side Lift Stations:

1055 Bowles Road and Inverness-Heron Harbor	180 gpm (back-up generator)
1158 Mystic Cove Drive	105 gpm
1090 Hillside Avenue-Henning's Court	250 gpm
440 Filweber Court	60 gpm
353 Route 173-Best Western	200 gpm (back-up generator)
1496 Main Street-Johnny's Chophouse	225 gpm
118 W Route 173-Raymond Chevrolet	500 gpm
1151 Deercrest Drive-NeuHaven	1160 gpm (back-up generator)
29 W. Route 173-Walmart Body Craft	245 gpm (back-up generator)

North Side Lift Stations:

239 W. Depot Street at RR tracks	600 gpm (back-up generator)
1068 Autumn Drive-Pine Hill Lakes	300 gpm
275 E. Depot Street-Windmill Creek	250 gpm (back-up generator)
143 Bridgewood Drive-Oakwood Knolls	175 gpm
108 Timber Lane-Oakwood Knolls	175 gpm
324 Joren Trail and Donin Dr.-Antioch Manor	325 gpm (back-up generator)
758 Kennedy Drive-Trevor Creek	128 gpm (back-up generator)(SCADA)
835 Tiffany Farms and Indian Ridge Rd.	410 gpm (back-up generator)
835 W Route 173-Upper Grade School	100 gpm
700 Lake Street	750 gpm (SCADA)
616 Lake Street at David Street-Jewel Parking Lot	123 gpm
509 Depot Street and Hillside Ave.	500 gpm

System Problems:

The permittee indicated that there was one basement back-up/SSO on 2/4/22 and the permittee notified Gizelle Garcia. The permittee indicated that there is not a significant issue with I/I. They do have a

CMOM.

Industrial Users:

There are 2 categorical industrial users in the village, Skach Manufacturing Company (producer of metallic parts including disks, electrical contacts, pins, rivets, threaded fasteners and studs) and Panacea Products/Kay Home Products (producer of decorative steel products including garden décor, birding accessories, crafts and home organization products). Additionally, there is one non-SIU called Pickard China (producers of porcelain tableware) and they have their own treatment system. They have recently moved most of their operations overseas. Jason indicated that they have not experienced any problems at the plant due to any of the industries.

WASTEWATER TREATMENT PLANT

Screening

This facility has a Lakeside Raptor Fine Screen to remove debris and grease. The screenings are dewatered and compacted.

Influent Flow Measurement

A Flo-station meter and concrete flume are used to measure the channel width, water depth, and flow velocity to calculate the volumetric influent flow. The last date of calibration was 8/2/21.

Secondary Treatment

After screening, the wastewater travels to three aeration basins (200' x 20' @ 16'SWD each) for secondary treatment. These basins are part of the biological nutrient removal system (BNR).

Secondary Settling Tanks/Clarifiers

This facility has two 100 foot final clarifiers. The clarifiers are normally rotated so only one is used at a time. As of May 2022, one of the clarifiers has been out of service and their engineers are currently evaluating different options/costs.

Blowers

The facility has 7 Kaeser blowers, three for the aeration basins, and four for the anaerobic digesters.

Effluent Flow Measurement

A Siemens Hydro 200 flow meter with a 2 foot Parshall flume is used for measuring the effluent flow. The last date of calibration of the meter was 8/2/21.

Effluent Disinfection

The facility has a Trojan 300+ system for disinfection. The system has two banks with one being used as a back-up. The banks are rotated weekly.

Phosphorus Removal

The facility utilizes enhanced biological nutrient removal (EBNR) to decrease the amount of phosphorus in the effluent. The EBNR process has three distinct zones – anaerobic, anoxic and aerobic. The permittee also utilizes aluminum sulfate as a supplement to further reduce phosphorus.

SLUDGE HANDLING

Gravity Thickener

The thickener is not in use.

Aerobic Digesters

The facility has four aerobic digesters. Digesters 1 and 2 have a capacity of 430,848 gallons while Digesters 3 and 4 have a capacity of 269,280 gallons.

Belt Filter Press

After digestion, the sludge travels to the belt filter press for dewatering.

The facility land applies their sludge approximately 2-3 times a year. Their sludge hauler is Synagro. The facility has a sludge storage building where they can store 6 months accumulation of sludge.

During 2021, 144.88 dry tons of sludge were generated and 208.95 dry tons were land applied. The sludge information is as follows:

Sludge Permit No. 2018-SC-62987

Issue Date: March 9, 2018

Expiration Date: February 28, 2023

Amount of sludge permitted for application per year: 500 dry tons

NPDES PERMIT COMPLIANCE

Permit:

The NPDES Permit is expired but the permittee did reapply for the permit so they are covered by the expired permit and all known discharges are permitted.

Records and Reports:

Sampling and analysis records are retained by the facility and they are kept for a minimum of three years. The semi-annual sludge management reports were submitted for the entire year of 2021.

Laboratory:

The permittee is performing most of the analyses on-site. Pace Analytical is analyzing metals, sludge, alkalinity, copper and total nitrogen. The permittee is calibrating the pH meter and using three buffers (4, 7, 10) and they are recording this calibration. The scale was calibrated during 1/22. The permittee is maintaining temperature logs of both samplers, BOD incubator, drying oven, refrigerator and millipore. It should be noted that the small, certified thermometers expired during 12/20. The permittee agreed to immediately order thermometers.

Effluent and Receiving Waters:

Results of the Village's monitoring from the reporting period of January 2021-December 2021 show that there were no effluent violations.

Self-Monitoring Program:

Samples appear to have been taken and analyzed at the required frequency. The holding times do not appear to have been exceeded. The proper sample types are also being used at this plant. All the laboratory equipment has been calibrated as required with the exception of the thermometers. The permittee planned to address this immediately.

Operation and Maintenance:

This facility appears to be well operated and maintained. They have an O&M log where they would record any problems or changes at the plant. The facility has a SCADA alarm system that notifies Jason in case of power failure or other emergencies. For backup power, the facility has a generator capable of running the entire plant. At the time of the inspection, all units that were needed were in service. One of the backup secondary settling tanks/clarifiers and their gravity thickener (will not be used again) were out of service.

Stormwater:

The permittee applied for and received a No Exposure Certification during 2018.

Miscellaneous:

Special Condition 11 – The permittee, as part of their approved Pretreatment Program, is to, within 24 months of the effective date of the permit, conduct a technical re-evaluation of its local limitations consistent with the USEPA's limits. The permittee shall also submit an annual report to the USEPA. The permittee shall also monitor the influent, effluent and sludge. Samples shall be taken on a semi-

annual basis and reported in the annual report. The permittee is in compliance with this condition.

Special Condition 16 – The permittee shall operate the facilities designed for biological nutrient removal (BNR). The permittee shall monitor the effluent for total nitrogen once/week. The permittee is in compliance with this condition.

Special Condition 18 – The permittee shall monitor the effluent for Total Phosphorus, Dissolved Phosphorus, Nitrate/Nitrite, TKN, Ammonia, Total Nitrogen, Alkalinity and Temperature at least once a month. The permittee is in compliance with this condition.

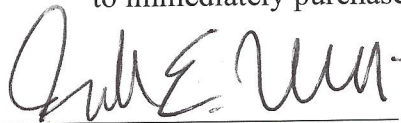
Special Condition 19 – The permittee shall prepare a phosphorus removal feasibility report on the method, timeframe and costs for reducing its levels of phosphorus to levels equivalent to monthly average discharges of 0.5 mg/L on a seasonal basis and on a year round basis. The feasibility report shall be submitted to the IEPA 18 months from the effective date of this permit. This has been completed.

Special Condition 20 – The permittee shall develop, submit and implement a CMOM within 24 months of the effective date of this permit. This has been completed.

SUMMARY

This facility appears to be well operated and maintained. The following item, however, was noted as a deficiency:

1. The certification of the thermometers at the plant expired during 12/20. The permittee agreed to immediately purchase new thermometers.



Sarah E. Wiedel, EPS

Outfall - Monitoring Location - Limit Set: INF - G - L

	BOD, 5-day	Flow, in cfs	Flow, in cfs	Solids, total suspended
	Mon mg/L	Mon MGD	Mon MGD	Mon mg/L
Mon Pd End Date:	MO AVG	DAILY MX	MO AVG	MO AVG
01/31/2021	317	2.212	1.743	326
02/28/2021	268	2.358	1.488	289
03/31/2021	248	2.746	1.948	293
04/30/2021	347	2.059	1.698	316
05/31/2021	236	1.943	1.505	278
06/30/2021	270	1.878	1.47	267
07/31/2021	352	2.314	1.58	410
08/31/2021	404	1.639	1.298	502
09/30/2021	623	1.75	1.397	594
10/31/2021	450	1.932	1.388	1148
11/30/2021	429	1.893	1.48	580
12/31/2021	327	2.091	1.55	362

Outfall - Monitoring Location - Limit Set: INFL - 1 - S

	Antimony,	Arsenic, tot	Barium, tot	Beryllium, t	Cadmium,	Chromium,	Chromium,
	Mon mg/L	Mon mg/L	Mon mg/L	Mon mg/L	Mon mg/L	Mon mg/L	Mon mg/L
Mon Pd End Date:	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX
06/30/2021	.0013	.0023	.0955	.0003	.00064	< .073	.00409
12/31/2021	.0013	.0029	.121	< .00049	.00086	< .073	.0076

Copper, tot	Copper, tot	Copper, tot	Copper, tot	Flow, in co	Flow, in co	Nitrite plus Nitrogen, K	Nitrogen, a	
.034 mg/L	.055 mg/L	2.6 lb/d	4.2 lb/d	Mon MGD	Mon MGD	Mon mg/L	Mon mg/L	1.1 mg/L
MO AVG	DAILY MX	MO AVG	DAILY MX	DAILY MX	MO AVG	DAILY MX	DAILY MX	MO AVG
.02	.022	.257	.281	1.838	1.531	12.8	1.4	
.021	.025	.299	.468	3.503	1.677	13	1.5	
.015	.02	.29	.31	3.311	2.263	13	1.3	
.0267	.0304	.35	.404	1.931	1.625	15.4	1.3	
.03	.035	.39	.48	1.74	1.494	20.6	1.6	
.0241	.0327	.313	.4	2.225	1.549	17.7	1.7	.141
.0247	.0296	.27	.31	2.02	1.333	14	1.2	.105
.019	.027	.19	.259	2.106	1.272	13.7	1.3	.059
.016	.024	.17	.24	1.447	1.23	11.6	1.5	
.0207	.0266	.246	.367	2.499	1.493	11.8	1.5	
.0234	.0267	.25	.28	1.47	1.252	13.1	2.5	
.019	.021	.23	.26	2.075	1.43	12	1.2	

Copper, tot	Cyanide, to	Cyanide, w	Fluoride, to	Iron, dissol	Iron, total	Lead, total	Manganese	Mercury, to
Mon mg/L	Mon ug/L	Mon ug/L	Mon mg/L	Mon mg/L	Mon mg/L	Mon mg/L	Mon mg/L	Mon ng/L
DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX
.0306	< 1.79	< 1.79	.56	.058	.0664	.00068	.0019	.733
.0114	1.8	1.8	.54	< .058	< .058	.00047	.0029	.66

Phosphoru Solids, tota Solids, total suspended

Mon lb/d	300 lb/d	Mon lb/d
ANNL TOT	ANNL AVG	ANNL TOT
	82	8655
	79	8335
	73	7631
	74	7693
	72	7459
	71	7390
	69	7192
	67	6947
	64	6707
420.68	66	6969
	67	6891
	67	6944

Copper, tot	Cyanide, to	Cyanide, w	Fluoride, tc	Iron, dissol	Iron, total	(Lead, total	Manganese	Mercury, tc
Mon mg/L	Mon ug/L	Mon ug/L	Mon mg/L	Mon mg/L	Mon mg/L	Mon mg/L	Mon mg/L	Mon ng/L
DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX
.196	< 1.79	< 1.79	.72	.218	1.53	.006	.0635	66
.264	< 1.8	< 1.8	.66	.319	3	.0066	.117	66

Nitrogen, a	Nitrogen, a	Nitrogen, a	Nitrogen, a	Nitrogen, a	Nitrogen, a	Nitrogen, a	Nitrogen, t	Nitrogen, t
1.5 mg/L	115 lb/d	184 lb/d	2.4 mg/L	322 lb/d	4.2 mg/L	84 lb/d	Mon mg/L	Mon mg/L
MO AVG	MO AVG	DAILY MX	DAILY MX	DAILY MX	DAILY MX	MO AVG	DAILY MX	MO AVG
.024	.31	.472	.04				14.2	13.1
.025	.347	.522	.039				14.1	13.8
.013	.25			.42	.026		14.3	11.2
.031	.43			.577	.041		16.7	15.8
.039	.54			1.01	.089		21.9	19.1
				5.982	.452	1.77	19.2	16.7
				4.982	.42	1.2	15.1	14.4
				1.181	.127	.6	15	12.4
.044	.46			.67	.063		13	12
.049	.61			1.196	.105		13.3	12
.041	.44	.64	.061				14.9	13.4
.016	.19587	.448	.044				12.9	11.5

Nickel, tota	Oil & greas	Phenolics, †	Selenium, †	Silver, total	Thallium, t	Zinc, total (as Zn)
Mon mg/L	Mon mg/L	Mon mg/L	Mon mg/L	Mon mg/L	Mon mg/L	Mon mg/L
DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX
.0027	2.4	.0068	.00078	.00018	.00046	.05389
.0016	1.3	< .0032	.00033	< .00013	.00025	.00047

Nickel, total Oil & greases Phenolics, total Selenium, total Silver, total Thallium, total Zinc, total (as Zn)

Mon mg/L	Mon mg/L	Mon mg/L	Mon mg/L	Mon mg/L	Mon mg/L	Mon mg/L
DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX
.0038	39.9	.074	.0014	.00035	.00066	.179
.0077	34.2	.0615	.0024	.0004	.0006	.486

Oxygen, dis	Oxygen, dis	Oxygen, dis	Oxygen, dis	Oxygen, dis	Phosphoru	Phosphoru	Phosphoru	Phosphoru
3.5 mg/L	4 mg/L	5 mg/L	5.5 mg/L	6 mg/L	Mon mg/L	1 mg/L	153 lb/d	2 mg/L
DAILY MN	MN WK AV	DAILY MN	MO AV MN MN	WK AV	DAILY MX	MO AVG	DAILY MX	DAILY MX
8.33	8.5		8.64		.36	.6	9.8	.7
7.87	8.2		8.89		.47	.6	7.5	.6
		7.43		7.79	.28	.2	9.9	.4
		7.35		7.5	.22	.6	10	.8
		7.17		7.2	.95	1	14.9	1.2
		6.11		6.2	.69	.8	11.5	.9
		6.28		6.7	.48	.6	7.1	.6
7.06	7.8		7.84		.89	.7	11.5	1
7.26	7.395		7.76		.36	.5	8.7	.9
7.59	8		8.37		.38	.6	11.9	.9
8.29	8.3		9.03		.28	.4	6.2	.6
8.49	8.725		9.21		.09	.2	4.3	.2

Phosphoru	Solids, tota	Solids, tota	Solids, tota	Solids, tota	Temperatu	pH	pH
77 lb/d	12 mg/L	1841 lb/d	24 mg/L	921 lb/d	Mon deg F	6 SU	9 SU
MO AVG	MO AVG	DAILY MX	DAILY MX	MO AVG	MO MAX	MINIMUM	MAXIMUM
7.1	5	121	10	67	55.5	7.41	7.55
6.9	5	205	7	77	53.4	7.42	7.581
4.3	5	221	8	100	56	7.33	7.524
8.3	5	88	5.8	65	59.4	7.49	7.614
13.1	5	123	10	65	66.4	7.36	7.53
9.7	5	73	6	67	69.6	7.32	7.494
6.3	4	64	5	43	72.2	7.41	7.947
7.5	3	88	5	39	73.8	7.64	8.264
5.4	5	64	6	49	72.9	7.64	7.86
7.4	6	179	9	82	70.9	7.41	7.914
4.1	7	140	13	71	63.6	7.51	7.799
2.3	6	156	9	76	59.4	7.34	7.653



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DWPC/FOS Land Application of Sludge Checklist

FACILITY and SLUDGE PERMIT INFORMATION

Facility Name: Village of Antioch

Inspection Date: July 22, 2022

Address: 796 Holbek Drive, Antioch, Illinois 60002

Contact Name: Jason Treat

Telephone#: (847) 395-2599

Sludge Permit No.: 2018-SC-62987

Permit Expiration Date: February 26, 2023

Permit Issue Date: March 9, 2018

Inspected By: Sarah E. Wiedel, EPS

SLUDGE UNIT PROCESSES

General

Check applicable unit process(es):

- ☒ Aerobic Digestion
☐ Anaerobic Digestion
☐ High pH Chemical Stabilization
☐ Composting
☐ Other (thermal treatment, etc.): _____

Describe sludge processing, thickening and/or dewatering methods (Type, size, number, capacity of each unit, etc.):

Four aerobic digesters, Digesters 1 & 2 hold 430,000 gallons. Digesters 3 & 4 hold 288,000 gallons. The biosolids are pumped to digesters one and two, then transferred to digesters three and four. The permittee utilizes a belt filter press for dewatering. Storage of solids occurs in the sludge barn.

Describe any problems with sludge processes.

Permittee monitors nitrates, ammonia, alkalinity, temperature and pH, to analyze the secondary stream before returning it to the primary process. During the summer, alkalinity is low and the nitrates are high.

A. Aerobic Digestion

Sludge fed to digester(s) includes:

____ Primary ☒ Secondary ____ Combined

Digester(s) operating mode: ____ High rate ____ Low rate

Digester(s) are operated at proper temperature [cryophilic: <50°F (<10°C), mesophilic: 50-108°F (10-42°C), and thermophilic: >108°F (42°C)]? List operating mode: ____ cryophilic ____ mesophilic
____ thermophilic

Yes ☒ No ☐ N/A ☐

Temperature monitoring location and frequency sufficient to demonstrate compliance with Class B pathogen reduction requirements for PSRP or with Class A pathogen reduction requirements for PFRP (Thermophilic aerobic digestion only)? Average Temperature: ____ °C or °F

Yes ☒ No ☐ N/A ☐

Solids Retention Time (SRT) or Mean Cell Residence Time (MCRT) calculated properly?*

Yes ☒ No ☐ N/A ☐

SRT or MCRT sufficient to demonstrate compliance with Class B pathogen reduction requirements for PSRP or with Class A pathogen reduction requirements for PFRP (Thermophilic digestion only)? Average SRT or MCRT: ____ days

Yes ☒ No ☐ N/A ☐

Land Application

Aerobic conditions verified through dissolved oxygen monitoring?

*For batch operated digesters with no recycle:

$$\text{SRT or MCRT} = \frac{\text{Mass of solids in digester, kg}}{\text{Solids removed, kg/day}}$$

[NOTE: This formula can be used to estimate SRT or MCRT for all digester systems. For calculating SRT or MCRT for other system configurations, use the WEF Manual of Practice or other references. Always write down the calculation used by the facility regardless of the configuration.]

B. Anaerobic Digestion

N/A

Sludge fed to digester(s) includes:

Primary _____ Secondary _____ Combined _____

Digester(s) operating mode: _____ High rate _____ Low rate

Digester(s) are operated at proper operating temperature [mesophilic: 95°F (35°C) and thermophilic: 131°F (55°C)]? List operating mode: _____ Mesophilic _____ Thermophilic

Yes ☐ No ☐ N/A ☐

Temperature monitoring location and frequency sufficient to demonstrate compliance with Class B pathogen reduction requirements for PSRP? Average temperature: _____ °C or °F

Yes ☐ No ☐ N/A ☐

Solids Retention Time (SRT) or Mean Cell Residence Time (MCRT) calculated properly?

Yes ☐ No ☐ N/A ☐

SRT or MCRT sufficient to demonstrate compliance with Class B pathogen reduction requirements for PSRP? Average SRT or MCRT: _____ Days

*For batch operated digesters with no recycle:

$$\text{SRT or MCRT} = \frac{\text{Mass of solids in digester, kg}}{\text{Solids removed, kg/day}}$$

[NOTE: This formula can be used to estimate SRT or MCRT for all digester systems. For calculating SRT or MCRT for other system configurations, use the WEF Manual of Practice or other references]. Always write down the calculation used by the facility no matter what the configuration is.

C. High pH Chemical Stabilization

N/A

Describe chemical application point in the process where sludge is stabilized (chemical, application rate, etc.).

Mixing tank(s) operated in batch or continuous flow process?

Yes ☐ No ☐ N/A ☐

Describe mixing equipment.

Is the alkaline material and sludge vigorously mixed so as to provide a homogeneous mixture in the mix tank?

Yes ☐ No ☐ N/A ☐

Sufficient alkaline material added to produce a minimum pH of 12 after 2-hours of mixing?

Yes ☐ No ☐ N/A ☐

Describe chemical feed and storage equipment.

If mixing equipment is within ½-mile of residential or commercial areas, describe odor control facilities and their O & M practices.

For indoor sludge mixing, storage and processing, is adequate ventilation provided? If so, BOA Permit for exhaust?

Yes ☐ No ☐ N/A ☐

Land Application

On-site dewatered sludge is stored less than 30-days?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Does sufficient capability exist to add supplemental alkaline material to maintain the pH of the sludge during storage?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Is liquid stabilized sludge stored within tank or vessel that is equipped with rapid sludge withdrawal mechanisms for sludge disposal or retreatment?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>

D. Composting N/A

Type of composting performed: In vessel Static Piles Windrows			
Type of sludge composted: Primary Secondary Combined			
Is the moisture content monitored?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Is compost mixed? Method: _____ Frequency of turnings? _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Is oxygen content monitored?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Is temperature monitored?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Are total solids and total volatile solids monitored?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Active phase: _____ days Curing phase: _____ days			
Is site runoff collected/treated? How? _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Temperature monitoring location and frequency sufficient to demonstrate compliance with Class B pathogen reduction requirements for PSRP or with Class A pathogen reduction requirements for PFRP?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Temperature and/or oxygen monitoring sufficient to determine compliance with vector attraction reduction requirements?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>

E. Other (thermal treatment, etc.) N/A

Describe the alternate sludge processing system and list any applicable IEPA permits.

STORAGE / DISPOSAL METHODS

Contingency plan developed for year-round sludge disposal? Describe. Storage barn with a capacity of 6 months accumulation of sludge.	Yes X	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Does the facility produce a Class A _____ or Class B <u> X </u> sludge?			

Land Application

Check the applicable **Class A Pathogen Reduction** practice(s) employed to achieve the appropriate goal.

TESTING

- ☐ Facility testing to verify <1,000 MPN per gram total solids (geometric means of 7 samples)
- ☐ Facility testing to verify <3 MPN Salmonella per 4-grams of total solids

AND

DEMONSTRATION

- ☐ Time and temperature _____
- ☐ Raise pH
- ☐ Reduce enteric viruses and helminth ova (low pathogen sludge)
- ☐ Reduce enteric viruses and helminth ova (normal sludge)
- ☐ Processes to Further Reduce Pathogens (PFRP) treatment _____
- ☐ PFRP Equivalent Treatment _____

Check the applicable **Class B Pathogen Reduction** practice(s) employed to achieve the appropriate goal.

TESTING

- X Facility testing to verify <2,000,000 MPN or CFU fecal coliforms per gram total solids (geometric means of 7 samples)

OR

DEMONSTRATION

- ☐ Processes to Significantly Reduce Pathogens (PSRP) Treatment:
 - X Aerobic Digestion
 - ☐ Air Drying
 - ☐ Anaerobic Digestion
 - ☐ Composting
 - ☐ Lime Stabilization

- ☐ PSRP Equivalent Treatment: (thermal treatment, irradiation, etc): _____

NOTE: If Land Application is used for disposal, Site Restrictions are specified in 40 CFR Part 503.

Check the applicable **Vector Attraction Reduction** practice(s) employed to achieve the appropriate goal.

TESTING / DEMONSTRATION

- ☐ 38% Volatile Solids (VS) reduction
- ☐ Bench test for low VS anaerobic sludge
- ☐ Bench test for low VS aerobic sludge
- ☐ Specific oxygen uptake rate (SOUR) <1.5 mg O₂/hr/gr
- ☐ 14 days temperature > 40°C; average temperature > 45°C
- ☐ pH>12 for 2-hours and pH> 11.5 for additional 22 hours
- ☐ 75% dry solids (DS) (no primary treatment)
- ☐ 90% DS
- ☐ Subsurface injection
- X Incorporation (within 6-hours)

Has the facility demonstrated that the sludge processing units meet the appropriate Pathogen Reduction?	Yes X	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Has the facility demonstrated that the sludge process units meet the appropriate Vector Attraction Reduction?	Yes X	No <input type="checkbox"/>	N/A <input type="checkbox"/>

Describe the delivery means to the land application site(s) and the method of application (e.g. tanker truck, contract applicator, surface applied with subsequent incorporation or direct injection). **[NOTE: For High pH chemical stabilized sludge, sludge must be incorporated into the soil within 24-hours after application.]**

Synagro comes in and loads sludge onto trucks 2-3 times a year for land application by incorporation.

Land Application

<p>Site Restrictions:</p> <p>40 CFR Part 503 Class B Pathogen Reduction requires the following Site Restrictions:</p> <p>Food Crops: No harvesting after sludge application for 14 months to 38 months depending on type of crop grown and how sludge is applied.</p> <p>Feed Crops: No harvesting for 30 days after sludge application.</p> <p>Pasture: No animal grazing for 30 days after sludge application.</p> <p>Turf: No harvest for 1-year after sludge application.</p> <p>Public Access: Restricted access for 30 days after sludge application for low exposure areas, 1-year for high exposure areas.</p> <p>Does the facility's practice demonstrate compliance with the applicable restrictions?</p>	<p>Yes X No <input type="checkbox"/> N/A <input type="checkbox"/></p>
<p>Do the delivery and application of sludge, and the choice of an application site minimize the emission of odors to nearby residents taking into account the direction of wind, humidity, timing, and day of the week (weekend and holidays)?</p>	<p>Yes X No <input type="checkbox"/> N/A <input type="checkbox"/></p>
<p>Does the Permittee provide written notice to the owner(s) of the land receiving the sludge, the owners of land adjacent to the application site, and the Township and County officials whose jurisdiction encompasses the sludge application within a minimum 7-days or maximum of 90-days prior to the land application? Obtain an example of a written notice and a list of the property owners that were notified.</p>	<p>Yes X No <input type="checkbox"/> N/A <input type="checkbox"/></p>
<p>Is sludge applied only to land with a background soil pH of 6.5 or greater unless lime or other suitable materials are applied to the site prior to sludge application to raise the soil pH to a minimum of 6.5?</p>	<p>Yes X No <input type="checkbox"/> N/A <input type="checkbox"/></p>
<p>Does the sludge application exceed maximum allowable metal loading rates over the lifetime of a site (pounds per acre)?</p>	<p>Yes <input type="checkbox"/> No X N/A <input type="checkbox"/></p>
<p>Is sludge applied within 100-feet of an occupied residence?</p>	<p>Yes <input type="checkbox"/> No X N/A <input type="checkbox"/></p>
<p>Is the sludge being applied within 400-feet of a Community Water Supply well?</p>	<p>Yes <input type="checkbox"/> No X N/A <input type="checkbox"/></p>
<p>Is sludge applied to land which lies within 200-feet from potable water supply well, surface waters or intermittent streams?</p>	<p>Yes <input type="checkbox"/> No X N/A <input type="checkbox"/></p>
<p>Does a 200-foot grassy area exist between the sludge applied land and any surface water or potable water supply well?</p>	<p>Yes <input type="checkbox"/> No <input type="checkbox"/> N/A X</p>
<p>Is sludge applied within ¼-mile of any potable water supply wells located in consolidated bedrock (Karst topography)?</p>	<p>Yes <input type="checkbox"/> No X N/A <input type="checkbox"/></p>
<p>Is sludge applied to sites with less than 18-inches of soil over bedrock or that have permeability rates of greater than 20-inches per hour?</p>	<p>Yes <input type="checkbox"/> No X N/A <input type="checkbox"/></p>
<p>Is sludge applied to sites during precipitation?</p>	<p>Yes <input type="checkbox"/> No X N/A <input type="checkbox"/></p>
<p>Is sludge applied when precipitation is imminent?</p>	<p>Yes <input type="checkbox"/> No X N/A <input type="checkbox"/></p>
<p>Is sludge applied to sites which are saturated or with ponded water?</p>	<p>Yes <input type="checkbox"/> No X N/A <input type="checkbox"/></p>
<p>Is sludge applied to ice or snow covered sites?</p>	<p>Yes <input type="checkbox"/> No X N/A <input type="checkbox"/></p>
<p>Is sludge applied to frozen land (not ice or snow covered and has a slope of 5% or less)?</p>	<p>Yes <input type="checkbox"/> No X N/A <input type="checkbox"/></p>
<p>Does the facility provide an information sheet (refer 35 IL Adm. Code 391.204, Appendix H) to all persons? Request an illustrative example of the information sheet.</p>	<p>Yes X No <input type="checkbox"/> N/A <input type="checkbox"/></p>

Land Application

SAMPLING and ANALYSIS

Are all sludge sources sampled at the frequency specified in Section 391.501(c) and the DWPC/Permit prior to land application? Yes ☒ No ☐ N/A ☐

Check the box for each parameters tested – per 40 CFR Part 136:

Nutrients		Metals		Other		Bacteriological	
Total Kjeldahl Nitrogen	<input checked="" type="checkbox"/>	Arsenic	<input checked="" type="checkbox"/>	pH	<input checked="" type="checkbox"/>	Fecal Coliform	<input checked="" type="checkbox"/>
Ammonia Nitrogen	<input checked="" type="checkbox"/>	Cadmium	<input checked="" type="checkbox"/>	% TS	<input checked="" type="checkbox"/>		
Phosphorus	<input checked="" type="checkbox"/>	Chromium	<input checked="" type="checkbox"/>	%VS	<input checked="" type="checkbox"/>		
Potassium	<input type="checkbox"/>	Copper	<input checked="" type="checkbox"/>				
		Lead	<input checked="" type="checkbox"/>				
		Manganese	<input checked="" type="checkbox"/>				
		Mercury	<input checked="" type="checkbox"/>				
		Molybdenum	<input checked="" type="checkbox"/>				
		Nickel	<input checked="" type="checkbox"/>				
		Selenium	<input checked="" type="checkbox"/>				
		Zinc	<input checked="" type="checkbox"/>				

Where applicable for PWS facilities that treat for low level radioactive groundwater, is the sludge sampled for radium on a quarterly basis? Yes ☐ No ☐ N/A ☒

Analysis conducted on-site or off-site at a contract laboratory? (Circle Appropriate)

If off-site laboratory used, sample preservation techniques used and chain-of-custody procedures followed?

Name / contact info at contract lab Pace Analytical/Penny Janus (815) 344-4044

RECORD KEEPING

Is the facility maintaining adequate records of the quantities of sludge produced? Yes ☒ No ☐ N/A ☐

Pathogen and Vector attraction reduction method description and certification statement available? Yes ☒ No ☐ N/A ☐

Application site(s) soil analysis data (N, P, K and pH) available? Yes ☒ No ☐ N/A ☐

Is the Permittee retaining agronomic calculations and supporting sludge analyses for a period of not less than 5 years? Calculations confirm? Yes ☒ No ☐ N/A ☐

Are records regarding sludge users being retained by the Permittee for the duration of this permit and 5 years after the expiration date of this permit? Yes ☒ No ☐ N/A ☐

REPORTING

For Major facilities, are the appropriate SMRs for annual sludge reports filed as required by 40 CFR 503.18? Yes ☒ No ☐ N/A ☐

Where applicable for PWS facilities that treat for low level radioactive groundwater, does the POTW submit its sludge sampling data to the Illinois Environmental Protection Agency and the Illinois Emergency Management Agency/Division of Nuclear Safety? Yes ☐ No ☐ N/A ☒

OTHER COMMENTS/NOTES

INSPECTOR'S SIGNATURE

REPORT DATE

cc: BOW/DWPC/Records

List of Attachments:

February 2014