



John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

October 22, 2012

**RE: CITY OF DAYTON WASTEWATER
TREATMENT PLANT
COMPLIANCE EVALUATION INSPECTION
NPDES PERMIT NO. OH0024881
OHIO EPA PERMIT NO. 1PF00000*ND**

Mayor and Council
City of Dayton
101 West Third Street
Dayton, Ohio 45402

Dear Mayor and Council:

On October 9, 2012, I conducted a Compliance Evaluation Inspection at the Dayton Wastewater Treatment Plant to determine the facility's compliance with its NPDES discharge permit. Personnel with the Division of Wastewater and Sewer Maintenance assisted me with this inspection. A copy of the inspection report and summary of findings are attached for you to review.

A response to the three items discussed in the summary of findings is required by November 7, 2012. These items pertain to sanitary sewer overflows and laboratory quality control. If you have any questions about this compliance inspection, please contact me at (937) 285-6101.

Sincerely,

Mary Osika
Environmental Specialist
Division of Surface Water

MO/bjc

Enclosures

ec: Gary Marshall, City of Dayton
Jason Tincu, City of Dayton
Phil Bennington, City of Dayton
Aaron Zonin, City of Dayton
Karen Tenore, City of Dayton
Tammi Clements, City of Dayton



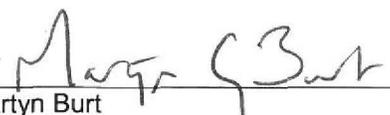
State of Ohio Environmental Protection Agency
Southwest District Office

NPDES Compliance Inspection Report

| Section A: National Data System Coding | | | | | |
|--|-----------|----------------|-----------------|-----------|---------------|
| Permit # | NPDES# | Month/Day/Year | Inspection Type | Inspector | Facility Type |
| 1PF00000*ND | OH0024881 | 10/9/2012 | Compliance | State | Public |

| Section B: Facility Data | | |
|--|-----------------|------------------------|
| Name and Location of Facility Inspected | Entry Time | Permit Effective Date |
| Dayton Advanced Wastewater Treatment Plant 2800 Guthrie Road Dayton, Ohio | 9:30 am | 8/1/2009 |
| | Exit Time | Permit Expiration Date |
| | 12:45 pm | 1/31/2014 |
| Name(s) and Title(s) of On-Site Representatives | Phone Number(s) | |
| Gary Marshall, Manager Wastewater Treatment Jason Tincu, Wastewater Treatment Administrator Phil Bennington, Process Control Supervisor Aaron Zonin, Manager Sewer Maintenance Karen Tenore, Laboratory Supervisor | 333-1842 | |
| Name, Address and Title of Responsible Official | Phone Number | |
| Mayor and Council City of Dayton 101 West Third Street Dayton, Ohio 45402 | 333-3333 | |

| Section C: Areas Evaluated During Inspection | | | | | |
|---|--------------------------|---|---------------------------|---|-------------------------|
| (S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated) | | | | | |
| S | Permit | S | Flow Measurement | N | Pretreatment |
| S | Records/Reports | M | Laboratory | S | Compliance Schedule |
| S | Operations & Maintenance | S | Effluent/Receiving Waters | S | Self-Monitoring Program |
| S | Facility Site Review | S | Sludge Storage/Disposal | S | Other |
| U | Collection System | | | | |

| Section D: Summary of Findings (Attach additional sheets if necessary) | |
|---|--|
| See attached Summary of Finding/Comments. | |
| Inspector | Reviewer |
|  Mary Osika Environmental Specialist Division of Surface Water Southwest District Office |  Martyn Burt Compliance & Enforcement Supervisor Division of Surface Water Southwest District Office |
| 10/22/12 Date | 10/23/12 Date |

Sections E thru K: Complete on all inspections as appropriate
Y – Yes, N – No, N/A – Not Applicable, N/E – Not Evaluated

Section E: Permit Verification

Inspection observations verify the permit

- (a) Correct name and mailing address of permittee Y
- (b) Flows and loadings conform with NPDES permit..... Y
- (c) Treatment processes are as described in permit application... Y
- (d) All discharges are permitted..... Y
- (e) Number and location of discharge points are as described
in permit..... Y
- (f) Storm water discharges properly permitted..... Y

Comments/Status: None.

Section F: Compliance

- (a) Any violations since the last inspection..... Y
- (b) Appropriate Non-compliance notification of violations..... Y
- (c) Permittee is taking actions to resolve violations..... Y
- (d) Permittee has a compliance schedule..... Y
- (e) Compliance schedule contained in...NPDES Permit Compliance Schedule
- (f) Permittee is in compliance with schedule..... Y
- (g) Has biomonitoring shown toxicity in discharge since last inspection Y

Comments/Status: There were no effluent limit violations during the review period. There was a chronic SSO issue at Inpark Circle. See Summary of Findings. Acute toxicity to *c. dubia* on 1/9/2012 effluent.

Section G: Operation & Maintenance

Treatment Works:

Treatment facility properly operated and maintained: Y

(a) Standby power available.....generator or dual feed Y

i. What does the back-up power source operate.....

Cogeneration (720 W) powers all secondary units, consists of 3 generation units, does not power the aeration tanks, IPS, Disinfection & filters.

ii. How often is the generator tested under load.....

Weekly or per schedule on preventive maintenance

Section G: Operation & Maintenance con't

- (b) Which components have an alarm system available for power or equipment failures
- (c) All treatment units in service other than backup units..... Y
- (d) What method is used for scheduling routine & preventative maintenance (calendar, software, etc.).....
- (e) Any major equipment breakdown since last inspection..... N
- (f) Operation and maintenance manual provided and maintained..... Y
- (g) Any plant bypasses since last inspection..... N
- (h) Any plant upsets since last inspection..... N

Comments/Status: None

Record Keeping/Operator of Record:

- (a) Wastewater Treatment Works classification (OAC 3745-7)..... IV
- (b) Operator of Record holds unexpired license of class required by Permit..... Y
- (c) Copy of certificate of Operator of Record displayed on-site..... Y
- (d) Has the Operator of Record submitted an ORC Notification form.. Y
- (e) Minimum operator staffing requirements fulfilled (OAC 3745-7).... Y
- (f) If a Staffing Reduction plan has been approved, are the stipulations of the plan being met..... Y
- (g) Operator of Record log book provided..... Y
- (h) Format of log book - hard bound
- (i) Log book kept onsite (in an area protected from weather)..... Y
- (j) Log book contains the following:
 - I. Identification of treatment works..... Y
 - II. Date/times of arrival/departure for Operator of Record and any other operator required by OAC 3745-7..... Y
 - iii. Daily record of operator and maintenance activities (including preventative maintenance, repairs and request for repairs, process control test results, etc.)..... Y
 - iv. Laboratory results (unless documented on bench sheets)... N
 - v. Identification of person making entries..... Y
- (k) Has the Operator of Record submitted written notifications to the permittee, Ohio EPA and, if applicable, any local environmental agencies when a collection system overflow, treatment plant bypass or effluent limit violation has occurred..... Y

Comments/Status: (a) Class IV Operator of Record (s) are Jason Tincu & Phil Bennington.
 (e) Log books reviewed for minimum staffing requirements. (f) Approved 2/25/2011- 30 hour staffing reduction.

Section G: Operation & Maintenance con't

Collection System:

- (a) Are there pump stations in the collection system..... Y
 - i. How many publicly-owned pump stations equipped with permanent standby power or equivalent.....4
 - ii. How many pump stations have telemetered alarms.....13
 - iii. How many pump stations have operable alarms.....11
- (b) Any chronic collection system overflows since last inspection..... Y
- (c) Regulatory agency notified of all overflows..... Y
- (d) Are there CSOs in the collection system..... N
- (e) How are CSOs monitored (chalk, block, level sensor, etc.)..... N/A
- (f) Portable pumps available for collection system maintenance..... Y
- (g) RDII Program established and active..... Y
- (h) Any WIB complaint received since last inspection..... Y
- (i) Is there a WIB response plan..... Y
- (j) Is any portion of the collection system at or near dry weather capacity..... N

Comments/Status: See summary of findings/comments for discussion regarding chronic SSO at Inpark Circle and list of all SSOs reported.

Section H: Sludge Management

- (a) Method of Sludge Disposal... Land Application
 Haul to Another NPDES Permittee
 Haul to a Mixed Solid Waste Landfill

*if one of the selected methods is land application, complete applicable charts.

- (b) Has amount of sludge generated changed significantly since the last inspection..... N
- (c) How much sludge storage is provided at the plant.....

Adequate storage due to management, landfill option available
- (d) Records kept in accordance with State and Federal law (5 years according to OAC 3745-40-06)..... Y
- (e) Any complaints received in last year regarding sludge..... N/E
- (f) 5/8" screen at headworks for facilities that land apply sludge..... N
- (g) Are sludge application sites inspected to verify compliance with NPDES permit..... Y
- (h) Is a contractor used for sludge disposal..... Y
If so, what is the name of the contractor.....Synagro

Class B Sewage Sludge (monitoring station 581)

| Pathogen Reduction Alternative | 84370 Vector Attraction Reduction Options | | | | | | | | | |
|---|--|----------------------------|--------------------------|----------------------------|--------------------------|----------------------------|--------------------------------|--------------------------------|---------------------------|-------------------------------------|
| | Option 1 -38% Volatile Solids | Option 2 - Anaerobic Bench | Option 3 - Aerobic Bench | Option 4 - Specific Oxygen | Option 5 - Aerobic Time | Option 6 - Alkali Addition | Option 7 - >75% Percent Solids | Option 8 - >75% Percent Solids | Option 9 - Land Injection | Option 10 - Immediate Incorporation |
| Alternative 1 - Geometric Mean of Seven Fecal Samples (84369) | <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"/> |
| Alternative 2 - Aerobic Digestion (46396) | <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"/> |
| Alternative 2 - Air Drying (46396) | <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"/> |
| Alternative 2 - Anaerobic Digestion (46396) | <input checked="" 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"/> |
| Alternative 2 - Composting (46396) | <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"/> |
| Alternative 2 - Lime Treatment (46396) | <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"/> |
| Alternative 3 - Approved Equivalent Process | <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"/> |

Comments/Status: Dayton will take over dewatering of sludge in January 2013. Synagro will continue with land application program. By winter 2013, Dayton planning to have additional building for storage & centrifuge equipment. Under design now and will submit for PTI. Screen upgrades under design now also.

Section I: Self-Monitoring Program

Flow Measurement:

- (a) Primary/Secondary flow measuring devices (e.g. weir with ultrasonic level sensor):
- (b) Flow meter calibrated annually Y
 (Date of last calibration: 9/14/2012)
- (c) 24-hour recording instruments operated and maintained..... Y
- (d) Flow measurement equipment adequate to handle full range of flows..... Y
- (e) All discharged flow is measured..... Y

Comments/Status: (d) North Primaries parshall flume undersized during extreme wet weather. Low priority for replacement right now.

Section I: Self-Monitoring Program (con't)

Sampling:

- (a) Sampling location(s) are as specified by permit..... Y
- (b) Parameters and sampling frequency agree with permit..... Y
- (c) Permittee uses required sampling method..... Y
(see GLC page)
- (d) Monitoring records (i.e., flow, pH, DO) maintained for a minimum of three years including all original strip chart recordings (i.e, continuous monitoring instrumentation, calibration and maintenance records)..... Y

Comments/Status: None.

Laboratory:

General

- (a) Does the Quality Assurance Manual contain written Standard Operating Procedures (SOP's) for all analysis performed onsite..... Y
- (b) Do SOP's include the following if applicable..... Y
 - Title
 - Scope and Application
 - Summary
 - Sample Handling and Preservation
 - Interferences
 - Apparatus and Materials
 - Reagents
 - Procedure
 - Calculations
 - Quality Control
 - Maintenance
 - Corrective Action
 - Reference (Parent Method)

Note: Standard Methods 1020A establishes that "Quality assurance (QA) is the definitive program for laboratory operation that specifies the measure required to produce defensible data of known precision and accuracy. Standard operating procedures are to be used in the laboratory in sufficient detail that a competent analyst unfamiliar with the method can conduct a reliable review and/or obtain acceptable results." SOPs should be developed for each analytical procedure.

- (c) EPA approved analytical testing procedures used (40 CFR 136.3).. Y
- (d) If alternate analytical procedures are used, proper approval has been obtained..... Y
- (e) Analyses being performed more frequently than required by permit. Y
- (f) If (e) is yes, are results in permittee's self-monitoring report..... Y
- (g) Satisfactory calibration and maintenance of instruments/equipment. Y
(see score from GLC page)
- (h) Commercial laboratory used..... Y

Section I: Self-Monitoring Program (con't)

Parameters analyzed by commercial lab: sludge parameters for arsenic, selenium, phosphorus, wastewater parameters for bis 2 ethylhexyl phthalate and low level mercury, biomonitoring

Lab name: Test America, Ginosko, EnviroScience

Discharge Monitoring Report Quality Assurance (DMRQA)

- (a) Participation in latest USEPA quality assurance performance sampling..... Y
Date: Study 31, August 2011
- (b) Were any parameters "Unsatisfactory"..... N
- (c) Reasons for "Unsatisfactory" parameters.....

Comments/Status: Dayton WWTP lab inspected using General Lab Criteria check list. See Summary Findings/Comments.

Section J: Effluent/Receiving Water Observations

Outfall # 001

Outfall Description: final effluent discharged to river looked normal

Receiving Stream: Great Miami River

Receiving Stream Description: River level slightly high & turbid from precipitation, small amount of foam from aerated treated wastewater discharge point

Comments/Status: None.

Section K: Multimedia Observations

- (a) Are there indications of sloppy housekeeping or poor maintenance in work and storage areas or laboratories..... N
- (b) Do you notice staining or discoloration of soils, pavement or floors.. N
- (c) Do you notice distressed (unhealthy, discolored, dead) vegetation.. N
- (d) Do you see unidentified dark smoke or dust clouds coming from sources other than smokestacks..... N
- (e) Do you notice any unusual odors or strong chemical smells..... N
- (f) Do you see any open or unmarked drums, unsecured liquids, or damaged containment facilities..... N

If any of the above are observed, ask the following questions:

- (1) What is the cause of the condition?
- (2) Is the observed condition or source a waste product?
- (3) Where is the suspected contaminant normally disposed?
- (4) Is this disposal permitted?
- (5) How long has the condition existed and when did it begin?

Comments/Status: None.

Summary of Findings/Comments

A compliance review of the eDMR data submitted by the City of Dayton during the review period of September 2011 through August 2012 showed that the facility met the effluent limitations of their NPDES permit 1PF00000*ND. There were only four (4) monitoring frequency violations during this review period.

A list of all reported sanitary sewer overflows (SSOs) from the collection system during the review period is listed in Chart A. Twenty-nine (29) sanitary sewer overflow events were reported to this office during the review period. Nine of the overflow events occurred at one location, 3723 Inpark Circle. These overflows were caused by restriction in the sanitary sewer due to the build-up of lime solids. (Dayton has an odor control program in this sanitary sewer requiring a two point application of lime to control the hydrogen sulfide gas concentration.) A Notice of Violation was issued to the City of Dayton on January 31, 2012. Dayton's plan of action to eliminate the SSOs at this location was initiated immediately through emergency cleaning contracts. Several additional SSOs resulted from the bypass pumping system used by contractors to do the sewer cleaning work. Dayton has increased their inspection of this sanitary sewer from twice per year to monthly. Three (3) other SSO events occurred at one location, Riverside at Ernst and the cause is excessive Inflow and Infiltration during a rain event.

On the attachment for the Dayton Lab inspection, the five (5) areas were rated marginal due to the requirement that thermometers have an annual calibration with an NIST traceable thermometer. Dayton lab staff explained that their plan was to replace the thermometers yearly. The records reviewed showed that they were approximately two months behind on replacement. Regarding the final effluent temperature probe, periodic calibration is done but it is uncertain if the NIST annual calibration is occurring. The autoclave was rated as unsatisfactory as the weekly temperature checks on the exhaust and monthly biological checks have not been done. It is uncertain that recordkeeping is done every time the autoclave is used or according to the recordkeeping viewed, the autoclave is not used often. A question on the new thermocouple – Was it initially NIST calibrated by the manufacturer or certified? The NIST calibration is good for one year; a certification is good for 5 years.

Areas Requiring a Response

A response is required regarding the Inpark Circle SSO area. Now that the City of Dayton has eliminated the occurrence of SSOs at that location, what is the plan to prevent the SSOs from happening again? This question is aimed at the two point lime application process as being a contributing factor is the SSO problem at this sanitary sewer line.

Permit # : 1PF00000*ND
NPDES #: OH0024881

A response is required regarding the Riverside at Ernst SSOs. Does the City of Dayton have a plan to reduce the Inflow and Infiltration (I/I) in the sanitary sewer system to eliminate SSOs at this location?

A response is required regarding the quality control issues at the City of Dayton Wastewater Treatment Plant Laboratory detailed in the findings and in the inspection report.

Chart A
 Sanitary Sewer Overflows from the Sewage Collection System
 September 2011 thru August 2012

| Date | Overflow location | Volume (gallons) | Reason for Overflow | Receiving Stream |
|------------|---------------------|------------------|---------------------|------------------|
| 9/23/2011 | Stillwater trunk | 1,000 | Grease | Stillwater River |
| 10/4/2011 | Hoover & Lilac | < 500 | Construction | Wolf Creek |
| 10/19/2011 | 3723 Inpark Circle | 5,000 | Rain/debris | Great Miami |
| 11/22/2011 | 3723 Inpark Circle | 87,000 | Rain/debris | Great Miami |
| 11/28/2011 | 3723 Inpark Circle | 1,120,000 | Rain/debris | Great Miami |
| 12/5/2011 | 3723 Inpark Circle | 990,000 | Rain/debris | Great Miami |
| 12/5/2011 | Riverside @ Ernst | unknown | Rain I/I | Stillwater River |
| 12/15/2011 | 3723 Inpark Circle | 5,400 | Rain/debris | Great Miami |
| 12/21/2011 | 3723 Inpark Circle | 9,000 | Rain/debris | Great Miami |
| 12/21/2011 | Riverside @ Ernst | unknown | Rain I/I | Stillwater River |
| 12/21/2011 | Heartsoul Drive | unknown | Grease | Great Miami |
| 1/17/2012 | 3723 Inpark Circle | 6,000 | Rain/debris | Great Miami |
| 1/26/2012 | 3723 Inpark Circle | 1,020,000 | Rain/debris | Great Miami |
| 1/26/2012 | Deeds Point Interc. | unknown | Rain/debris | Great Miami |
| 1/27/2012 | Riverside @ Ernst | unknown | Rain I/I | Stillwater River |
| 2/2/2012 | 5225 Rockport | unknown | Grease/debris | Wolf Creek |
| 2/7/2012 | Riva Ridge Drive | unknown | Roots/grease | Stillwater River |
| 2/22/2012 | 1071 Monument | unknown | Debris/lime | Mad River |
| 2/29/2012 | Melba @ Broadway | unknown | Grease | Great Miami |
| 3/24/2012 | 215 E. Third St. | unknown | Debris | Mad River |
| 3/26/2012 | Gilbert & Davis | unknown | Debris | Mad River |
| 3/30/2012 | 144 E. Helena St. | unknown | Debris/grease | Great Miami |
| 5/17/2012 | 3723 Inpark Circle | 5,000 | Vandalism | Great Miami |
| 6/29/2012 | Levee near Ome Ave | unknown | Bypass pump | Great Miami |
| 7/23/2012 | 2711 Riverside Dr | unknown | Roots | Stillwater River |
| 7/28/2012 | Levee near Ome Ave | unknown | Bypass pump | Great Miami |
| 8/3/2012 | Lakeside Oakleaf | unknown | Grease | Wolf Creek |
| 8/9/2012 | 3946 Larkspur | unknown | Debris | Wolf Creek |
| 8/29/2012 | 20 Livingston Ave. | unknown | Debris | Great Miami |

Dayton WWTP - General Lab Criteria Review 10/9/12

| Criteria | Standard Methods Requirement | Acceptable? | | Rating |
|---|--|---|-----------------------------|----------|
| Balance | | | | |
| • Standard Weights | • Either NIST Class s or ASTM/ANSI Class 1 weights ^{1,2} | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | A |
| • Calibration Frequency / Documentation | • Calibration verification required at least once each day the balance is used. ³ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| • Cleanliness, air movement, vibration | • Cleanliness of balance is a must and air movement and vibration needs to be kept to a minimum ¹ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| • Other | • Service and recalibrate annually (manufacturer representative or comparable) ¹ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | • Must be able to measure to 0.1 grams ⁴ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | • Instrument manual available | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | • Log book maintained ² | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |

Comments: :

| Criteria | Standard Methods Requirement | Acceptable? | | Rating |
|---|---|---|--|----------|
| Drying Oven (Suspended Solids) | | | | |
| • Temperature Recordkeeping | • Temperature recorded with each use ⁴ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | M |
| | • Log book maintained ² | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| • Calibration Frequency / Documentation | • Thermometer calibrated annually with NIST traceable thermometer ^{1,2} . Correction factor posted on thermometer / equipment ¹ | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| • Other | • Thermometer temperature accurate to 0.5° Celsius ⁵ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | • Acceptable temperature range is 103° – 105° C ⁴ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | • Instrument manual available | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |

Comments: :

Dayton's plan is to buy new thermometers every year. The record keeping shows they are a few months behind on replacement.

Dayton WWTP - General Lab Criteria Review 10/9/12

| Criteria | Standard Methods Requirement | Acceptable? | | Rating |
|--|--|---|-----------------------------|----------|
| pH Meter | | | | |
| <ul style="list-style-type: none"> • Calibration Frequency / Documentation | <ul style="list-style-type: none"> • Calibration verification required for testing over long period of time (e.g. 12 hrs.), or after a large number of samples (every 10 samples)³ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | A |
| | <ul style="list-style-type: none"> • Logbook maintained² | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| <ul style="list-style-type: none"> • Minimum of 2 point calibration | <ul style="list-style-type: none"> • Calibration per manufacturer specification and calibration buffers must bracket anticipated result⁷ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| <ul style="list-style-type: none"> • Slope Documentation / Acceptability | <ul style="list-style-type: none"> • Slope acceptable range indicated on benchsheet² | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| <ul style="list-style-type: none"> • Buffer Expiration Date | <ul style="list-style-type: none"> • Buffers must not be expired | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| <ul style="list-style-type: none"> • Other | <ul style="list-style-type: none"> • Instrument manual available | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | <ul style="list-style-type: none"> • Teflon covered magnetic stirrer or equivalent for mixing⁸ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| Comments: : <i>This pH meter is used for sludge, upstream and downstream samples. Influent and effluent pH is measured by continuous pH probe/recorder that is calibrated and maintained through the Hansen maintenance software program.</i> | | | | |
| Dissolved Oxygen Meter | | | | |
| Dissolved Oxygen Meter | | | | |
| <ul style="list-style-type: none"> • Calibration Method | <ul style="list-style-type: none"> • Air or known DO calibration method¹⁰ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | A |
| | <ul style="list-style-type: none"> • Calibration per manufacturer specification¹⁰ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| <ul style="list-style-type: none"> • Calibration Frequency / Documentation | <ul style="list-style-type: none"> • Logbook maintained² | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | <ul style="list-style-type: none"> • Calibration verification required at least once each day the meter is used.³ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| <ul style="list-style-type: none"> • Other | <ul style="list-style-type: none"> • Small to no bubble present under membrane (must be smaller than the lead in number 2 pencil)¹¹ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | <ul style="list-style-type: none"> • Instrument manual available | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| Comments: | | | | |

Dayton WWTP - General Lab Criteria Review 10/9/12

| Criteria | Standard Methods Requirement | Acceptable? | | Rating |
|---|--|---|--|----------|
| Incubator (CBOD/ E-Coli) | | | | |
| <ul style="list-style-type: none"> • Temperature Recordkeeping | <ul style="list-style-type: none"> • Temperature checked / recorded twice daily for each shelf in use¹(E-Coli) N/A | <input type="checkbox"/> Yes | <input type="checkbox"/> No | M |
| | <ul style="list-style-type: none"> • Temperature checked / recorded daily² (CBOD) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | <ul style="list-style-type: none"> • Acceptable temperature range (CBOD) is 20° C ±1.0°¹² | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | <ul style="list-style-type: none"> • Acceptable temperature range (E-Coli) is 35° C ±0.5°²² N/A | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | <ul style="list-style-type: none"> • Logbook maintained² | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| <ul style="list-style-type: none"> • Temperature Calibration / Documentation | <ul style="list-style-type: none"> • Thermometer calibrated annually with NIST traceable thermometer^{1, 2} | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| | <ul style="list-style-type: none"> • Temperature correction information posted on incubator¹ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| <ul style="list-style-type: none"> • E-Coli can use multiple tubes (five 20 ml or ten 10 ml), or mfg's multi-well tray | <ul style="list-style-type: none"> • E-coli Ultraviolet lamp (365 nm wave length, 6 W bulb)²³ N/A | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| <ul style="list-style-type: none"> • Other | <ul style="list-style-type: none"> • Instrument manual available | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | <ul style="list-style-type: none"> • Temperature Log (thermometer accurate to 0.5 Celsius).¹ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |

Comments: :

Dayton does not sample for e. coli yet. Temperature data is recorded on a daily checklist.

Dayton's plan is to buy new thermometers every year. The record keeping shows they are a few months behind on replacement.

| Criteria | Standard Methods Requirement | Acceptable? | | Rating |
|---|--|---|--|----------|
| Refrigerator | | | | |
| <ul style="list-style-type: none"> • Temperature Recordkeeping | <ul style="list-style-type: none"> • Temperature Log (thermometer accurate to 0.5 Celsius).⁵ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | M |
| <ul style="list-style-type: none"> • Temperature Calibration / Documentation | <ul style="list-style-type: none"> • Thermometer calibrated annually with NIST traceable thermometer^{1, 2} | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| <ul style="list-style-type: none"> • Other | <ul style="list-style-type: none"> • Thermometer held in water bath.¹ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | <ul style="list-style-type: none"> • Refrigerator temperature ≤6° Celsius.¹³ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | <ul style="list-style-type: none"> • Do not store volatile solvents, food, or beverages.¹⁴ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |

Comments:

The large walk in cold room was inspected for this criteria.

Dayton's plan is to buy new thermometers every year. The record keeping shows they are a few months behind on replacement.

Dayton WWTP - General Lab Criteria Review 10/9/12

| Criteria | Standard Methods Requirement | Acceptable? | | Rating |
|---|---|---|--|----------|
| Chlorine Meter | | | | |
| • Calibration Frequency / Documentation | • pH / millivolt meter read to 0.1 mV ¹⁵ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | M |
| | • Calibration verification required for testing over long period of time (e.g. 12 hrs.), or after a large number of samples (every 10 samples) ³ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| • Calibration Method | • Calibration using three iodate solutions 0.2, 1.0, 5.0 milliliters or calibration per manufacturer specification ¹⁶ | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| | • Standards used for calibration not expired | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| • Slope Documentation / Acceptability | • Calibration curve (acceptable slope) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| • Other | • Electrode free of deposits and foreign material | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | • Log book being maintained. ² | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | • Instrument manual available | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |

Comments: :

Dayton uses one solution from a standard for calibration.

| Criteria | Standard Methods Requirement | Acceptable? | | Rating |
|---|---|---|-----------------------------|----------|
| Ammonia Meter | | | | |
| • Calibration Frequency / Documentation | • Calibration verification required for testing over long period of time (e.g. 12 hrs.), or after a large number of samples (every 10 samples) ³ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | A |
| | • Log book being maintained ² | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| • Slope acceptability | • Verify calibration slope is acceptable (per mfg. spec.). | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| • Calibration Method | • Standards used for calibration (3 ammonia solutions of 10 mg/l, 1 mg/l, and 0.1 mg/l) or per mfg. spec. ¹⁷ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | • Standards used for calibration not expired | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| • Other | • Electrode free of deposits and foreign material | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | • Teflon covered magnetic stirrer or equivalent for mixing ¹⁸ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | • Instrument manual available | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |

Comments: :

Dayton makes standard solutions from a solid. No expiration date on solids container. Recommend dating the made-up standards to make sure they are fresh.

Dayton WWTP - General Lab Criteria Review 10/9/12

| Criteria | Standard Methods Requirement | | Rating |
|----------------------------|---|---|----------|
| Sample Collection/Handling | Acceptable? | | |
| • Sample Labeling | • Samples container labeled (description, date, time, preservative added, initialed). ¹⁹ | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | A |
| • Chain of Custody | • Chain of custody (description, date, time, signature). ¹⁹ | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| • Other | • Composite samples refrigerated during sample collection ¹⁴ | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| | • Equipment blanks utilized ¹⁴ | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| | • SOP for cleaning of sampling equipment | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| | • Logbook being maintained ² | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |

Comments:

SOP and log books were viewed at each composite sampler at the Dayton WWTP. The industrial pretreatment group does the maintenance on the composite samplers.

| Criteria | Standard Methods Requirement | | Rating |
|--------------------|--|---|----------|
| Desiccator | Acceptable? | | |
| • General criteria | • Properly working seals. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | A |
| | • Desiccant fresh (blue color) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| • Documentation | • Log book being maintained ² | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |

Comments:

| Criteria | Standard Methods Requirement | | Rating |
|--------------------|--|---|----------|
| Bench sheets | Acceptable? | | |
| • General criteria | • Date(s) ² | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | A |
| | • Analyst initials ² | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| | • Blue or black ink pen ² | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| | • Calibration information ² | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| | • Equations, calculations, units for all measurements, notations, and results present ² | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| | • Corrections, single line through, initialed and dated ² | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |

Comments:

Dayton WWTP - General Lab Criteria Review 10/9/12

| Criteria | Standard Methods Requirement | | Rating |
|--|--|---|--|
| Hot Water Bath (Fecal Coliform/E. Coli) | | Acceptable? | |
| • Temperature Recordkeeping | • Temperature Log (thermometer accurate to 0.2° C) ²¹ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| | • Incubator temperature 44.5° C ± 0.2° ^{21/24} | | |
| • Temperature Calibration / Documentation | • Thermometer calibrated annually with NIST traceable thermometer ^{1,2} | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| | • Log book being maintained ² | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| • Water Level | • Thermometer total immersion or partial (line on thermometer to ID immersion depth) ^{1,5} | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| <p>Comments:</p> <p><i>Temperature is recorded on the bench sheets.</i></p> <p><i>Dayton's plan is to buy new thermometers every year. The record keeping shows they are a few months behind on replacement.</i></p> | | | |
| Autoclaves/Steam Sterilizers | | Acceptable? | |
| • All apparatus utilized is adequately sterilized before use | • Sterilizing temperature 121° C ²⁵ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| | • 10 to 30 minutes time based on material being sterilized ²⁶ | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| • Documentation | • Verify the autoclave temperature weekly by using a maximum registering thermometer (MRT) to confirm that 121°C has been reached as measured in the exhaust. ¹ | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| | • Date, contents, sterilization time and temperature, total time in autoclave, and analyst's initials should be recorded each time the autoclave is used ¹ | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| • Temperature Calibration / Documentation | • Thermometer calibrated annually with NIST traceable thermometer ^{1,2} | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| | • Log book being maintained ² | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| • Performance Checks | • Test monthly for efficacy using a biological such as commercially available <i>Geobacillus stearothermophilus</i> in spore strips, suspensions, or capsules ¹ | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| <p>Comments:</p> <p><i>Dayton has purchased a Fluke 5211 Thermocouple wire for calibration of the autoclave. It appears that it has not been used much or record keeping is not done.</i></p> | | | |

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Dayton WWTP - General Lab Criteria Review 10/9/12

| Criteria | Standard Methods Requirement | Rating | | | | | | | | |
|--|---|---|------------|---|----------|---|--------------|---|------------------------------------|-----------|
| Final Effluent Temperature Monitoring | | Acceptable? | | | | | | | | |
| • General Criteria | • Thermometer calibrated annually with NIST traceable thermometer ^{1,2} | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | | | | | | |
| | • Thermometer accurate to 0.1° Celsius ⁵ | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | | | |
| | • Log book being maintained ² | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | | | |
| Comments: <i>Dayton uses continuous temperature probe/recorder. The temperature probe is calibrated and maintained through the Hansen maintenance software program. It is uncertain if final temperature probe is being calibrated annually with NIST traceable thermometer.</i> | | | | | | | | | | |
| Number of Criteria Rated: | | <table border="1" style="margin: auto;"> <tr><td style="background-color: #e0e0e0;">Acceptable</td><td style="text-align: center;">7</td></tr> <tr><td style="background-color: #e0e0e0;">Marginal</td><td style="text-align: center;">6</td></tr> <tr><td style="background-color: #e0e0e0;">Unacceptable</td><td style="text-align: center;">1</td></tr> <tr><td style="background-color: #e0e0e0;">Total Number of Areas Rated</td><td style="text-align: center;">14</td></tr> </table> | Acceptable | 7 | Marginal | 6 | Unacceptable | 1 | Total Number of Areas Rated | 14 |
| Acceptable | 7 | | | | | | | | | |
| Marginal | 6 | | | | | | | | | |
| Unacceptable | 1 | | | | | | | | | |
| Total Number of Areas Rated | 14 | | | | | | | | | |
| Acceptable Ratings – No action required (recommend SOP's written or updated, perform DMRQA's for all onsite analysis, recommend voluntary lab analyst certification, written response not required). | | | | | | | | | | |
| Marginal Ratings – Improvements required, written response required (recommend SOP's be written or updated, recommend they perform DMRQA's for all onsite analysis, recommend voluntary lab analyst certification, require deficiencies to be addressed in written response). | | | | | | | | | | |
| Unsatisfactory Rating - Improvements required, written response required, NOV issued (recommend SOP's be written or updated, recommend they perform DMRQA's for all onsite analysis, recommend voluntary lab analyst certification, require deficiencies to be addressed in written response to NOV). | | | | | | | | | | |
| Consider recommending PAI Audit from DES when: | >60% of ratings are Marginal >45% of ratings are a combination of Marginal or Unacceptable >30% of ratings are Unacceptable | | | | | | | | | |

Notation of Referenced Method

| | |
|----------------------------|------------------------------|
| 1 Method 9020-B, Item 3 | 14 Method 1060A, Item 1 |
| 2 Method 1020-A, Item 1 | 15 Method 4500-CI I, Item 2 |
| 3 Method 1020-B, Item 10 | 16 Method 4500-CI I, Item 4 |
| 4 Method 2540-B, Item 2 | 17 Method 4500-NH3 D, Item 4 |
| 5 Method 2550-B, Item 1 | 18 Method 4500-NH3 D, Item 2 |
| 6 Method 1020-A, Item 1 | 19 Method 1060-B, Item 2 |
| 7 Method 4500-H B, Item 4 | 20 Method 1060-B, Item 1 |
| 8 Method 4500-H B, Item 2 | 21 Method 9222D, Item 1 |
| 9 Method 1020-B, Item 2 | 22 Method 9223 B, Item 2 |
| 10 Method 4500-O B, Item 3 | 23 Method 9223 B, Item 3 |
| 11 Method 4500-O G, Item 3 | 24 Method 1603, Item 2 |
| 12 Method 5210-B, Item 5 | 25 Method 9030-B, Item 3 |

Dayton WWTP - General Lab Criteria Review 10/9/12

13 CFR 136.3, Table II

26 Method 9020 B, Table IV

Equipment Logbook Content - all maintenance performed on a piece of equipment should be documented in the logbook. This should include parts replacement and routine maintenance activities. Entries should include date, maintenance performed and initials of person making entry.

Preservation and Holding Times

| Parameter | Container | Min. Sample Size (mL) | Sample Type | Preservation | Maximum Storage Time | |
|------------------------------|--------------------------------|-----------------------|-------------|---|--|---|
| | | | | | Recommended | Regulatory |
| BOD / CBOD | P, G | 1000 | G, C | Refrigerate $\leq 6^{\circ}\text{C}$ | 6h | 48h |
| TSS | P, G | 200 | G, C | Refrigerate $\leq 6^{\circ}\text{C}$ | 7 d | 7 d |
| pH | P, G | 50 | G | Analyze immediately | 0.25h | 0.25 h |
| NH3-N | P, G | 500 | G, C | Analyze as soon as possible or add H_2SO_4 to pH <2, Refrigerate $\leq 6^{\circ}\text{C}$ | 7 d | 28 d |
| TRC | P, G | 500 | G | Analyze immediately | 0.25h | 0.25 h |
| DO (electrode) | G, BOD Bottle | 300 | G | Analyze immediately | 0.25h | 0.25 h |
| Temperature | P, G | -- | G | Analyze immediately | 0.25h | 0.25 h |
| Metals, general | P, G | 1000 | G, C | For dissolved filter immediately and add HNO_3 to pH <2 | 6 months | 6 months |
| Purgeables by purge and trap | G (PTFE lined lid) | 40 (X2) | G | HCl to pH<2, Refrigerate $\leq 6^{\circ}\text{C}$ | 7 d | 14 d |
| Base/Neutrals and acids | G (solvent rinsed or baked) | 1000 | C, G | Refrigerate $\leq 6^{\circ}\text{C}$ | 7 d | 7 days until extraction 40 days after extraction |
| Pesticides | G (PTFE lined lid) | 1000 | C | Refrigerate $\leq 6^{\circ}\text{C}$ | 7 d | 7 days until extraction 40 days after extraction |
| Fecal Coliform / E-Coli | G, P (Sterilized) | 100 | G | Refrigerate $\leq 10^{\circ}\text{C}$ If chlorine present, add sodium thiosulfate tablet | 6 hrs transport Start analysis within 2 hrs of receipt in lab. | |
| Oil and Grease | G | 1000 | G | HCl or H_2SO_4 to pH <2, Refrigerate $\leq 6^{\circ}\text{C}$ | 28 d | 28 d |

Approved Standard Methods

| | |
|--|---|
| CBOD / BOD 5 Day | Std Methods 5210-B |
| Ammonia, Selective Electrode Method | Std Methods 4500-NH3 D |
| Total Residual Chlorine, DPD Colorimetric Method | Std Methods 4500-Cl G |
| Total Suspended Solids, Dried at 103-105 °C | Std Methods 2540-D |
| Dissolved Oxygen, Membrane Electrode Method | Std Method 4500-O G |
| pH, Electrometric Method | Std Methods 4500-H+ B |
| Fecal Coliform, Membrane Filter Procedure | Std Methods 9222D |
| Escherichia Coli, Enzyme Substrate Test | Std Method 9223B |
| Escherichia Coli Membrane Filtration Procedure | EPA Method 1603 |
| Oil and Grease | USEPA 1664A or Std Methods 5520B |
| Metals, general | USEPA 200, Std Methods 3111B or C, or 3120B |
| Volatiles (Purgeables by purge and trap) | USEPA 6210, Std Methods 624 |
| Semi-Volatiles (Base/Neutrals and acids) | USEPA 6410, Std Methods 625 |
| Pesticides | USEPA 6410 and 6630, Std Methods 608 |