



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

February 20, 2013

Mayor and Council  
City of Middletown  
One Donham Plaza  
Middletown, Ohio 45042

**RE: Middletown WWTP 1PE00003 Compliance Evaluation Inspection (CEI)  
and Middletown General Permit 1GR00631 Reconnaissance Inspection (RI)**

Ladies and Gentlemen:

On February 14, 2013, I conducted a Compliance Evaluation Inspection at the Middletown WWTP facility as well as a RI for the Middletown General Permit covering the WWTP storm water discharges. A copy of both my CEI and RI inspection reports are enclosed. The inspection report contains no marginal or unsatisfactory ratings.

Pat Lovely asked about the reason for effluent cyanide being free cyanide, while the influent is total cyanide. Please note this is required by Ohio EPA's NPDES Monitoring Frequency Requirements for Sanitary Discharges which can be found at: <http://www.epa.ohio.gov/dsw/guidance/guidance.aspx#>

As this was the initial Storm Water General Permit inspection, it is understood that the requirements of the permit 1GR00631/OHR00005 for Middletown have not been discussed previously. A fact sheet on this permit can be found at: [http://epa.ohio.gov/portals/35/permits/IndustrialStormWater\\_Final\\_GP\\_FS\\_dec11.pdf](http://epa.ohio.gov/portals/35/permits/IndustrialStormWater_Final_GP_FS_dec11.pdf)

Although Middletown has conducted storm water evaluations at the WWTP, they were not aware that records of said evaluations need to be kept. A sample of Recordkeeping Templates can be found at: [http://epa.ohio.gov/portals/35/permits/IndustrialStormWater\\_SampleRecordkeepingTemplates.doc](http://epa.ohio.gov/portals/35/permits/IndustrialStormWater_SampleRecordkeepingTemplates.doc)

We discussed benchmark sampling. A review of the Storm Water Permit OHR00005 indicates that for Sector T, which your WWTP falls under, no benchmark sampling is required. Further information regarding benchmark sampling can be found at: [http://epa.ohio.gov/portals/35/permits/IndustrialStormWater\\_Final\\_GP\\_Part6\\_dec11.pdf](http://epa.ohio.gov/portals/35/permits/IndustrialStormWater_Final_GP_Part6_dec11.pdf)

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In conclusion, please note that records will need to be kept for the quarterly and annual storm water inspections you conduct at the WWTP.

If you have any questions or comments concerning the contents of this letter, please feel free to contact me at this office.

Sincerely,

A handwritten signature in black ink, appearing to read 'Maureen M. Ware', with a long horizontal line extending to the right.

Maureen M. Ware  
Environmental Specialist  
Division of Surface Water

MW/kb

Enclosures

cc: Pat Lovely, City of Middletown  
Judy Gilleland, City of Middletown  
Butler County Health Dist.



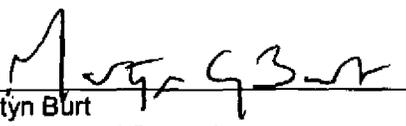
State of Ohio Environmental Protection Agency  
Southwest District Office

### NPDES Compliance Inspection Report

Section A: National Pollutant System Coding					
Permit #	NPDES#	Month/Day/Year	Inspection Type	Inspector	Facility Type
1PE00003	OH0026522	02/14/2013	C	S	1

Section B: Facility Data		
Name and Location of Facility Inspected	Entry Time	Permit Effective Date
Middletown WWTP 300 Oxford State Rd. Middletown, Ohio 45044	12:45PM	8/1/2009
	Exit Time	Permit Expiration Date
	4:00PM	1/31/2014
Name(s) and Title(s) of On-Site Representatives	Phone Number(s)	
Patricia Lovely, Interim WWTP Manager	513-425-7919	
Name, Address and Title of Responsible Official	Phone Number	
Mayor and Council, City of Middletown		

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

Section D: Summary of Findings (Attach additional sheets if necessary)	
See individual sections for comments.	
Inspector	Reviewer
 Maureen M. Ware Division of Surface Water Southwest District Office	 Martyn Burt Environmental Supervisor Division of Surface Water Southwest District Office
2/20/13 Date	2/20/13 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:

**Section F: Compliance**

- (a) Any significant violations since the last inspection..... N
- (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 N

Comments/Status:

Compliance for Middletown was evaluated for the period of 3/1/12 – 12/30/12. See Page 10 for the summary.

**Section G: Operation & Maintenance**

**Treatment Works:**

- Treatment facility properly operated and maintained..... Y
- (a) Standby power available.....generator  or dual feed ..... N/E
- i. What does the back-up power source operate.....
- 1/31/13 Middletown had a problem downstream of the dual feed and resulted in a WWTP bypass. The problem was addressed by the addition of 1500' of underground electrical cable.
- ii. How often is the generator tested under load.....
- N/A
- (b) Which components have an alarm system available for power or equipment failures.....
- All major WWTP components.
- (c) All treatment units in service other than backup units..... Y
- (d) What method is used for scheduling routine & preventative maintenance (calendar, software, etc.).....
- calendar
- (e) Any major equipment breakdown since last inspection..... Y
- (f) Operation and maintenance manual provided and maintained..... Y
- (g) Any plant bypasses since last inspection..... Y
- (h) Any plant upsets since last inspection..... N

**Comments/Status:**

A previously noted power failure happened 1/31/13 and resulted in a WWTP bypass.

**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..... N
- (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..... N/E
- (g) Operator of Record log book provided..... N/E
- (h) Format of log book (e.g. computer log, hard bound book)
 

hardbound
- (i) Log book kept onsite (in an area protected from weather)..... N/E
- (j) Log book contains the following:
  - I. Identification of treatment works..... N/E
  - II. Date/times of arrival/departure for Operator of Record and any other operator required by OAC 3745-7..... N/E
  - iii. Daily record of operator and maintenance activities (including preventative maintenance, repairs and request for repairs, process control test results, etc.)..... N/E
  - iv. Laboratory results (unless documented on bench sheets)... N/E
  - v. Identification of person making entries..... N/E
- (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:**

No changes in the way the log book is utilized since the last inspection. Middletown now has Kevin Krejney as the ORC. Mr. Krejney does have a class IV. Middletown has requested and received authorization to have a staff reduction plan in place such that Mr. Krejney must be at the WWTP 20 hours per week.

**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.....all
  - ii. How many pump stations have telemetered alarms.....all
  - iii. How many pump stations have operable alarms.....all
  
- (b) Any chronic collection system overflows since last inspection..... N
- (c) Regulatory agency notified of all overflows..... Y
- (d) Are there CSOs in the collection system..... Y  
if so, what is the LTCP status.....  

Consent decree currently being negotiated with USEPA.
  
- (e) How are CSOs monitored (chalk, block, level sensor, etc.).....  

Each CSO is equipped with an ultrasonic level sensor that measures flow over the weirs and into the river. Software calculates the bypass flow rate based on the shape of the sewer at each weir. This information is transmitted to the WWTP and is logged for later transfer to the eDMR.
  
- (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:**

I/I program exists but is not a formal plan based on an official I/I study. There were 3 WIB events since the last inspection.

**Section H: Sludge Management**

Class A - Exception Quality Sewage Sludge (monitoring station 584)

(a) Method of Sludge Disposal...

- Land Application
- Haul to Another NPDES Permittee
- Haul to a Mixed Solid Waste Landfill

Pathogen Reduction Alternative	84370 Vector Attraction Reduction Options							
	Option 1 -38% Volatile Solids Reduction	Option 2 -Anaerobic Bench Scale Analysis	Option 3 - Aerobic Bench Scale Analysis	Option 4 - Specific Oxygen Uptake Rate	Option 5 - Aerobic Time and Temperature	Option 6 - Alkali Addition	Option 7 - >75% Percent Solids without Unstabilized Solids	Option 8 - >75% Percent Solids with Unstabilized Solids
Alternative 1 - Time and Temperature Regime (84369)	<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"/>
Alternative 2 - High pH and High Temperature (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"/>
Alternative 3 - Other Processes (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"/>
Alternative 4 - Unknown Processes (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"/>
Alternative 5 - Composting (84397)	<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 5 - Heat Drying (84397)	<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 5 - Heat Treatment (84397)	<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 5 - Thermophilic Aerobic Digestion (84397)	<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 5 - Beta Ray Irradiation (84397)	<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 5 - Gamma ray Irradiation (84397)	<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 5 - Pasteurization (84397)	<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 6 - 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"/>

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

90+ days
- (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..... Y
- (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

**Comments/Status:**

1 sludge complaint was noted since the last inspection. Middletown discussed it with Jake Howdysshell. It was determined to not be a relevant complaint. Middletown has 6/8" screens. Fine screens will be considered with any future WWTP upgrade.

**Section I: Self-Monitoring Program**

**Flow Measurement:**

- (a) Primary/Secondary flow measuring devices (e.g. weir with ultrasonic level sensor):  

weir with ultrasonic level sensor
- (b) Flow meter calibrated annually ..... Y  
 (Date of last calibration: )
- (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:**

Spring 2012 flow meter was calibrated.

**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
- (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:**

**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
  - Procedure
  - Scope and Application
  - Calculations
  - Summary
  - Quality Control
  - Sample Handling and Preservation
  - Maintenance
  - Interferences
  - Corrective Action
  - Apparatus and Materials
  - Reference (Parent Method)
  - Reagents

*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 know 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..... N/A
- (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 GLC)
- (h) Commercial laboratory used..... Y

Parameters analyzed by commercial lab: toxicity, metals, CN, nutrients, sludge

Lab name: Belmont, Alloway, Sherry Labs, Enviroscience.

*Discharge Monitoring Report Quality Assurance (DMRQA)*

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

N/A
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**Comments/Status:**

**Section J: Effluent/Receiving Water Observations**

Outfall # 001

Outfall Description: Pipe

Receiving Stream: Great Miami River

Receiving Stream Description: Average appearing flow and turbidity

**Comments/Status:**

Old stairs to outfall replaced by graded soil. Some foam was noted at the outfall area, but it dissipated within approximately 25' from the outfall.

**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:**

The following numerical violations were noted:

Station	Code	Parameter	Limit Type	Limit	Reported	Date
584	31641	Fecal Coli.	1D Conc	1000	1600	6/18/2012
001	31616	Fecal Coli.	7D Conc	2000	2581.25	8/1/2012
001	31616	Fecal Coli.	7D Conc	2000	2015.48	10/8/1
001	61942	pH, Min.	1D Conc	6.5	29 times<6.5	7/1-7/31/12*

DO data was erroneously entered in the eDMR system for both DO and pH minimum in July 2012.

# General Lab Criteria

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

Comments:

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

Comments: The drying oven was not being used at the time of the inspection, so it was not on.

# General Lab Criteria

Criteria	Standard Methods Requirement		Rating
<b>pH Meter</b>			
<ul style="list-style-type: none"> <li>• Calibration Frequency / Documentation</li> </ul>	<ul style="list-style-type: none"> <li>• Calibration verification required for testing over long period of time (e.g. 12 hrs.), or after a large number of samples (every 10 samples)<sup>3</sup></li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	<ul style="list-style-type: none"> <li>• Logbook maintained<sup>2</sup></li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<ul style="list-style-type: none"> <li>• Minimum of 2 point calibration</li> </ul>	<ul style="list-style-type: none"> <li>• Calibration per manufacturer specification and calibration buffers must bracket anticipated result<sup>7</sup></li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<ul style="list-style-type: none"> <li>• Slope Documentation / Acceptability</li> </ul>	<ul style="list-style-type: none"> <li>• Slope acceptable range indicated on benchsheet<sup>2</sup></li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<ul style="list-style-type: none"> <li>• Buffer Expiration Date</li> </ul>	<ul style="list-style-type: none"> <li>• Buffers must not be expired</li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<ul style="list-style-type: none"> <li>• Other</li> </ul>	<ul style="list-style-type: none"> <li>• Instrument manual available</li> <li>• Teflon covered magnetic stirrer or equivalent for mixing<sup>8</sup></li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Comments:			
<b>Dissolved Oxygen Meter</b>			
<ul style="list-style-type: none"> <li>• Calibration Method</li> </ul>	<ul style="list-style-type: none"> <li>• Air or known DO calibration method<sup>10</sup></li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	<ul style="list-style-type: none"> <li>• Calibration per manufacturer specification<sup>10</sup></li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<ul style="list-style-type: none"> <li>• Calibration Frequency / Documentation</li> </ul>	<ul style="list-style-type: none"> <li>• Logbook maintained<sup>2</sup></li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	<ul style="list-style-type: none"> <li>• Calibration verification required at least once each day the meter is used.<sup>3</sup></li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<ul style="list-style-type: none"> <li>• Other</li> </ul>	<ul style="list-style-type: none"> <li>• Small to no bubble present under membrane (must be smaller than the lead in number 2 pencil)<sup>11</sup></li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	<ul style="list-style-type: none"> <li>• Instrument manual available</li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Comments:			

# General Lab Criteria

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

Comments:

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

Comments:

# General Lab Criteria

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

Criteria	Standard Methods Requirement	Acceptable?		Rating
<b>Ammonia Meter</b>				
• 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) <sup>3</sup>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Log book being maintained <sup>2</sup>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Slope acceptability	• Verify calibration slope is acceptable (per mfg. spec.).	<input 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. <sup>17</sup>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Standards used for calibration not expired	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Other	• Electrode free of deposits and foreign material	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Teflon covered magnetic stirrer or equivalent for mixing <sup>18</sup>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Instrument manual available	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Comments:				

# General Lab Criteria

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

Comments: In addition to chain of custody forms for the commercial labs, Middletown uses an internal chain of custody to track what parameters have been completed, who completed them, and when they were completed.

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

Comments: The desiccant appeared to be a bit on the lavender side, so it will need to be refreshed soon. Logging of desiccator maintenance is kept in the lab notebook.

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

Comments:

# General Lab Criteria

Criteria	Standard Methods Requirement	Acceptable?		Rating
<b>Hot Water Bath (Fecal Coliform/E. Coli)</b>				
• Temperature Recordkeeping	• Temperature Log (thermometer accurate to 0.2° C) <sup>21</sup>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Incubator temperature 44.5° C ± 0.2° <sup>21/24</sup>			
• Temperature Calibration / Documentation	• Thermometer calibrated annually with NIST traceable thermometer <sup>1, 2</sup>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Log book being maintained <sup>2</sup>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Water Level	• Thermometer total immersion or partial (line on thermometer to ID immersion depth) <sup>1, 5</sup>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

Comments:

Criteria	Standard Methods Requirement	Acceptable?		Rating
<b>Autoclaves/Steam Sterilizers</b>				
• All apparatus utilized is adequately sterilized before use	• Sterilizing temperature 121° C <sup>25</sup>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• 10 to 30 minutes time based on material being sterilized <sup>26</sup>	<input 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. <sup>1</sup>	<input type="checkbox"/> Yes	<input 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 <sup>1</sup>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Temperature Calibration / Documentation	• Thermometer calibrated annually with NIST traceable thermometer <sup>1,2</sup>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Log book being maintained <sup>2</sup>	<input type="checkbox"/> Yes	<input 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 <sup>1</sup>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

Comments:

# General Lab Criteria

Criteria	Standard Methods Requirement	Rating						
<b>Final Effluent Temperature Monitoring</b>		Acceptable?						
<ul style="list-style-type: none"> <li>• General Criteria</li> </ul>	<ul style="list-style-type: none"> <li>• Thermometer calibrated annually with NIST traceable thermometer <sup>1,2</sup></li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No						
	<ul style="list-style-type: none"> <li>• Thermometer accurate to 0.1° Celsius<sup>5</sup></li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No						
	<ul style="list-style-type: none"> <li>• Log book being maintained <sup>2</sup></li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No						
Comments:								
<b>Number of Criteria Rated:</b>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;"><b>Acceptable</b></td><td style="text-align: center;">5</td></tr> <tr><td style="text-align: center;"><b>Marginal</b></td><td style="text-align: center;">0</td></tr> <tr><td style="text-align: center;"><b>Unacceptable</b></td><td style="text-align: center;">0</td></tr> </table>	<b>Acceptable</b>	5	<b>Marginal</b>	0	<b>Unacceptable</b>	0
<b>Acceptable</b>	5							
<b>Marginal</b>	0							
<b>Unacceptable</b>	0							
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;"><b>Total Number of Areas Rated</b></td><td style="text-align: center;">5</td></tr> </table>	<b>Total Number of Areas Rated</b>	5				
<b>Total Number of Areas Rated</b>	5							
<p><b>Acceptable Ratings</b> – 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).</p>								
<p><b>Marginal Ratings</b> – 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).</p>								
<p><b>Unsatisfactory Rating</b> - 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).</p>								
Consider recommending PAI Audit from DES when:	<ul style="list-style-type: none"> <li>&gt;60% of ratings are Marginal</li> <li>&gt;45% of ratings are a combination of Marginal or Unacceptable</li> <li>&gt;30% of ratings are Unacceptable</li> </ul>							

## 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     |
| 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.

# General Lab Criteria

<b>Preservation and Holding Times</b>						
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 $\text{H}_2\text{SO}_4$ 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 $\text{HNO}_3$ 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 $\text{H}_2\text{SO}_4$ 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