



Environmental
Protection Agency

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

July 23, 2012

Mayor and Council
Village of Arcanum
104 West South Street
Arcanum, Ohio 45304

**RE: Village of Arcanum WWTP
NPDES Permit 1PB00000*HD/OH0020940
Compliance Evaluation Inspection**

Dear Mayor and Council:

On July 10, 2012, Joe Miller and I met with Curt Garrison and Judy Foureman to discuss the proposed renewal of the NPDES permit for this facility, updates regarding compliance with the permit, and inspection of the treatment facility. Here is an overview of what we covered during our meeting and inspection:

NPDES Permit Renewal

The NPDES permit is set to expire on November 30, 2012. We have received the Village's application to renew this Permit and we have begun the process to evaluate any required changes to the permit to reflect current water quality standards and monitoring of pollutants that may have a reasonable potential to affect the water body use attainment.

There will be a change in the bacteria monitoring and limits at outfall 001. The new monitoring requirement will be e.coli with limits of 161 weekly and 362 monthly. Mr. Garrison requested a 1-year disinfection season to evaluate compliance with this limit, so we will put in an interim table to reflect this evaluation.

The sampling type for the final outfall will require 24-hour composite samples for those parameters currently requiring "composite" samples. We understand that a 24-hour composite sampler will be included in the proposed wastewater treatment modifications and we will reflect this requirement in the Part II language defining the description of temporary grab composites until treatment modifications are complete in accordance to the proposed orders.

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There will be the inclusion of monitoring for another nutrient parameter, total nitrogen kjeldahl, a change to the oil and grease description to the hexane extraction method and a determination made regarding monitoring of the two metals parameters, zinc and mercury. I will contact Mr. Garrison when the metals data review and evaluation is completed to relay the results.

There will be other minor changes to the Permit to reflect the elimination of CSOs, current operator certification language and bypass monitoring at the treatment lagoons. Once the permit is issued in draft form for the 30-day public notice period, we can meet to go over the permit requirements and answer any questions from the Village. The draft permit should be out for public notice in September.

Update to Compliance Issues

We understand that the village of Arcanum is reviewing the proposed Director's Findings and Orders to address the non-compliance issues with the NPDES permit.

The Village described the various efforts they have been using to aid their lagoon treatment system, such as alum application, probiotic bacteria usage and barley straw. If the Village intends to continue the use of each of these treatment systems, these should be incorporated into the application and detail plans for the proposed upgrades to the Village's treatment lagoons. This will ensure that the facility meets the legal requirements at OAC 3745-42-2 (A)(1). We did not discuss this requirement during our meeting, but I wanted to pass this along to ensure you comply with this legal requirement. Here is the link to that regulation requiring Permit to Install, or Plan Approvals for water pollution control systems:

<http://www.epa.ohio.gov/portals/35/rules/42-02.pdf>

We discussed Arcanum's CSO elimination project with sewer separation completed. In order to delist Arcanum as a CSO community and as the final step of the Long Term Control Plan (LTCP), Arcanum will need to submit their Post Construction Monitoring Plan. I have attached some guidelines our Division prepared to help communities come up with a plan. We request that you submit your plan for conducting the monitoring to this office along with your implementation schedule. For your information, Ohio EPA will be conducting stream sampling of the Stillwater River basin again next summer and we will coordinate the evaluation of Painter's Creek with your Post Construction Monitoring Plan. The planning process for the Stillwater sampling will begin this fall so please submit your plan to us by September 1, 2012.

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Compliance Evaluation Inspection

Joe Miller and I went over the questions with Curt Garrison on the attached NPDES Compliance Evaluation Inspection report form. I also went over the attached general lab criteria that our office is using to inspect labs or sampling equipment to ensure that quality sampling data is obtained as required by the Code of Federal Regulations (40 CFR 136.3 and Standard Methods for Wastewater Analysis). Please correct any items noted in the comments section of the inspection report and General Lab Criteria.

The only area rated as unsatisfactory in the Compliance Evaluation Inspection was effluent/receiving waters due to the chronic non-compliance with the NPDES effluent limits and observations of the discharge and receiving water. The pending Director's Final Findings and Orders will address those issues.

No response is required to the Compliance Evaluation Inspection. If you have any questions about this letter or the NPDES permit renewal, you may contact me at (937) 285-6101 or Mary.Osika@epa.ohio.gov.

Sincerely,



Mary Osika
Environmental Specialist
Division of Surface Water

Enclosures: NPDES Compliance Evaluation Inspection Report
General Lab Criteria evaluation at Arcanum WWTP
Guidelines for Post Construction Monitoring Plan

cc: Curt Garrison, Village of Arcanum w/enclosures
Shawn Smith, Village of Arcanum w/enclosures
Joe Miller, Ohio EPA, DSW-SWDO

MO/ca



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
1PB00000*HD	OH0020940	7/10/2012	Compliance	State	Public

Section B: Facility Data		
Name and Location of Facility Inspected	Entry Time	Permit Effective Date
Village of Arcanum Wastewater Treatment 19 Water Street Arcanum, Ohio	10:00 am	December 1, 2007
	Exit Time	Permit Expiration Date
	12:30 pm	November 30, 2012
Name(s) and Title(s) of On-Site Representatives	Phone Number(s)	
Curt Garrison, Village Administrator Judith Foureman, Mayor	(937) 692-8500 (937) 692-8500	
Name, Address and Title of Responsible Official	Phone Number	
Mayor and Council Village of Arcanum 104 West South Street Arcanum, Ohio 45304	(937) 692-8500	

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	N	Laboratory	N	Compliance Schedule
S	Operations & Maintenance	U	Effluent/Receiving Waters	S	Self-Monitoring Program
S	Facility Site Review	N	Sludge Storage/Disposal	S	Other
S	Collection System				

Section D: Summary of Findings (Attach additional sheets if necessary)
<ul style="list-style-type: none"> - Update operator certification posting with current licenses for all operators. - Late SSO annual report – NPDES Permit, Part II, Item G, 2. b) Annual Report – Due by March 31, 2012. Please submit by August 20, 2012. - Work on items noted in the General Lab Criteria form. Ohio EPA will rate compliance during the next compliance evaluation inspection.

Inspector	Reviewer
 Date: 7/23/2012	 Date: 7/23/2012
Mary Osika Environmental Specialist Division of Surface Water Southwest District Office	Martyn Burt Compliance & Enforcement Supervisor Division of Surface Water Southwest District Office

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..... N/A

Comments/Status:

Renewal application received 6/1/2012. Discussed some proposed changes to the permit, see inspection letter.

Section F: Compliance

- (a) Any permit 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..... N
- (g) Has biomonitoring shown toxicity in discharge since last inspection N/A

Comments/Status:

Facility is in chronic non-compliance. Finalizing proposed Director's Findings and Orders. See effluent limit violations listing during review period, pages 8 -14 of this report.

Section G: Operation & Maintenance

Treatment Works:

Treatment facility properly operated and maintained

- (a) Standby power available.....generator or dual feed Y
 - i. What does the back-up power source operate.....

all treatment components
 - ii. How often is the generator tested under load.....

monthly

(b) Which components have an alarm system available for power or equipment failures.....

All treatment components

- (c) All treatment units in service other than backup units..... Y
- (d) What method is used for scheduling routine & preventative maintenance (every day duties of operator.)..... Y
- (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..... N
- (h) Any plant upsets since last inspection..... N

Comments/Status:

(e) pump motor replaced by spare, repaired and placed in back up reserve
 (f) reviewed and updated on an annual basis by administration

Section G: Operation & Maintenance con't

Record Keeping/Operator of Record:

- (a) Wastewater Treatment Works classification (OAC 3745-7)..... I
- (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..... N/A
- (g) Operator of Record log book provided..... Y
- (h) Format of log book (e.g. computer log, hard bound 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:

(b)(c) please update operator certification posting with current licenses for all operators.

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..... 1
 - ii. How many pump stations have telemetered alarms..... 1
 - iii. How many pump stations have operable alarms..... 1
- (b) Any chronic collection system overflows since last inspection..... N
- (c) Regulatory agency notified of all overflows..... Y
- (d) CSOs in the collection system....if so, what is the LCTP status..... N
- LCTP approved, in process of delisting
- (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..... N
- (h) Any WIB complaint received since last inspection..... N
- (i) Is there a WIB response plan..... N
- (j) Is any portion of the collection system at or near dry weather Capacity..... N

Comments/Status:

Late SSO annual report – NPDES Permit, Part II, Item G, 2. b) Annual Report – Due by March 31, 2012. Please submit.

Section H: Sludge Management

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

* Sludge is stored in lagoon treatment system

- (b) Has amount of sludge generated changed significantly since the last inspection..... Y
- (c) How much sludge storage is provided at the plant.....
- (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
- (f) 5/8" screen at headworks for facilities that land apply sludge..... Y
- (g) Are sludge application sites inspected to verify compliance with NPDES permit..... N/A

Comments/Status:

(b) The facility used biological sludge digestion called "Bacta-Pure" in 3 applications occurring in fall 2010, spring 2011 and summer 2011. Resulted in reducing sludge depth by 9 inches across the lagoons.

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: June 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:

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:

Laboratory:

General

- (a) Does the Quality Assurance Manual contain written Standard Operating Procedures (SOP's) for all analysis performed onsite..... N
- (b) Do SOP's include the following if applicable:
 - 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. N
- (f) If (e) is yes, are results in permittee's self-monitoring report..... Y
- (g) Satisfactory calibration and maintenance of instruments/equipment. N/E (see score from GLC page)
- (h) Commercial laboratory used..... Y
Parameters analyzed by commercial lab: all except temp, pH, DO

Discharge Monitoring Report Quality Assurance (DMRQA)

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

Comments/Status:

Quality Check -Commercial lab data results checked against March 2012 DMR data.

Section J: Effluent/Receiving Water Observations

Outfall # 001

Outfall Description: light green discharge viewed at outfall weir

Receiving Stream: Sycamore ditch

Receiving Stream Description: Sycamore ditch very green with algae

Comments/Status:

Unsatisfactory Rating given to this section due to receiving stream description and effluent limit violations.
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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:

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**Village of Arcanum Wastewater Treatment Effluent Limit Violations
 Review Period of April 2010 – May 2012**

<u>Reporting Month</u>	<u>outfall</u>	<u>rep code</u>	<u>Parameter</u>	<u>limit type</u>	<u>limit</u>	<u>reported</u>	<u>vio date</u>
April 2010	001	00530	Total Suspended Solids	30D Conc	30	36.	4/1/2010
April 2010	001	00530	Total Suspended Solids	30D Qty	45.4	69.1912	4/1/2010
April 2010	001	00530	Total Suspended Solids	7D Qty	68.2	76.2090	4/1/2010
April 2010	001	00530	Total Suspended Solids	7D Qty	68.2	81.5326	4/8/2010
April 2010	001	00530	Total Suspended Solids	7D Qty	68.2	73.0107	4/22/2010
April 2010	001	00610	Nitrogen, Ammonia (NH3	30D Conc	4.1	4.875	4/1/2010
April 2010	001	00610	Nitrogen, Ammonia (NH3	7D Conc	6.2	6.5	4/1/2010
April 2010	001	00610	Nitrogen, Ammonia (NH3	30D Qty	6.2	9.47778	4/1/2010
April 2010	001	00610	Nitrogen, Ammonia (NH3	7D Qty	9.4	13.0228	4/1/2010
April 2010	001	00610	Nitrogen, Ammonia (NH3	7D Qty	9.4	11.5836	4/8/2010
April 2010	001	80082	CBOD 5 day	30D Conc	25.0	28.75	4/1/2010
April 2010	001	80082	CBOD 5 day	30D Qty	37.9	55.6934	4/1/2010
April 2010	001	80082	CBOD 5 day	7D Qty	60.6	71.2147	4/1/2010
April 2010	001	80082	CBOD 5 day	7D Qty	60.6	68.6523	4/8/2010
May 2010	001	00530	Total Suspended Solids	30D Conc	20	47.75	5/1/2010
May 2010	001	00530	Total Suspended Solids	7D Conc	30	46.5	5/1/2010
May 2010	001	00530	Total Suspended Solids	7D Conc	30	57.5	5/8/2010
May 2010	001	00530	Total Suspended Solids	7D Conc	30	49.5	5/15/2010
May 2010	001	00530	Total Suspended Solids	7D Conc	30	37.5	5/22/2010
May 2010	001	00530	Total Suspended Solids	30D Qty	30.2	82.9430	5/1/2010
May 2010	001	00530	Total Suspended Solids	7D Qty	45.4	99.6514	5/1/2010
May 2010	001	00530	Total Suspended Solids	7D Qty	45.4	102.984	5/8/2010
May 2010	001	00530	Total Suspended Solids	7D Qty	45.4	71.9623	5/15/2010
May 2010	001	00530	Total Suspended Solids	7D Qty	45.4	57.1743	5/22/2010
May 2010	001	00610	Nitrogen, Ammonia (NH3	30D Conc	1.5	1.675	5/1/2010
May 2010	001	00610	Nitrogen, Ammonia (NH3	7D Conc	2.3	2.4	5/15/2010
May 2010	001	00610	Nitrogen, Ammonia (NH3	7D Conc	2.3	2.35	5/22/2010
May 2010	001	00610	Nitrogen, Ammonia (NH3	30D Qty	2.3	2.84585	5/1/2010
May 2010	001	00610	Nitrogen, Ammonia (NH3	7D Qty	3.5	3.77667	5/15/2010
May 2010	001	00610	Nitrogen, Ammonia (NH3	7D Qty	3.5	3.5948	5/22/2010
May 2010	001	80082	CBOD 5 day	30D Conc	15.0	24.625	5/1/2010
May 2010	001	80082	CBOD 5 day	7D Conc	23.0	35.	5/1/2010
May 2010	001	80082	CBOD 5 day	7D Conc	23.0	33.	5/8/2010
May 2010	001	80082	CBOD 5 day	30D Qty	22.7	44.9374	5/1/2010
May 2010	001	80082	CBOD 5 day	7D Qty	34.8	75.3120	5/1/2010

May 2010	001	80082	CBOD 5 day	7D Qty	34.8	59.5039	5/8/2010
June 2010	001	00530	Total Suspended Solids	30D Conc	20	72.25	6/1/2010
June 2010	001	00530	Total Suspended Solids	7D Conc	30	75.	6/1/2010
June 2010	001	00530	Total Suspended Solids	7D Conc	30	81.	6/8/2010
June 2010	001	00530	Total Suspended Solids	7D Conc	30	65.5	6/15/2010
June 2010	001	00530	Total Suspended Solids	7D Conc	30	67.5	6/22/2010
June 2010	001	00530	Total Suspended Solids	30D Qty	30.2	102.217	6/1/2010
June 2010	001	00530	Total Suspended Solids	7D Qty	45.4	99.5114	6/1/2010
June 2010	001	00530	Total Suspended Solids	7D Qty	45.4	110.586	6/8/2010
June 2010	001	00530	Total Suspended Solids	7D Qty	45.4	104.189	6/15/2010
June 2010	001	00530	Total Suspended Solids	7D Qty	45.4	94.5833	6/22/2010
June 2010	001	80082	CBOD 5 day	30D Conc	15.0	16.4285	6/1/2010
June 2010	001	80082	CBOD 5 day	30D Qty	22.7	23.0890	6/1/2010
July 2010	001	00530	Total Suspended Solids	30D Conc	20	60.125	7/1/2010
July 2010	001	00530	Total Suspended Solids	7D Conc	30	69.	7/1/2010
July 2010	001	00530	Total Suspended Solids	7D Conc	30	54.	7/8/2010
July 2010	001	00530	Total Suspended Solids	7D Conc	30	71.5	7/15/2010
July 2010	001	00530	Total Suspended Solids	7D Conc	30	46.	7/22/2010
July 2010	001	00530	Total Suspended Solids	30D Qty	30.2	90.4066	7/1/2010
July 2010	001	00530	Total Suspended Solids	7D Qty	45.4	102.490	7/1/2010
July 2010	001	00530	Total Suspended Solids	7D Qty	45.4	92.5962	7/8/2010
July 2010	001	00530	Total Suspended Solids	7D Qty	45.4	100.287	7/15/2010
July 2010	001	00530	Total Suspended Solids	7D Qty	45.4	66.2526	7/22/2010
July 2010	001	80082	CBOD 5 day	30D Conc	15.0	33.5	7/1/2010
July 2010	001	80082	CBOD 5 day	7D Conc	23.0	82.	7/22/2010
July 2010	001	80082	CBOD 5 day	30D Qty	22.7	49.0909	7/1/2010
July 2010	001	80082	CBOD 5 day	7D Qty	34.8	117.123	7/22/2010
July 2010	001	00300	Dissolved Oxygen	1D Conc	5.0	4.07	7/19/2010
August 2010	001	00530	Total Suspended Solids	30D Conc	20	82.	8/1/2010
August 2010	001	00530	Total Suspended Solids	7D Conc	30	81.	8/1/2010
August 2010	001	00530	Total Suspended Solids	7D Conc	30	77.	8/8/2010
August 2010	001	00530	Total Suspended Solids	7D Conc	30	87.	8/15/2010
August 2010	001	00530	Total Suspended Solids	7D Conc	30	83.	8/22/2010
August 2010	001	00530	Total Suspended Solids	30D Qty	30.2	118.134	8/1/2010
August 2010	001	00530	Total Suspended Solids	7D Qty	45.4	116.297	8/1/2010
August 2010	001	00530	Total Suspended Solids	7D Qty	45.4	115.563	8/8/2010
August 2010	001	00530	Total Suspended Solids	7D Qty	45.4	122.126	8/15/2010
August 2010	001	00530	Total Suspended Solids	7D Qty	45.4	118.549	8/22/2010
August 2010	001	80082	CBOD 5 day	30D Conc	15.0	20.125	8/1/2010
August 2010	001	80082	CBOD 5 day	7D Conc	23.0	23.5	8/15/2010
August 2010	001	80082	CBOD 5 day	30D Qty	22.7	28.7205	8/1/2010
August 2010	001	00400	pH	1D Conc	9.0	9.1	8/6/2010
August 2010	001	00400	pH	1D Conc	9.0	9.1	8/9/2010
August 2010	001	00400	pH	1D Conc	9.0	9.1	8/10/2010
August 2010	001	00400	pH	1D Conc	9.0	9.1	8/12/2010
August 2010	001	00400	pH	1D Conc	9.0	9.1	8/13/2010
August 2010	001	00400	pH	1D Conc	9.0	9.1	8/16/2010
August 2010	001	00400	pH	1D Conc	9.0	9.1	8/17/2010
August 2010	001	00400	pH	1D Conc	9.0	9.1	8/19/2010
August 2010	001	00400	pH	1D Conc	9.0	9.1	8/24/2010

August 2010	001	00400	pH	1D Conc	9.0	9.1	8/26/2010
August 2010	001	00400	pH	1D Conc	9.0	9.1	8/31/2010
September 2010	001	00530	Total Suspended Solids	30D Conc	20	93.25	9/1/2010
September 2010	001	00530	Total Suspended Solids	7D Conc	30	89.	9/1/2010
September 2010	001	00530	Total Suspended Solids	7D Conc	30	89.	9/8/2010
September 2010	001	00530	Total Suspended Solids	7D Conc	30	89.	9/15/2010
September 2010	001	00530	Total Suspended Solids	7D Conc	30	106.	9/22/2010
September 2010	001	00530	Total Suspended Solids	30D Qty	30.2	69.0024	9/1/2010
September 2010	001	00530	Total Suspended Solids	7D Qty	45.4	114.640	9/1/2010
September 2010	001	00530	Total Suspended Solids	7D Qty	45.4	108.409	9/8/2010
September 2010	001	80082	CBOD 5 day	30D Conc	15.0	22.625	9/1/2010
September 2010	001	80082	CBOD 5 day	7D Conc	23.0	24.5	9/8/2010
September 2010	001	80082	CBOD 5 day	7D Conc	23.0	25.5	9/15/2010
September 2010	001	00400	pH	1D Conc	9.0	9.1	9/1/2010
September 2010	001	00400	pH	1D Conc	9.0	9.2	9/2/2010
September 2010	001	00400	pH	1D Conc	9.0	9.1	9/7/2010
September 2010	001	00400	pH	1D Conc	9.0	9.1	9/9/2010
September 2010	001	00400	pH	1D Conc	9.0	9.1	9/10/2010
September 2010	001	00400	pH	1D Conc	9.0	9.2	9/15/2010
September 2010	001	00400	pH	1D Conc	9.0	9.1	9/17/2010
October 2010	001	00530	Total Suspended Solids	30D Conc	20	94.	10/1/2010
October 2010	001	00530	Total Suspended Solids	7D Conc	30	92.	10/1/2010
October 2010	001	00530	Total Suspended Solids	7D Conc	30	111.	10/8/2010
October 2010	001	00530	Total Suspended Solids	7D Conc	30	78.	10/15/2010
October 2010	001	00530	Total Suspended Solids	7D Conc	30	95.	10/22/2010
October 2010	001	00530	Total Suspended Solids	30D Qty	30.2	76.2535	10/1/2010
October 2010	001	00530	Total Suspended Solids	7D Qty	45.4	47.6607	10/1/2010
October 2010	001	00530	Total Suspended Solids	7D Qty	45.4	92.3048	10/8/2010
October 2010	001	00530	Total Suspended Solids	7D Qty	45.4	75.7378	10/15/2010
October 2010	001	00530	Total Suspended Solids	7D Qty	45.4	89.3108	10/22/2010
October 2010	001	80082	CBOD 5 day	30D Conc	15.0	26.625	10/1/2010
October 2010	001	80082	CBOD 5 day	7D Conc	23.0	30.5	10/1/2010
October 2010	001	80082	CBOD 5 day	7D Conc	23.0	26.	10/8/2010
October 2010	001	80082	CBOD 5 day	7D Conc	23.0	25.	10/15/2010
October 2010	001	80082	CBOD 5 day	7D Conc	23.0	25.	10/22/2010
November 2010	001	00530	Total Suspended Solids	30D Conc	30	58.3333	11/1/2010
November 2010	001	00530	Total Suspended Solids	7D Conc	45	70.	11/1/2010
November 2010	001	00530	Total Suspended Solids	7D Conc	45	61.	11/8/2010
December 2010	001	00530	Total Suspended Solids	30D Conc	30	30.25	12/1/2010
January 2011	001	00610	Nitrogen, Ammonia (NH3	30D Conc	4.1	5.475	1/1/2011
January 2011	001	00610	Nitrogen, Ammonia (NH3	7D Conc	6.2	6.85	1/15/2011
January 2011	001	00610	Nitrogen, Ammonia (NH3	7D Conc	6.2	8.9	1/22/2011
January 2011	001	00665	Phosphorus, Total (P)	30D Conc	1.0	1.065	1/1/2011
February 2011	001	00530	Total Suspended Solids	30D Conc	30	35.125	2/1/2011
February 2011	001	00530	Total Suspended Solids	7D Conc	45	46.	2/22/2011
February 2011	001	00610	Nitrogen, Ammonia (NH3	30D Conc	4.1	10.3	2/1/2011
February 2011	001	00610	Nitrogen, Ammonia	7D Conc	6.2	11.9	2/1/2011

February 2011			(NH3 Nitrogen, Ammonia					
February 2011	001	00610	(NH3 Nitrogen, Ammonia	7D Conc	6.2	12.4	2/8/2011	
February 2011	001	00610	(NH3 Nitrogen, Ammonia	7D Conc	6.2	8.65	2/15/2011	
February 2011	001	00610	(NH3 Nitrogen, Ammonia	7D Conc	6.2	8.25	2/22/2011	
February 2011	001	00610	(NH3 Nitrogen, Ammonia	30D Qty	6.2	11.5363	2/1/2011	
February 2011	001	00610	(NH3 Nitrogen, Ammonia	7D Qty	9.4	13.7164	2/1/2011	
February 2011	001	00610	(NH3 Nitrogen, Ammonia	7D Qty	9.4	13.6805	2/8/2011	
February 2011	001	00610	(NH3 Nitrogen, Ammonia	7D Qty	9.4	9.4854	2/15/2011	
February 2011	001	80082	CBOD 5 day	30D Conc	25.0	30.875	2/1/2011	
February 2011	001	00665	Phosphorus, Total (P)	30D Conc	1.0	1.5575	2/1/2011	
February 2011	001	00665	Phosphorus, Total (P)	30D Qty	1.52	1.77225	2/1/2011	
March 2011	001	00530	Total Suspended Solids	30D Qty	45.4	54.2442	3/1/2011	
March 2011	001	00530	Total Suspended Solids	7D Qty	68.2	89.5152	3/1/2011	
March 2011	001	00530	Total Suspended Solids	7D Qty	68.2	102.709	3/8/2011	
March 2011	001	00610	(NH3 Nitrogen, Ammonia	30D Conc	4.1	8.3	3/1/2011	
March 2011	001	00610	(NH3 Nitrogen, Ammonia	7D Conc	6.2	7.3	3/1/2011	
March 2011	001	00610	(NH3 Nitrogen, Ammonia	7D Conc	6.2	6.7	3/8/2011	
March 2011	001	00610	(NH3 Nitrogen, Ammonia	7D Conc	6.2	9.05	3/15/2011	
March 2011	001	00610	(NH3 Nitrogen, Ammonia	7D Conc	6.2	10.15	3/22/2011	
March 2011	001	00610	(NH3 Nitrogen, Ammonia	30D Qty	6.2	19.4896	3/1/2011	
March 2011	001	00610	(NH3 Nitrogen, Ammonia	7D Qty	9.4	14.7177	3/1/2011	
March 2011	001	00610	(NH3 Nitrogen, Ammonia	7D Qty	9.4	26.3358	3/8/2011	
March 2011	001	00610	(NH3 Nitrogen, Ammonia	7D Qty	9.4	22.1335	3/15/2011	
March 2011	001	00610	(NH3 Nitrogen, Ammonia	7D Qty	9.4	14.7715	3/22/2011	
March 2011	001	80082	CBOD 5 day	30D Qty	37.9	48.7001	3/1/2011	
March 2011	001	80082	CBOD 5 day	7D Qty	60.6	63.7659	3/1/2011	
March 2011	001	80082	CBOD 5 day	7D Qty	60.6	97.1969	3/8/2011	
March 2011	001	00665	Phosphorus, Total (P)	30D Qty	1.52	2.03317	3/1/2011	
April 2011	001	00530	Total Suspended Solids	30D Qty	45.4	60.0102	4/1/2011	

April 2011	001	00530	Total Suspended Solids	7D Qty	68.2	143.676	4/22/2011
April 2011	001	00610	Nitrogen, Ammonia	30D Conc	4.1	5.3	4/1/2011
April 2011	001	00610	(NH3 Nitrogen, Ammonia	7D Conc	6.2	9.3	4/1/2011
April 2011	001	00610	(NH3 Nitrogen, Ammonia	7D Conc	6.2	6.7	4/8/2011
April 2011	001	00610	(NH3 Nitrogen, Ammonia	30D Qty	6.2	11.5035	4/1/2011
April 2011	001	00610	(NH3 Nitrogen, Ammonia	7D Qty	9.4	10.0787	4/1/2011
April 2011	001	00610	(NH3 Nitrogen, Ammonia	7D Qty	9.4	20.5063	4/8/2011
April 2011	001	80082	CBOD 5 day	30D Qty	37.9	68.2539	4/1/2011
April 2011	001	80082	CBOD 5 day	7D Qty	60.6	64.5323	4/15/2011
April 2011	001	80082	CBOD 5 day	7D Qty	60.6	139.974	4/22/2011
May 2011	001	00530	Total Suspended Solids	30D Conc	20	42.375	5/1/2011
May 2011	001	00530	Total Suspended Solids	7D Conc	30	36.	5/1/2011
May 2011	001	00530	Total Suspended Solids	7D Conc	30	39.	5/8/2011
May 2011	001	00530	Total Suspended Solids	7D Conc	30	41.	5/15/2011
May 2011	001	00530	Total Suspended Solids	7D Conc	30	53.5	5/22/2011
May 2011	001	00530	Total Suspended Solids	30D Qty	30.2	95.9705	5/1/2011
May 2011	001	00530	Total Suspended Solids	7D Qty	45.4	171.534	5/1/2011
May 2011	001	00530	Total Suspended Solids	7D Qty	45.4	111.574	5/8/2011
May 2011	001	00530	Total Suspended Solids	7D Qty	45.4	50.9934	5/15/2011
May 2011	001	00530	Total Suspended Solids	7D Qty	45.4	49.7803	5/22/2011
May 2011	001	80082	CBOD 5 day	30D Conc	15.0	26.875	5/1/2011
May 2011	001	80082	CBOD 5 day	7D Conc	23.0	36.	5/1/2011
May 2011	001	80082	CBOD 5 day	7D Conc	23.0	27.	5/8/2011
May 2011	001	80082	CBOD 5 day	7D Conc	23.0	24.	5/22/2011
May 2011	001	80082	CBOD 5 day	30D Qty	22.7	76.6419	5/1/2011
May 2011	001	80082	CBOD 5 day	7D Qty	34.8	172.811	5/1/2011
May 2011	001	80082	CBOD 5 day	7D Qty	34.8	86.1693	5/8/2011
May 2011	001	00665	Phosphorus, Total (P)	30D Conc	1.0	1.045	5/1/2011
May 2011	001	00665	Phosphorus, Total (P)	30D Qty	1.52	1.88853	5/1/2011
June 2011	001	00530	Total Suspended Solids	30D Conc	20	48.375	6/1/2011
June 2011	001	00530	Total Suspended Solids	7D Conc	30	42.	6/1/2011
June 2011	001	00530	Total Suspended Solids	7D Conc	30	50.	6/8/2011
June 2011	001	00530	Total Suspended Solids	7D Conc	30	49.5	6/15/2011
June 2011	001	00530	Total Suspended Solids	7D Conc	30	52.	6/22/2011
July 2011	001	00530	Total Suspended Solids	30D Conc	20	56.	7/1/2011

July 2011	001	00530	Total Suspended Solids	7D Conc	30	58.	7/1/2011
July 2011	001	00530	Total Suspended Solids	7D Conc	30	54.	7/8/2011
August 2011	001	00530	Total Suspended Solids	30D Conc	20	32.	8/1/2011
August 2011	001	00530	Total Suspended Solids	7D Conc	30	32.	8/22/2011
August 2011	001	00400	pH	1D Conc	9.0	9.5	8/26/2011
September 2011	001	00530	Total Suspended Solids	30D Conc	20	43.	9/1/2011
September 2011	001	00530	Total Suspended Solids	7D Conc	30	43.	9/22/2011
September 2011	001	00530	Total Suspended Solids	30D Qty	30.2	40.5051	9/1/2011
September 2011	001	00400	pH	1D Conc	9.0	9.6	9/20/2011
September 2011	001	00400	pH	1D Conc	9.0	9.1	9/21/2011
September 2011	001	00400	pH	1D Conc	9.0	9.3	9/22/2011
September 2011	001	00400	pH	1D Conc	9.0	9.3	9/23/2011
September 2011	001	00400	pH	1D Conc	9.0	9.2	9/26/2011
September 2011	001	00400	pH	1D Conc	9.0	9.4	9/27/2011
September 2011	001	00400	pH	1D Conc	9.0	9.1	9/28/2011
September 2011	001	00400	pH	1D Conc	9.0	9.1	9/30/2011
October 2011	001	00530	Total Suspended Solids	30D Conc	20	44.5	10/1/2011
October 2011	001	00530	Total Suspended Solids	7D Conc	30	70.	10/1/2011
October 2011	001	00530	Total Suspended Solids	7D Conc	30	36.5	10/8/2011
October 2011	001	00530	Total Suspended Solids	7D Conc	30	32.5	10/15/2011
October 2011	001	00530	Total Suspended Solids	7D Conc	30	39.	10/22/2011
October 2011	001	00400	pH	1D Conc	9.0	9.2	10/3/2011
October 2011	001	00400	pH	1D Conc	9.0	9.3	10/4/2011
October 2011	001	00400	pH	1D Conc	9.0	9.2	10/12/2011
October 2011	001	00400	pH	1D Conc	9.0	9.2	10/13/2011
October 2011	001	00400	pH	1D Conc	9.0	9.2	10/25/2011
October 2011	001	00400	pH	1D Conc	9.0	9.1	10/31/2011
November 2011	001	00400	pH	1D Conc	9.0	9.2	11/1/2011
November 2011	001	00400	pH	1D Conc	9.0	9.2	11/2/2011
November 2011	001	00400	pH	1D Conc	9.0	9.2	11/3/2011
November 2011	001	00400	pH	1D Conc	9.0	9.1	11/4/2011
November 2011	001	00400	pH	1D Conc	9.0	9.1	11/8/2011
November 2011	001	00400	pH	1D Conc	9.0	9.1	11/10/2011
December 2011	001	00665	Phosphorus, Total (P)	30D Qty	1.52	1.75184	12/1/2011
January 2012	001	00610	Nitrogen, Ammonia (NH3	30D Conc	4.1	4.5375	1/1/2012
January 2012	001	00610	Nitrogen, Ammonia (NH3	30D Qty	6.2	6.49194	1/1/2012
January 2012	001	00610	Nitrogen, Ammonia (NH3	7D Qty	9.4	9.6122	1/22/2012
February 2012	001	00610	Nitrogen, Ammonia (NH3	30D Conc	4.1	4.73333	2/1/2012
March 2012	001	00530	Total Suspended Solids	30D Conc	30	41.375	3/1/2012
March 2012	001	00530	Total Suspended Solids	7D Conc	45	56.5	3/22/2012
March 2012	001	80082	CBOD 5 day	30D Conc	25.0	25.375	3/1/2012
April 2012	001	00530	Total Suspended Solids	30D Conc	30	69.75	4/1/2012
April 2012	001	00530	Total Suspended Solids	7D Conc	45	73.	4/1/2012
April 2012	001	00530	Total Suspended Solids	7D Conc	45	75.	4/8/2012
April 2012	001	00530	Total Suspended Solids	7D Conc	45	70.	4/15/2012
April 2012	001	00530	Total Suspended Solids	7D Conc	45	61.	4/22/2012

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April 2012	001	80082	CBOD 5 day	30D Conc	25.0	30.25	4/1/2012
April 2012	001	00400	pH	1D Conc	9.0	9.2	4/6/2012
April 2012	001	00400	pH	1D Conc	9.0	9.3	4/9/2012
April 2012	001	00400	pH	1D Conc	9.0	9.5	4/12/2012
April 2012	001	00400	pH	1D Conc	9.0	9.5	4/13/2012
April 2012	001	00400	pH	1D Conc	9.0	9.1	4/17/2012
April 2012	001	00400	pH	1D Conc	9.0	9.2	4/18/2012
May 2012	001	00530	Total Suspended Solids	30D Conc	20	73.	5/1/2012
May 2012	001	00530	Total Suspended Solids	7D Conc	30	64.	5/1/2012
May 2012	001	00530	Total Suspended Solids	7D Conc	30	72.	5/8/2012
May 2012	001	00530	Total Suspended Solids	7D Conc	30	67.	5/15/2012
May 2012	001	00530	Total Suspended Solids	7D Conc	30	89.	5/22/2012
May 2012	001	00530	Total Suspended Solids	30D Qty	30.2	40.8950	5/1/2012
May 2012	001	00530	Total Suspended Solids	7D Qty	45.4	49.1482	5/1/2012
May 2012	001	00530	Total Suspended Solids	7D Qty	45.4	49.6667	5/8/2012
May 2012	001	80082	CBOD 5 day	30D Conc	15.0	18.125	5/1/2012

CSO Long-Term Control Plan – Guidelines for Post-Construction Monitoring Plan
Ohio EPA Division of Surface Water (7/17/12)

The following are items that the permittee should generally address as part of a CSO Post-Construction Monitoring Plan:

- A summary of the control projects that were constructed and their completion dates;
- A summary list of CSOs that includes:
 - A listing & map of all original overflow locations in the system with GPS coordinates;
 - A list of all overflow locations that have been eliminated (meaning permanently sealed) with dates of elimination and photographic documentation;
 - A listing & map of overflow locations that are being used as storm water outfalls with GPS coordinates;
 - A list of overflow locations that will remain CSOs;
- For the overflows that are being used as storm water outfalls, provide details of a program to ensure all sanitary connections have been removed from the outfall:
 - The program should include visual screening during several dry weather events;
 - Visual inspections should be performed on separate days, during different days of the week and at different times of the day;
 - Documentation for all visual inspections including:
 - outfall number
 - date and time of inspection
 - staff performing inspection
 - date and rainfall amount for last precipitation event
 - pipe flow observed (e.g., none, <1/4 full, <1/2 full, etc.)
 - comment section (odors, color, turbidity, floatables, etc.)
 - Water quality testing: any flow observed during dry weather inspections should be tested for wastewater indicators [refer to the Cuyahoga County Board of Health's *Illicit Discharge Detection and Elimination Program Manual* (2006); see Table 3-2 and text; available at [http://ohioswa.com/documents/IDDE Manual July 2006 2.pdf](http://ohioswa.com/documents/IDDE_Manual_July_2006_2.pdf)]
- For the overflows that are to remain CSOs, provide details of a program to determine if the performance goals of the LTCP have been met (e.g., 4 or less overflows during a typical year):
 - Program should discuss any model revision/recalibration efforts;
 - Program should include discussion of the collection system and CSO monitoring that will be performed to:
 - Accurately characterize overflow characteristics (occurrences, volumes)
 - Provide information for model verification
 - Compare model output to monitoring data and evaluate model's ability to accurately characterize collection system performance and overflows;
 - Discussion of the Typical Year of rainfall to be used for modeling;
 - Model output when run with the typical year rainfall data (i.e., summary table of CSO occurrences and volumes from the typical year analysis)
- Discussion of any additional flows that may be tied into the system from outside the Village;
- A final summary assessment of whether the goals of the LTCP have been met.

Arcanum 7/10/12 General Lab Criteria

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	
	<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 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 type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
<ul style="list-style-type: none"> • Other 	<ul style="list-style-type: none"> • Instrument manual available 	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	<ul style="list-style-type: none"> • Teflon covered magnetic stirrer or equivalent for mixing⁸ 	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

Comments:

Arcanum using pH probe. The 10 buffer expired in March 2012. Check to make sure calibration meets manufacturer specifications and probe record keeping is done for this instrument. Locate instrument manual.

Criteria	Standard Methods Requirement	Acceptable?		Rating
Dissolved Oxygen Meter				
<ul style="list-style-type: none"> • Calibration Method 	<ul style="list-style-type: none"> • Air or known DO calibration method¹⁰ 	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	<ul style="list-style-type: none"> • Calibration per manufacturer specification¹⁰ 	<input 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 type="checkbox"/> Yes	<input type="checkbox"/> No	
	<ul style="list-style-type: none"> • Instrument manual available 	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

Comments:

Arcanum using D.O. probe. Check to make sure calibration meets manufacturer specifications and probe record keeping is done for this instrument. Locate instrument manual.

Arcanum 7/10/12 General Lab Criteria

Criteria	Standard Methods Requirement	Acceptable?		Rating
Sample Collection/Handling				
• Sample Labeling	• Samples container labeled (description, date, time, preservative added, initialed). ¹⁹	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
• Chain of Custody	• Chain of custody (description, date, time, signature). ¹⁹	<input type="checkbox"/> Yes	<input checked="" 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 type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	• SOP for cleaning of sampling equipment	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	• Logbook being maintained ²	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	

Comments:

Arcanum uses bottles from MASI lab. If bottles contain ID numbers that match the Chain of Custody description, then sample labeling is sufficient. At time of inspection, no Chain of Custody (COC) forms present for samples. Arcanum has called MASI to submit COC back to them after completion. Equipment blanks not used. No SOP for cleaning of sampling equipment. No logbook for sample collection cleaning/maintenance.

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

Comments:

N/A

Criteria	Standard Methods Requirement	Acceptable?		Rating
Bench sheets				
• General criteria	• Date(s) ²	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Analyst initials ²	<input type="checkbox"/> Yes	<input checked="" 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:

Arcanum bench sheets for pH, D.O were satisfactory with the exception of initials for person taking the reading.

Arcanum 7/10/12 General Lab Criteria

Criteria	Standard Methods Requirement		Rating
Incubator (CBOD/ E-Coli)	Acceptable?		
• Temperature Recordkeeping	• Temperature checked / recorded twice daily for each shelf in use ¹ (E-Coli)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	• Temperature checked / recorded daily ² (CBOD)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	• Acceptable temperature range (CBOD) is 20° C ±1.0 ^{o12}	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	• Acceptable temperature range (E-Coli) is 35° C ±0.5 ^{o22}	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	• Logbook maintained ²	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• Temperature Calibration / Documentation	• Thermometer calibrated annually with NIST traceable thermometer ^{1,2}	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	• Temperature correction information posted on incubator ¹	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• E-Coli can use multiple tubes (five 20 ml or ten 10 ml), or mfg's multi-well tray	• E-coli Ultraviolet lamp (365 nm wave length, 6 W bulb) ²³	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• Other	• Instrument manual available	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	• Temperature Log (thermometer accurate to 0.5 Celsius). ¹	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Comments :

N/A

Criteria	Standard Methods Requirement		Rating
Refrigerator	Acceptable?		
• Temperature Recordkeeping	• Temperature Log (thermometer accurate to 0.5 Celsius). ⁵	<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	
• Other	• Thermometer held in water bath. ¹	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	• Refrigerator temperature ≤6° Celsius. ¹³	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	• Do not store volatile solvents, food, or beverages. ¹⁴	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Comments:

Arcanum using mercury thermometer. Arcanum will need to acquire an appropriate thermometer for the refrigerator that can be calibrated with NIST traceable thermometer. Refrigerator is also storing bleach and other bottles. Only samples can be kept in the sample refrigerator.

Arcanum 7/10/12 General Lab Criteria

Criteria	Standard Methods Requirement	Acceptable?		Rating
Hot Water Bath (Fecal Coliform/E. Coli)				
• Temperature Recordkeeping	• Temperature Log (thermometer accurate to 0.2° C) ²¹	<input 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 type="checkbox"/> No	
	• Log book being maintained ²	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Water Level	• Thermometer total immersion or partial (line on thermometer to ID immersion depth) ^{1, 5}	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

Comments:

N/A

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

Comments:

N/A

Arcanum 7/10/12 General Lab Criteria

Criteria	Standard Methods Requirement	Acceptable?		Rating
Chlorine Meter • Calibration Frequency / Documentation • Calibration Method • Slope Documentation / Acceptability • Other	• pH / millivolt meter read to 0.1 mV ¹⁵	<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) ³	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Calibration using three iodate solutions 0.2, 1.0, 5.0 milliliters or calibration per manufacturer specification ¹⁶	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Standards used for calibration not expired	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Calibration curve (acceptable slope)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Electrode free of deposits and foreign material	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Log book being maintained. ²	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Instrument manual available	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
Comments: : N/A				

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

Arcanum 7/10/12 General Lab Criteria

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

Comments: :

N/A

Criteria	Standard Methods Requirement	Acceptable?		Rating
Drying Oven (Suspended Solids)				
• Temperature Recordkeeping	• Temperature recorded with each use ⁴	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Log book maintained ²	<input 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 type="checkbox"/> No	
• Other	• Thermometer temperature accurate to 0.5° Celsius ⁵	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Acceptable temperature range is 103° – 105° C ⁴	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Instrument manual available	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

Comments: :

N/A

Arcanum 7/10/12 General Lab Criteria

Criteria	Standard Methods Requirement	Acceptable?	Rating
Final Effluent Temperature Monitoring			
• 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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	• Log book being maintained ²	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Comments: Arcanum will need to acquire appropriate thermometers for final effluent temperature monitoring. The permit calls for continuous temperature monitoring, not grab. A maximum indicating thermometer is recommended that can be calibrated with an NIST traceable thermometer.			
Number of Criteria Rated:		Acceptable	
		Marginal	
		Unacceptable	
		Total Number of Areas Rated	
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 |
| 13 CFR 136.3, Table II | 26 Method 9020 B, Table IV |

Arcanum 7/10/12 General Lab Criteria

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
NH ₃ -N	P, G	500	G, C	Analyze as soon as possible or add H ₂ 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 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 ₂ 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-NH ₃ 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