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

January 31, 2013

Re: Harrison County
Hopedale Mining, LLC
(Hopedale Mining and Prep Plant)
Compliance Evaluation Inspection
NPDES Permit 0IL00093*HD
Correspondence (IWW)

Mr. Bruce Hann, General Manager
Hopedale Mining, LLC
P.O. Box 415
86900 Sinfield Road
Hopedale, Ohio 43976

Dear Mr. Hann:

On September 26, 2012, I conducted a Compliance Evaluation Inspection at the Hopedale Mining facility, located at 86390 Sinfield Road, Hopedale, Ohio. Mr. Jared Barcalow, Engineer, represented Hopedale Mining, LLC, and accompanied me during the inspection.

The purpose of the inspection was to determine Hopedale Mining's compliance with NPDES Permit Number 0IL00093*HD and the Ohio Water Pollution Control Act, Revised Code Chapter 6111, and was also for the purpose of renewing the permit.

As a result of the inspection and review of our files, I have the following comments:

1. Regarding the older sewage treatment facility (outfall 0IL00093010), there were weeds in the sand filters. The aeration tank water appeared gray and smelled septic, indicating inadequate aeration. It appeared that coal fines were also washing into the aeration tank from storm runoff. No aeration was running at the time of the inspection. One of the two aeration blowers was missing, which appeared to be due to recent maintenance activity. The dosing tank was full, with water appearing slightly gray. It was not verified whether the pumps were operable. The chlorinator inlet pipe was separated; chlorine pucks were present, but some appeared stuck and possibly not feeding correctly. The dechlorinator did contain dechlorination chemical pucks. The treatment plant operation and maintenance was not satisfactory and needs more daily attention, in accordance with Part III, Item 3, of the permit.

2. We drove along the west side of the coal refuse disposal area and then south through the middle of it. Regarding the coal contaminated runoff treatment pond system (outfall 0IL00093009), sodium hydroxide was being fed to the inlet of the pond system; flocculant chemical was on-hand for use. The mixer in cell #1 was not operating, because this small cell had been pumped down to pump solids to the impoundment. This treatment cell appeared to have no constructed clay liner, when viewed around the perimeter during this period of low water level. Please let us know how this was constructed, and whether a clay liner was installed. Outfall 009 effluent was clear, appeared to be of good quality, with some slight foam, and flow was heavy.

3. Regarding the outfall 0IL00093012 sewage treatment facility, the facility is relatively new and appeared to be in good condition and operating properly. Effluent appeared to be of good quality. The constructed pond which receives the effluent from the treatment system was covered in duck weed; water quality appeared to be normal.

   A review of the Discharge Monitoring Reports for the facility for the period August 2011 through September 2012, showed the following limitation violations:

Reporting Period	Station	Reporting Code	Parameter	Limit Type	Limit	Reported Value	Violation Date
Jan. 2012	012	00530	Total Suspended Solids	30D Conc	12	30.	1/1/2012
Jan. 2012	012	00530	Total Suspended Solids	1D Conc	18	30.	1/19/2012
June 2012	010	50060	Chlorine, Total Residual	1D Conc	0.019	.12	6/1/2012
June 2012	012	50060	Chlorine, Total Residual	1D Conc	0.019	.05	6/7/2012
June 2012	010	50060	Chlorine, Total Residual	1D Conc	0.019	.05	6/21/2012
Aug. 2012	012	50060	Chlorine, Total Residual	1D Conc	0.019	.05	8/16/2012

Please be advised that failure to comply with the effluent limitations or to satisfy the monitoring or reporting requirements of your NPDES permit may be cause for enforcement action pursuant to the Ohio Revised Code Chapter 6111.

Also, you are reminded that you are required to report any non-compliance that is the result of any violation of a daily maximum discharge limit or due to an upset or unanticipated bypass that results in an exceedance of any effluent limitation within 24 hours of discovery by email or telephone, with a written follow-up notice within 5 days. Report all other instances of NPDES permit non-compliance on your Discharge Monitoring Report.

If you have not already done so, please inform this office, in writing, as to the reasons for the above-referenced violations, as well as a description of the actions taken or proposed to prevent any further violations. Your response should include the dates, either actual or proposed, for completion of the actions.

Overall, the facility appeared to be in substantial compliance with the NPDES permit on the day of the inspection with the exception of the condition of the older sewage treatment facility.

Attached is a copy of the inspection report which indicates a marginal evaluation of the following area: Operations and Maintenance. I gave this rating because of the deficiencies mentioned in the above comments related to the outfall 010 sewage treatment system. Hopedale Mining, LLC, should take the appropriate actions to return the facility to compliance with all terms and conditions of the NPDES permit.

Please respond to this letter by March 1, 2013.

The Ohio EPA strongly encourages pollution prevention as the preferred approach for waste management. The first priority of pollution prevention is to eliminate the generation of wastes and pollutants at the source (source reduction). For those wastes or pollutants that are generated, the second priority is to recycle or reuse them in an environmentally sound manner. You can benefit economically, help preserve the environment, and improve your public image by implementing pollution prevention programs. For more information about pollution prevention, including fact sheets and U.S. EPA's Facility Pollution Prevention Guide, (EPA/600/R-92/088), you may contact the Ohio EPA Pollution Prevention Section at (614) 644-3469 or me for additional information.

Sincerely,

Dan Messerly
District Staff Engineer
Division of Surface Water

DM/dh

Enclosure

State of Ohio Environmental Protection Agency
Southeast District Office

Industrial NPDES Compliance Inspection Report

Section A: National Data System Coding					
Permit #	**NPDES #**	**Month/Day/Year**	**Inspection Type**	**Inspector**	**Facility Type**
0IL00093*HD	OH0011827	September 2, 2012	C	S	2

Section B: Facility Data		
Name and Location of Facility Inspected	**Entry Time**	**Permit Effective Date**
Hopedale Mining, LLC (Mine and Prep Plant) 86900 Sinfield Road Hopedale, Ohio 43976	~2:00 p.m.	June 1, 2006
	Exit Time	**Permit Expiration Date**
	4:30 p.m.	May 31, 2011
Name(s) and Title(s) of On-Site Representative(s)	**Phone Number(s)**	
Jared Barcalow, Engineer Burt Garafolo, Senior Mining Engineer Robert Henderson, Preparation Plant Superintendant	(740) 937-2225, ext. 111 (740) 937-2225, ext. 105 (740) 937-2225, ext. 205	
Name, Address, and Title of Responsible Official	**Phone Number**	
Bruce Hann, General Manager Hopedale Mining, LLC P.O. Box 415, 86900 Sinfield Road Hopedale, Ohio 43976	(740) 937-2225, ext. 101	

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

Section D: Summary of Findings (attach additional sheets if necessary)

See cover letter.
* Regarding sludge storage/disposal in (C) above, see comment in Section H, item (h).

100 employees (max.) at office/bathouse
20 employees at nearby coal prep. plant

Inspector	Reviewer
Dan Messerly 1-31-13	Jennifer M. Witte 1/31/13
Dan Messerly Date Division of Surface Water Southeast District Office	**Jennifer M. Witte** Date Compliance & Enforcement Supervisor Division of Surface Water Southeast District Office

Permit #: 0IL00093*HD
NPDES #: OH0011827

Sections E through 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)	Correct name and location of receiving waters	Y
(c)	Do Categorical Standards apply? If yes, list applicable standards	Y
	Coal Mining point source category	
(d)	Product(s) and production rates conform with permit application (Industries)	Y
(e)	Flows and loadings conform with NPDES permit	Y
(f)	Treatment processes are as described in permit application	Y
(g)	All discharges are permitted	Y
(h)	Number and location of discharge points are as described in permit	Y
(i)	Storm water discharges properly permitted	Y

Comments/Status:

(a) mailing address should still be P. O. Box 415, however, facility location should now be 86900 Sinfield Road where there is a new office building (it is near the Prep Plant).

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	N
(e)	Compliance schedule contained in	N/A
(f)	Permittee is in compliance with schedule	N/A
(g)	Has biomonitoring shown toxicity in discharge since last inspection	N/A

Comments/Status:

Section G: Operation and Maintenance

Treatment Works:

Treatment facility properly operated and maintained

(a) Standby power available generator ☐ or dual feed ☐ ..... N

i. What does the back-up power source operate

ii. How often is the generator tested under load

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

coal treatment pond system has pH meter which has continuous readout at the office (display box on wall) on Sinfield Rd., and this displays red when pH limit is exceeded; new STP system has alarm light on P.S.; do daily walk around to each outfall, treatment system, to monitor conditions; older STP does not have alarm(s).

(c) All treatment units in service other than backup units ..... Y

(d) What method is used for scheduling routine and preventative maintenance (calendar, software, etc.)

as needed, based on daily checks.

(e) Any major equipment breakdown since last inspection ..... N

(f) Operation and maintenance manual provided and maintained ..... Y

(g) Any plant bypasses since last inspection ..... N

(h) Any plant upsets since last inspection ..... N

Comments/Status:

(e) minor part breakdowns, repairs
(f) new stp has O/M manual; did not know if old stp had O/M manual

Section H: Sludge Management

(a) Method of Sludge Disposal.....

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

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

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

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% Solids without Unstabilized Solids	Option 8 - >75% Solids with Unstabilized Solids
Alternative 1 – Time and Temperature Regime (84369)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 2 – High pH and High Temperature (84369)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 3 – Other Processes (84369)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 4 – Unknown Processes (84369)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 5 – Composting (84397)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 5 – Heat Drying (84397)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 5 – Heat Treatment (84397)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 5 – Thermophilic Aerobic Digestion (84397)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 5 – Beta Ray Irradiation (84397)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 5 – Gamma Ray Irradiation (84397)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 5 – Pasteurization (84397)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 6 – Approved Equivalent Process	☐	☐	☐	☐	☐	☐	☐	☐

Class B – Sewage Sludge (monitoring station 581)

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% Solids without Unstabilized Solids	Option 8 - >75% Solids with Unstabilized Solids	Option 9 – Land Injection	Option 10 – Immediate Incorporation
Alternative 1 – Geometric Mean of Seven Fecal Samples (84369)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 2 – Aerobic Digestion (46396)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 2 – Air Drying (46396)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 2 – Anaerobic Digestion (46396)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 2 – Composting (46396)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 2 – Lime Treatment (46396)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 3 – Approved Equivalent Process	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

(b) Has amount of sludge generated changed significantly since the last inspection ..... N

(c) How much sludge storage is provided at the plant

standard storage on new wwtp; old STP does not have sludge storage.

(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 ..... N/A

(g) Are sludge application sites inspected to verify compliance with NPDES permit ..... N/A

(h) Is a contractor used for sludge disposal ..... N

If so, what is the name of the contractor

Comments/Status:

(a) have not had sludge to dispose of to-date; new STP sludge holding tank is reportedly about 30% full and will need to be disposed of in about 6+ mos.; permittee must be certain that sludge is being captured and disposed of properly at older sewage treatment facility.
(h) intend to use QES to direct disposal

Section I: Self-Monitoring Program

Flow Measurement:

(a) Primary/Secondary flow measuring devices operated and maintained..... Y

Type of device (e.g., weir with ultrasonic level sensor):

009 measure level in large pipe (estimate)
010 measure level in pipe (estimate)
012 measure level in pipe (estimate)

(b) Calibration frequency adequate..... Y

Date of last calibration:

N/A

(c) 24-hour recording instruments operated and maintained..... N/A

(d) Flow measurement equipment adequate to handle full range of flows ..... Y

(e) Actual flow discharged is measured ..... N

(f) Flow measuring equipment inspection frequency

Daily: ☒ Weekly: ☐ Monthly: ☐ Other: ☐

Comments/Status:

(d) this method of flow estimation (measuring flow level in pipe cross section) is not ideal; method improvements should be studied.

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 (see GLC page)	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	N/E

- Title
- Scope and Application
- Summary
- Sample Handling & 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 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	N
(f)	If (e) is yes, are results in permittee's self-monitoring report	N/A
(g)	Satisfactory calibration and maintenance of instruments/equipment (see score from GLC page)	Y
(h)	Commercial laboratory used	Y

Parameters analyzed by commercial lab: **At coal pond (009): Hopedale Mining does flow, pH, Iron daily checks using Hach kit, and reports all result to QES; QES does these parameters 2X/month plus any additional parameters.**
At the STP's (010, 012), Harrison Mining does flow, color, odor, turbidity, and reports results to QES; and QES does the remaining.
Lab name: **Quality Environmental Services (QES)**

Discharge Monitoring Report Quality Assurance (DMRQA)

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

Comments/Status:

(h) permittee must note that when parameters are sampled more frequently than required by the permit, the results must be reported in the discharge monitoring report (DMR), provided that proper (acceptable in accordance with 40 CFR 136) sampling procedures were utilized (see Part III, Item 5, of the permit).

Section J: Effluent/Receiving Water Observations

Outfall #: **009- coal contaminated wastewater treatment pond system**
010- sewage treatment plant effluent
012- sewage treatment plant effluent

Outfall Description: **009- clear, heavy flow, good appearance, slight foam**
010- no discharge
012- clear, good appearance

Receiving Stream: **009- UT to Cross Creek**
010- UT to Cross Creek
012- UT's to Cross Creek
Receiving Stream Description: **009- satisfactory**
010- N/E for 010
012- N/E for 012

Comments/Status:

Section K: Multimedia Observations

(a) Are there indications of sloppy housekeeping or poor maintenance in work & storage areas or laboratories ..... N/E
(b) Do you notice staining or discoloration of soils, pavement or floors ..... N
(c) Do you notice distressed (unhealthy, discolored, dead) vegetation ..... N/E
(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/E

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:

General Lab Criteria

Facility: Hopedale Mining LLC, 0IL00092*HD, 6/2/11

Criteria	Standard Methods Requirement			Rating
Balance		**Acceptable?**		
• Standard Weights	• Either NIST Class s or ASTM/ANSI Class 1 weights[1,2]	☐ Yes	☐ No	N/A
• Calibration Frequency/ Documentation	• Calibration verification required at least once each day the balance is used[3]	☐ Yes	☐ No	
• Cleanliness, air movement, vibration	• Cleanliness of balance is a must and air movement and vibration needs to be kept to a minimum[1]	☐ Yes	☐ No	
• Other	• Service and recalibrate annually (manufacturer representative or comparable)[1]	☐ Yes	☐ No	
	• Must be able to measure to 0.1 grams[4]	☐ Yes	☐ No	
	• Instrument manual available	☐ Yes	☐ No	
	• Log book maintained[6]	☐ Yes	☐ No	
Comments:				

Criteria	Standard Methods Requirement			Rating
Drying Oven (Suspended Solids)		**Acceptable?**		
• Temperature Recordkeeping	• Temperature recorded with each use[4]	☐ Yes	☐ No	N/A
	• Log book maintained[6]	☐ Yes	☐ No	
• Calibration Frequency/ Documentation	• Thermometer calibrated annually with NIST traceable thermometer[1,2]. Correction factor posted on thermometer/equipment[1]	☐ Yes	☐ No	
• Other	• Thermometer temperature in 0.1°C increments[5]	☐ Yes	☐ No	
	• Acceptable temperature range is 103° – 105°F[4]	☐ Yes	☐ No	
	• Instrument manual available	☐ Yes	☐ No	
Comments:				

Criteria	Standard Methods Requirement			Rating
pH Meter		**Acceptable?**		
• Calibration Frequency/ Documentation	• Calibration verification required for testing over long period of time (e.g. 12 hrs.), or after a large number of samples (every 10 samples)[3] daily calibration for pH	☒ Yes	☐ No	A
	• Log book maintained[9]	☒ Yes	☐ No	
• Minimum of 2 point calibration	• Calibration per manufacturer specification and calibration buffers must bracket anticipated result[7]	☒ Yes	☐ No	
• Slope Documentation/ Acceptability	• Slope acceptable range indicated on benchsheet[2] N/A	☐ Yes	☐ No	
• Buffer Expiration Date	• Buffers must not be expired (reportedly not expired)	☒ Yes	☐ No	
• Other	• Instrument manual available	☒ Yes	☐ No	
	• Teflon covered magnetic stirrer or equivalent for mixing[8]	☐ Yes	☒ No	
Comments: Quality Environmental Services (QES), 67440 Falloure Rd., Belmont, OH 43718 does sampling. Utilize: Hanna Model HI991301, WTW Model 330I for pH, temp, cond., TDS Utilize: Hach Model IR20 for Fe, Mn; and Hach Mn Color Meter #58700-15 All other samples transported by QES to: Industrial Lab Analysis, 65-36th St., Wheeling, WV 26003, 304-233-5595				

General Lab Criteria

Criteria	Standard Methods Requirement			Rating
Dissolved Oxygen Meter		**Acceptable?**		
• Calibration Method	• Air or known DO calibration method[10]	☐ Yes	☐ No	N/A
	• Calibration per manufacturer specification[10]	☐ Yes	☐ No	
• Calibration Frequency/ Documentation	• Logbook maintained[9]	☐ Yes	☐ No	
	• Calibration verification required at least once each day the meter is used.[3]	☐ Yes	☐ No	
• Other	• Small to no bubble present under membrane (must be smaller than the lead in number 2 pencil)[11]	☐ Yes	☐ No	
	• Instrument manual available	☐ Yes	☐ No	
Comments:				

Criteria	Standard Methods Requirement			Rating
Incubator (CBOD/E-Coli)		**Acceptable?**		
• Temperature Recordkeeping	• Temperature checked/recorded twice daily for each shelf in use[1]	☐ Yes	☐ No	N/A
	• Temperature checked/recorded daily[2] (CBOD)	☐ Yes	☐ No	
	• Acceptable temperature range (CBOD) is 20°C ±1.0°[12]	☐ Yes	☐ No	
	• Acceptable temperature range (E-Coli) is 35°C ±0.5°[22]	☐ Yes	☐ No	
	• Logbook maintained[9]	☐ Yes	☐ No	
• Temperature Calibration/ Documentation	• Thermometer calibrated annually with NIST traceable thermometer[1,2]	☐ Yes	☐ No	
	• Temperature correction information posted on incubator[1]	☐ Yes	☐ No	
• E-Coli can use multiple tubes (five 20 ml or ten 10 mg), or mfg's multi-well tray	• E-coli Ultraviolet lamp (365 nm wave length, 6 W bulb)[23]	☐ Yes	☐ No	
• Other	• Instrument manual available	☐ Yes	☐ No	
	• Temperature Log (thermometer reads to 0.1 Celsius)[5]	☐ Yes	☐ No	
Comments:				

Criteria	Standard Methods Requirement			Rating
Refrigerator		**Acceptable?**		
• Temperature Recordkeeping	• Temperature Log (thermometer reads to 0.1 Celsius)[5] (refrig.)	☒ Yes	☐ No	A
• Temperature Calibration/ Documentation	• Thermometer calibrated annually with NIST traceable thermometer[1,2]	☒ Yes	☐ No	
• Other	• Thermometer held in water bath[1]	☐ Yes	☐ No	
	• Refrigerator temperature ≤6° Celsius[13]	☐ Yes	☐ No	
	• Do not store volatile solvents, food, or beverages[14]	☐ Yes	☐ No	
Comments: Iced coolers. Sample goes to the QES refrigerator, if not transported immediately to lab. As reported by QES.				

Criteria	Standard Methods Requirement			Rating
Chlorine Meter		**Acceptable?**		
• Calibration Frequency/ Documentation	• pH/millivolt meter read to 0.1 mV[15]	☐ Yes	☐ No	N/A
	• 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]	☐ Yes	☐ No	
• Calibration Method	• Calibration using three iodate solutions 0.2, 1.0, 5.0 milliliters	☐ Yes	☐ No	

General Lab Criteria

	or calibration per manufacturer specification[16]			
	• Standards used for calibration not expired	☐ Yes	☐ No	
• Slope Documentation/ Acceptability	• Calibration curve (acceptable slope)	☐ Yes	☐ No	
• Other	• Electrode free of deposits and foreign material	☐ Yes	☐ No	
	• Log book being maintained[9]	☐ Yes	☐ No	
	• Instrument manual available	☐ Yes	☐ No	
Comments:				

Criteria	Standard Methods Requirement			Rating
Ammonia Meter		**Acceptable?**		
• Calibration Frequency/ Documentation	• Calibration verification required for testing over long period of time (e.g. 12 hrs.), or after a large number of samples (every 10 samples)[3]	☐ Yes	☐ No	**N/A**
	• Log book being maintained[9]	☐ Yes	☐ No	
• Slope Acceptability	• Verify calibration slope is acceptable (per mfg. spec.)	☐ Yes	☐ No	
• Calibration Method	• Standards used for calibration (3 ammonia solutions of 10 mg/l, 1 mg/l, and 0.1 mg/l) or per mfg. spec.[17]	☐ Yes	☐ No	
	• Standards used for calibration not expired	☐ Yes	☐ No	
• Other	• Electrode free of deposits and foreign material	☐ Yes	☐ No	
	• Teflon covered magnetic stirrer or equivalent for mixing[18]	☐ Yes	☐ No	
	• Instrument manual available	☐ Yes	☐ No	
Comments:				

Criteria	Standard Methods Requirement			Rating
Sample Collection/Handling		**Acceptable?**		
• Sample Labeling	• Samples container labeled (description, date, time, preservative added, initialed)[19]	☒ Yes	☐ No	**A**
• Chain of Custody	• Chain of custody (description, date, time, signature)[19]	☒ Yes	☐ No	
• Other	• Composite samples refrigerated during sample collection[14] (grab)	☒ Yes	☐ No	
	• Equipment blanks utilized[14] Occasional (typically not used)	☒ Yes	☐ No	
	• SOP for cleaning of sampling equipment	☒ Yes	☐ No	
	• Log book being maintained[9]	☐ Yes	☒ No	
Comments: As reported by QES. Clean probes with ice water and D.I. water.				

Criteria	Standard Methods Requirement			Rating
Desiccator		**Acceptable?**		
• General Criteria	• Properly working seals	☐ Yes	☐ No	**N/A**
	• Desiccant fresh (blue color)	☐ Yes	☐ No	
• Documentation	• Log book being maintained[9]	☐ Yes	☐ No	
Comments:				

General Lab Criteria

Criteria	Standard Methods Requirement			Rating
Bench Sheets		**Acceptable?**		
• General Criteria	• Date(s)[2]	☐ Yes	☐ No	N/A
	• Analyst initials[2]	☐ Yes	☐ No	
	• Blue or black ink pen[2]	☐ Yes	☐ No	
	• Calibration information[2]	☐ Yes	☐ No	
	• Equations, calculations, units for all measurements, notations, and results present[2]	☐ Yes	☐ No	
	• Corrections, single line through, initialed and dated[2]	☐ Yes	☐ No	
Comments:				

Criteria	Standard Methods Requirement			Rating
Hot Water Bath (Fecal Coliform/E. Coli)		**Acceptable?**		
• Temperature Recordkeeping	• Temperature Log (thermometer reads 0.2° C)[21]	☐ Yes	☐ No	N/A
	• Incubator temperature 44.5° C ±0.2° [21/24]	☐ Yes	☐ No	
• Temperature Calibration/ Documentation	• Thermometer calibrated annually with NIST traceable thermometer[1,2]	☐ Yes	☐ No	
	• Log book being maintained[9]	☐ Yes	☐ No	
• Water Level	• Thermometer total immersion or partial (line on thermometer to ID immersion depth)[1,5]	☐ Yes	☐ No	
Comments:				

Criteria	Standard Methods Requirement			Rating
Autoclaves/Steam Sterilizers		**Acceptable?**		
• All apparatus utilized is adequately sterilized before use	• Sterilizing temperature 121° C[25]	☐ Yes	☐ No	N/A
	• 10 to 30 minutes time based on material being sterilized[26]	☐ Yes	☐ 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]	☐ Yes	☐ 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]	☐ Yes	☐ No	
• Temperature Calibration/ Documentation	• Thermometer calibrated annually with NIST traceable thermometer[1,2]	☐ Yes	☐ No	
	• Log book being maintained[9]	☐ Yes	☐ No	
• Performance Checks	• Test monthly for efficacy using a biological such as commercially available *Geobacillus stearothermophilus* in spore strips, suspensions, or capsules[1]	☐ Yes	☐ No	
Comments:				

General Lab Criteria

Criteria	Standard Methods Requirement			Rating
Final Effluent Temperature Monitoring		**Acceptable?**		
• General Criteria	• Thermometer calibrated annually with NIST traceable thermometer[1,2]	☐ Yes	☒ No	**M**
	• Thermometer reads in increments of at least 0.1°C[5]	☒ Yes	☐ No	
	• Log book being maintained[2]	☐ Yes	☒ No	
Comments: No log maintained other than field temp. data.				

Number of Criteria Rated:	**Acceptable**	3
	Marginal	1
	Unacceptable	
	Total Number of Areas Rated	4

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

General Lab Criteria

Notation of Referenced Method

1	Method 9020-B, Item 4	14	Method 1060A, Item 1
2	Method 1020-A, Item 1	15	Method 4500-Cl I, Item 2
3	Method 1020-B, Item 10	16	Method 4500-Cl 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-B, 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.

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 ≤6°C	6h	48h
TSS	P, G	200	G, C	Refrigerate ≤6°C	7 d	7 d
pH	P, G	50	G	Analyze immediately	0.25h	0.25 h
NH3-N	P, G	500	G, C	Analyze as soon as possible or add H_2SO_4 to pH <2, Refrigerate ≤6°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 ≤6°C	7 d	14 d
Base/Neutrals and acids	G (solvent rinsed or baked)	1000	G, C	Refrigerate ≤6°C	7 d	7 days until extraction 40 days after extraction
Pesticides	G (PTFE lined lid)	1000	C	Refrigerate ≤6°C	7 d	7 days until extraction 40 days after extraction
Fecal Coliform / E-Coli	G, P (Sterilized)	100	G	Refrigerate ≤10°C If chlorine present, add sodium thiosulfate tablet	6 hrs transport. Start analysis within 2 hrs of receipt in lab.	
Oil and Grease	G	1000	G	HCl or H_2SO_4 to pH <2, Refrigerate ≤6°C	28 d	28 d

General Lab Criteria

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 Methods 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