Ohio Environmental Protection Agency
John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

August 1, 2012

RE: COLUMBIANA COUNTY
SALEM WWTP
NPDES PERMIT NO. OH0027324
OHIO EPA PERMIT NO. 3PD00027*JD
SEWAGE SLUDGE INSPECTION

John C. Berlin, Mayor
231 South Broadway Avenue
Salem, OH 44460

Dear Mayor Berlin:

On July 18, 2012, a sewage sludge inspection was conducted in order to determine compliance with Ohio Administrative Code Chapter (OAC) 3745-40, Ohio's sewage sludge rules, at the Salem wastewater treatment plant (WWTP). The facility was represented by Jeff Zimmerman, Plant Manager, and Tim Rininger, Chief Operator, who provided information regarding the WWTP's sewage sludge operations. The sewage sludge inspection consisted of a review of the WWTP's contact information and sewage sludge records, completion of a compliance checklist, and an inspection of the sewage sludge treatment units.

WWTP information
The WWTP has a design treatment capacity of 4.0 million gallons of wastewater per day (MGD) with a peak treatment capacity of 8.0 MGD and currently treats approximately 1.6 to 1.95 MGD. Sewage sludge is treated within seven aerobic digesters (3 x 75,000 gallon and 4 at 100,000 gallons), two anaerobic digesters (total capacity of 400,000 gallons each), one-400,000 gallon holding tank, one gravity thickener, and one portable belt filter press provided by Synagro, Inc. The WWTP has approximately thirty days of onsite sewage sludge storage capacity with the ability to dispose sewage sludge at Carbon Limestone Landfill LLC (CID: 28726) licensed municipal solid waste landfill.

The WWTP is currently in the design stage for including a screw thickener for sewage sludge. Additional improvements that may be pursued though 2014 include a headworks evaluation and a sewage sludge dewatering unit.

Please be aware that effective July 1, 2015, prior to the beneficial use of biosolids, influent wastewater and septage, or sewage sludge at The WWTP must be treated by a process such as physical screening or another method to significantly remove manufactured inerts via one of the following methods:

1. Screening influent wastewater and influent septage through a bar screen with a maximum aperture of five-eighths inch (1.59 centimeters) designed to screen the average daily design flow;
2. Screening all biosolids through a bar screen with a maximum aperture of five-eighths inch (1.59 centimeters) prior to beneficial use; or

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3. Obtaining approval from the director for an alternative method that achieves a removal rate equal to or greater than that achieved by the screening standards in items 1 and 2 above.

Sewage Sludge Management

The WWTP is currently generating a class B sewage sludge by performing pathogen reduction (PR) alternative P-1, geometric mean of seven fecal coliform samples, P-4, anaerobic digestion, and vector attraction reduction (VAR) option VAR-4, specific oxygen uptake rate (SOUR).

The WWTP must begin maintaining appropriate records that document the calculation utilized to determine the geometric mean. Ohio EPA has developed an online geometric mean calculation spreadsheet that can be utilized. The geometric mean calculation spreadsheet can be obtained from the following website under "compliance tools":

http://www.epa.ohio.gov/dsw/sludge/biosolid.aspx

Fecal Coliform Monitoring

The WWTP is currently collecting seven fecal coliform samples from the aerobic digesters and seven fecal coliform samples from the anaerobic digesters for a total of fourteen fecal coliform samples collected per month. Please be aware that this significantly exceeds the amount of required fecal coliform samples needed to determine compliance. Table B-1 of Ohio Administrative Code, Chapter 3745-40-09, establishes the minimum sewage sludge monitoring frequencies. According to the 2011 annual sewage sludge report (Form 4229), the WWTP generated approximately 144 dry tons of sewage sludge, which would establish an annual minimum sewage sludge monitoring frequency for the WWTP.

Ohio EPA recommends that the fecal coliform monitoring for sewage sludge be modified so that only seven fecal coliform samples are collected from the holding tank, which contains the comingled anaerobic and aerobic sewage sludge, on an annual frequency.

In addition, the WWTP explained that the fecal coliform samples, when collected, may be held for up to three days prior to being analyzed. The sample collection and analytical procedures must be modified to ensure that sewage sludge samples collected for fecal coliform are incubated within eight hours of collection.

Specific Oxygen Uptake Rate

When performing the SOUR, the WWTP must record all of the dissolved oxygen concentrations over the fifteen-minute test interval. Some of the records maintained did not have all of the dissolved oxygen concentrations recorded over the entire fifteen-minute interval.

In addition, OAC 3745-40-04(C)(4) requires the SOUR to be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of twenty degrees Celsius (sixty-eight degrees Fahrenheit). One of the records maintained for 2011, recorded a SOUR of 1.54 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of twenty degrees Celsius (sixty-eight degrees Fahrenheit). The WWTP must submit information detailing how this sewage sludge was managed. Mr. Zimmerman stated that he thought the sewage sludge was disposed of within a landfill and committed to confirming this information with Synagro, Inc.

Cumulative Pollutant Loading Rate (CPLR)

Ohio EPA records detail that the following values were reported by the WWTP:

Parameter	Units	Date Reported	Reported Value
Cadmium, Total In Sludge	mg/kg	3/3/2009	47.96
Cadmium, Total In Sludge	mg/kg	9/2/2010	66.89
Cadmium, Total In Sludge	mg/kg	11/1/2011	46.14

Information must be provided to Ohio EPA that details how the biosolids or sewage sludge containing the above reported values for cadmium was managed (i.e. beneficial use on beneficial use sites or disposal within a landfill). In the event that the Class B biosolids containing the above reported values for cadmium were beneficially used, the beneficial use site where beneficial use of the Class B biosolids containing the above reported values for cadmium is now designated as a CPLR beneficial use site since the above reported values for cadmium exceed the 39 mg/kg average concentration limit (ACL) and is below the 85 mg/kg ceiling limit (CL).

As a result, if the Class B biosolids containing the above reported values for cadmium were beneficially used, the following records must now be maintained in accordance with OAC 3745-40-09(C)(5) and (6):

1. The location, by either street address or latitude and longitude, of each beneficial use site on which class B are beneficially used;
2. The number of acres of each beneficial use site where the class B biosolids are beneficially used;
3. The date the class B biosolids were beneficially used at the beneficial use Site; and
4. The cumulative amount, in pounds per acre, of each metal listed in table D-2 of rule 3745-40-04 of the Administrative Code that is beneficially used at each beneficial use site.

Pollutant Ceiling Concentration Limit
Ohio EPA records detail that the following values were reported by the WWTP:

Parameter	Units	Date Reported	Reported Value
Molybdenum In Sludge	mg/kg	2/2/2010	90.86

Information must be provided to Ohio EPA that details how the biosolids or sewage sludge containing the above reported value for molybdenum was managed (i.e. beneficial use on beneficial use sites or disposal within a landfill). Please be advised that the beneficial use of biosolids that exceed the 75 mg/kg pollutant ceiling concentration for molybdenum is prohibited.

Minimum Detection Limits
Ohio EPA reviewed electronic discharge monitoring reports for the period of October 2008 to July 2012 and the WWTP has reported "AA" forty-six times for arsenic and forty-six times for mercury. Many of the minimum detection limits (MDL) are too high when compared to the 41.0 mg/kg and 17.0 mg/kl average concentration limits established for arsenic mercury, respectively, and a lower MDL must be established.

New Record Requirements
On July 1, 2011, Ohio EPA's revised sewage sludge rules became effective which included new requirements for all WWTPs to maintain additional records regarding sewage sludge

management. The following deficiencies are records that the WWTP must begin maintaining in order to comply with OAC 3745-40:

A. Standard Operating Procedure (SOP)
OAC 3745-40-09(C)(3)(c) requires a WWTP to develop a standard operating procedure (SOP) that, at a minimum, includes the following information:

1. Sample collection or monitoring locations;
2. The frequency at which sample collection or monitoring is to occur;
3. Sample collection or monitoring procedures;
4. Sample storage and preservation procedures; and
5. Sample or monitoring analysis procedures, including any calculations required for sample or monitoring analysis.

B. Field Storage
OAC 3745-40-09(C)(4)(b) requires the WWTP to maintain a copy of the beneficial user records that show the class B biosolids were not stored for more than ninety days at each beneficial use site. The WWTP explained that biosolids are beneficially used immediately upon removal from the WWTP.

Should you have any questions regarding the sewage sludge inspection, please contact me at your earliest convenience at (330) 963-1118 or via e-mail at chris.moody@epa.ohio.gov.

Sincerely,

Chris Moody
Environmental Specialist II
Division of Surface Water

CM/cs

cc: Jeff Zimmerman, Plant Manager

ec: Brian Alger, Synagro, Inc.