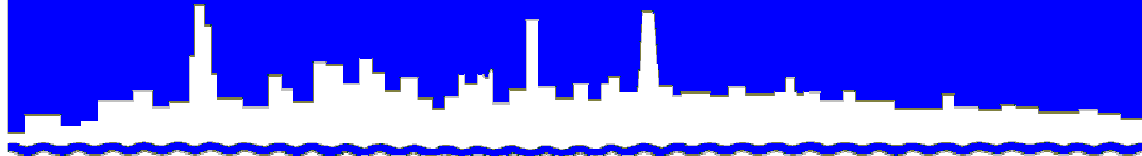


*Protecting Our Water Environment*



*Metropolitan Water Reclamation District of Greater Chicago*

***MONITORING AND RESEARCH  
DEPARTMENT***

*REPORT NO. 11-18*

**REPORTING REQUIREMENTS FOR SITE-SPECIFIC  
EQUIVALENCY TO PROCESS TO FURTHER REDUCE  
PATHOGENS DESIGNATION OF THE METROPOLITAN  
WATER RECLAMATION DISTRICT OF GREATER  
CHICAGO'S BIOSOLIDS PROCESSING TRAINS AT THE  
STICKNEY AND CALUMET WATER RECLAMATION  
PLANTS AUGUST – DECEMBER 2010**

***MARCH 2011***

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March 30, 2011

Mr. Valdis Aistars  
United States Environmental  
Protection Agency  
Region 5  
77 West Jackson Boulevard, WC-15J  
Chicago, IL 60604-3590

Dear Mr. Aistars:

**Subject: Letter WN-16J Reporting Requirements for Site-Specific Equivalency to Process to Further Reduce Pathogens Designation of the Metropolitan Water Reclamation District of Greater Chicago Biosolids Processing Trains at the Stickney and Calumet Water Reclamation Plants – August to December 2010**

In your letter dated June 20, 2002, (Reference Number WN-16J), you informed us that the low and high solids biosolids processing trains at the Stickney and Calumet Water Reclamation Plants (WRPs) were designated on a site-specific basis, as being equivalent to Process to Further Reduce Pathogens (PFRP). The terms of the site-specific designation require us to operate the designated biosolids processing trains in full compliance with the codified operating parameters outlined in our approved petition. In a letter dated July 20, 2010, you informed us that this certification was renewed for another two years, effective August 1, 2010, to August 1, 2012. This letter also indicated that the monitoring frequency has been modified, and henceforth we need to collect and analyze six samples for enteric viruses and helminth ova during the first year of operation (August 1, 2010, to August 1, 2011) and six samples during the second year of operation (August 1, 2011, to August 1, 2012).

We are required to submit monitoring data for three samples for the period August 1 through December 31, 2010, for both the Stickney and Calumet WRPs. The monitoring data for three samples for the Calumet WRP are reported in Table 1. All samples in Table 1 meet the Part 503 analytical standards for Class A pathogens, including those for enteric viruses and helminth ova.

Subject: Letter WN-16J Reporting Requirements for Site-Specific Equivalency to Process to Further Reduce Pathogens Designation of the Metropolitan Water Reclamation District of Greater Chicago Biosolids Processing Trains at the Stickney and Calumet Water Reclamation Plants – August to December 2010

For the Stickney WRP, no monitoring data are presented in this report. The biosolids generated at the Stickney WRP during this period were not PFRP-compliant with the digester holding time criteria specified in the codified operating parameters. Failure to meet the holding time criteria was due to the reduction in digester capacity because several of the digesters were removed from service for cleaning and repairs. Therefore, all biosolids generated by the Stickney WRP during the period were tested for pathogen compliance according to 40 CFR Part 503.32a5 before being utilized as Class A or were managed as specified in Item 10 of the certification. The pathogen analysis data for the Stickney WRP biosolids during August 2009 through August 2010 (which demonstrates compliance for the entire year) are presented in Table 2. The biosolids samples for helminth ova and virus analysis were collected before drying (< 60 percent solids) and the samples for fecal coliform were collected after drying (> 60 percent solids). The data also show that, although the biosolids generated during this period at the Stickney WRP were not PFRP-compliant with respect to digester detention time, the biosolids met the Class A pathogen standard. The helminth ova and virus analytical data for undried samples during the period August 2010 through August 2012 are presented in Table 3. The fecal coliform will be done in spring 2011 after the biosolids are dried.

We conducted an internal audit of the Metropolitan Water Reclamation District of Greater Chicago's Analytical Microbiology Laboratory on May 12, 2010, and it was found to be in full compliance with all United States Environmental Protection Agency requirements for analysis to determine compliance with the Part 503 Class A pathogen standards. In addition, the operation of the low and high solids biosolids processing trains was subjected to internal audits on May 12, 2010, at the Stickney and Calumet WRPs. Attached is a signed certification that the processing trains were operated in full compliance with the codified parameters.

If you have any questions, please contact Dr. Catherine O'Connor, Assistant Director of Monitoring and Research, at 708-588-4059.

Very truly yours,

Thomas C. Granato, Ph.D.  
Acting Director  
Monitoring and Research

TCG:PL:cm

Attachments

cc: Fitzpatrick/Sharma/Garelli/Conway/O'Connor

TABLE 1: MICROBIOLOGICAL ANALYSIS OF BIOSOLIDS GENERATED BY  
 THE CALUMET WATER RECLAMATION PLANT SOLIDS PROCESSING  
 TRAINS IN COMPLIANCE WITH PART 503 PROCESS TO FURTHER  
 REDUCE PATHOGENS - EQUIVALENT REQUIREMENTS  
 AUGUST THROUGH DECEMBER 2010

Date Sampled	Location	Fecal Coliform	Helminth Ova <sup>1</sup>	Enteric Virus
		--- MPN <sup>2</sup> /g ---	--- No./4g ---	--- PFU <sup>3</sup> /4g ---
8/24/2010	Calumet East	89	<0.0800	<0.8000
9/21/2010	Calumet West	200	<0.0800	<0.8000
10/21/2010	Calumet West	4	<0.0800	<0.8000

<sup>1</sup>For Helminth ova analysis, sample weight = 50 g.

<sup>2</sup>Most probable number.

<sup>3</sup>Plaque-forming unit.

TABLE 2: MICROBIOLOGICAL ANALYSIS OF BIOSOLIDS GENERATED BY THE STICKNEY WATER RECLAMATION PLANT SOLIDS PROCESSING TRAINS NOT IN COMPLIANCE WITH PART 503.32a5 BUT TESTED AND UTILIZED AS CLASS A DURING 2010

Date Sampled	Location	Fecal Coliform <sup>1</sup>	Helminth Ova <sup>2</sup>	Enteric Virus <sup>2</sup>
		--- MPN <sup>3</sup> /g ---	--- No./4g ---	--- PFU <sup>4</sup> /4g ---
11/18/2009	LASMA	-	<0.0800	<0.8000
5/4/2010	LASMA	1	-	-
3/2/2010	Vulcan	-	<0.0800	<0.8000
5/4/2010	Vulcan	16	-	-
3/2/2010	HASMA	-	<0.0800	<0.8000
7/1/2010	HASMA	42	-	-
3/16/2010	Marathon	-	0.0800	<0.8000
5/25/2010	Marathon	56	-	-
3/16/2010	Marathon	-	<0.0800	<0.8000
5/25/2010	Marathon	510	-	-
6/1/2010	LASMA	-	<0.0800	<0.8000
7/13/2010	LASMA	870	-	-
6/15/2010	LASMA	-	<0.0800	<0.8000
7/22/2010	LASMA	14	-	-

<sup>1</sup>All samples for fecal coliform analysis collected at >60% solids content.

<sup>2</sup>All samples for helminth ova and virus analyses collected at <60% solids content.

<sup>3</sup>Most probable number.

<sup>4</sup>Plaque-forming unit.

TABLE 3: MICROBIOLOGICAL ANALYSIS OF BIOSOLIDS<sup>1</sup> GENERATED BY THE STICKNEY WATER RECLAMATION PLANT SOLIDS PROCESSING TRAINS NOT IN COMPLIANCE WITH PART 503.32a5 AND SAMPLED AUGUST THROUGH DECEMBER 2010

Date Sampled	Location	Helminth Ova	Enteric Virus
		No./4g	PFU <sup>2</sup> /4g
9/21/2010	LASMA	<0.0800	<0.8000
11/16/2010	HASMA	<0.0800	<0.8000
11/30/2010	LASMA	<0.0800	<0.8000

<sup>1</sup>Fecal coliform analysis will be done after biosolids are dried to  $\geq 60\%$  solids content

<sup>2</sup>Plaque-forming unit.

## CERTIFICATION

I do hereby certify that for the period from August 1, 2010, through December 31, 2010, the Low Solids Sludge Processing Train (LSSPT) and the High Solids Sludge Processing Train (HSSPT) at the Metropolitan Water Reclamation District of Greater Chicago's Stickney and Calumet Water Reclamation Plants (WRPs) were operated in full compliance with the following codified protocol, as required by the USEPA's site specific designation of equivalency to PFRPs:

1. An average detention time of 20 days at a temperature of  $35 \pm 2^{\circ}\text{C}$  ( $95 \pm 3.6^{\circ}\text{F}$ ) is maintained in the anaerobic digesters.
2. In the case of the HSSPT system, anaerobically digested sludge (at 3 to 5 percent solids), which is withdrawn daily from the digesters, is then dewatered using Sharples Model 76000 centrifuges from 20 to 30 percent solids.
3. In the case of the LSSPT system, digested sludge (at 3 to 5 percent solids) withdrawn daily from the digesters, and which is not subjected to centrifugal dewatering, is pumped into a LSSPT lagoon to achieve further stabilization, dewatering, and inactivation of pathogens.
4. The minimum sludge holding time for both the HSSPT and LSSPT lagoons is 1.5 years to ensure the aging and stabilization of sludge solids, and inactivation of pathogens.
5. Air-drying of sludge solids taken out of the HSSPT and LSSPT lagoons is carried out seasonally from April through November.
6. Air-drying is conducted such that any batch of sludge applied onto the drying areas is held without any further additions of sludge, until 60 percent total solids content is achieved.
7. Loading of drying cells is conducted such that air-drying of the sludge solids taken out of the HSSPT and LSSPT lagoons is done at no more than 410 and 230 dry tons per acre of the paved drying cells, respectively. Sludge solids taken out of the HSSPT and LSSPT lagoons are applied on the drying cells at depths of no more than 18 and 15 inches of sludge, respectively, to be consistent with the loadings of 410 and 230 dry tons per acre.
8. Agitation drying is conducted such that complete turning, aeration, and agitation of solids withdrawn from the LSSPT and HSSPT is accomplished at an

average of three times a week using equipment such as a tractor with a horizontal auger or a tiller.

9. The short circuiting of sludge through the SPTs was eliminated by ensuring that,
  - (a) No additional batches of sludge are added to the field lagoons, where sludge is undergoing aging, dewatering, and inactivation, and
  - (b) A batch of sludge undergoing air drying on the paved drying beds is not mixed with any other batches of sludge during the drying process.
10. Sludge generated by unit processes not meeting the PFRP codified parameters listed above was segregated from the certified processing trains and managed according to the appropriate requirements of 40 CFR Parts 503 or 257.

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Manju Sharma  
Director of Maintenance & Operations

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Date