

*Protecting Our Water Environment*



***Metropolitan Water Reclamation District of Greater Chicago***

***MONITORING AND RESEARCH  
DEPARTMENT***

***REPORT NO. 12-14***

**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 2011**

***MARCH 2012***

**Metropolitan Water Reclamation District of Greater Chicago**

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Director of Monitoring and Research Department  
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March 13, 2012

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 N-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 2011

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, each year during the two-year certification period (August 1, 2010, to August 1, 2012) we need to collect and analyze six samples for enteric viruses and helminth ova.

We are required to submit monitoring data for three samples for the period August 1 through December 31, 2011, for both the Stickney and Calumet WRPs. Monitoring data for the three samples for the Calumet WRP are reported in Table 1. These samples meet the United States Environmental Protection Agency (USEPA) 40 Code of Federal Regulations (CFR) Part 503 Rule (Part 503) analytical standards for Class A pathogens, including those for enteric viruses and helminth ova.

For the Stickney WRP, no monitoring data for PFRP-equivalent biosolids are presented in this report. The biosolids generated at this WRP during the specified period were not compliant with respect to the digester holding time criteria in the codified operating parameters of the PFRP-equivalent process trains. Failure to meet the holding time criteria was due to reduction in digester capacity because several 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

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according to Part 503.32a5 before being utilized as Class A or were managed as specified in Item 10 of the certification. The pathogen data for the Stickney WRP biosolids during August 2011 through December 2011 are presented in Table 2.

We conducted an internal audit of the 2010 records of the Metropolitan Water Reclamation District of Greater Chicago's Analytical Microbiology Laboratory in June 2011, and it was found to be in full compliance with all USEPA requirements for analysis to determine compliance with Part 503 Class A pathogen standards. In addition, the operation records of the high and low solids biosolids processing trains at the Stickney and Calumet WRPs were subjected to internal audits in June 2011. 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.  
Director  
Monitoring and Research

TCG:PL:cm  
Attachments  
cc: D. St. Pierre  
M. Sharma  
B. Garelli  
T. Conway  
C. O'Connor

TABLE 1: MICROBIOLOGICAL ANALYSIS OF BIOSOLIDS GENERATED AT THE CALUMET WATER RECLAMATION PLANT BY SOLIDS PROCESSING TRAINS IN COMPLIANCE WITH PART 503 PROCESS TO FURTHER REDUCE PATHOGENS - EQUIVALENT REQUIREMENTS AND SAMPLED AUGUST THROUGH DECEMBER 2011

Date Sampled	Location	Fecal Coliform	Helminth Ova	Enteric Virus
		--- MPN <sup>1</sup> /g ---	--- No./4g ---	--- PFU <sup>2</sup> /4g ---
8/31/2011	Calumet East	20	<0.0800	<0.8000
9/14/2011	Calumet West	150	<0.0800	<0.8000
11/2/2011	Calumet West	52	<0.0800	<0.8000

<sup>1</sup>Most probable number.

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

TABLE 2: MICROBIOLOGICAL ANALYSES OF BIOSOLIDS GENERATED AT THE STICKNEY WATER RECLAMATION PLANT BY PROCESSING TRAINS IN COMPLIANCE WITH PART 503.32a5 AND UTILIZED AS CLASS A DURING AUGUST THROUGH DECEMBER 2011

Date Sampled	Location	Fecal Coliform <sup>1</sup>	Helminth Ova <sup>2</sup>	Enteric Virus <sup>2</sup>
		---MPN <sup>3</sup> /dry g---	--- No./4 g ---	--- PFU <sup>4</sup> /4 g ---
4/27/2011	HASMA	-	<0.0800	<0.8000
8/3/2011	HASMA	100		
6/15/2011	LASMA	-	<0.0800	<0.8000
8/3/2011	LASMA	48		
8/17/2011	Vulcan	8	<0.0800	<0.8000
8/17/2011	Marathon	-	<0.0800	<0.08000
8/24/2011	Marathon	80	-	-

<sup>1</sup>Samples analyzed for fecal coliform only were collected at >60% solids content.

<sup>2</sup>Samples analyzed for helminth ova and virus only were collected at <60% solids content.

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

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

## CERTIFICATION

I do hereby certify that for the period from August 1, 2011, through December 31, 2011, 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 United States Environmental Protection Agency's (USEPA's) site specific designation of equivalency to Process to Further Reduce Pathogens (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 the USEPA 40 Code of Federal Regulations Parts 503 or 257.

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Manju P. Sharma  
Director of Maintenance & Operations

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Date