Illinois Environmental Protection Agency
Bureau of Air, Permit Section
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Project Summary for an Application from Metropolitan Biosolids Management for a Revision to its Construction Permit for its Existing Sludge Drying Plant in Stickney, Illinois

Site Identification No.: 031051APL
Application No.: 04110024

Illinois EPA Contacts

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Important Dates:

Application Received: January 29, 2010
Public Comment Period Begins: March 19, 2010
Public Comment Period Closes: April 18, 2010

I. INTRODUCTION

Metropolitan Biosolids Management ("MBM") has applied for a revision to its construction permit, which was originally issued in September 2005, for installation of a sludge drying plant. The purpose of the requested revision is to address new information for particulate matter (PM) emissions from the dryers and oil heaters based on recent stack testing. MBM is requesting increases in permitted particulate matter emissions on the dryers and decreases in PM from the reclaimed oil-fired heaters, with a net decrease in permitted PM overall. This revision does not authorize an increase in firing rate of these units. No changes are requested for other pollutants.

The Illinois EPA has reviewed the application and made a preliminary determination that this application meets applicable requirements. Accordingly, the Illinois EPA has prepared a draft of the revised air pollution control construction permit that it would propose to issue for this project. However, before issuing a revised permit, the Illinois EPA is holding a public comment period to receive written comments on the proposed issuance of this permit and the terms and conditions of the draft permit.

II. PROJECT DESCRIPTION

Wet sludge material from the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) is dried in four heated dryers at the MBM plant. The dryers are heated by circulating hot "thermal oil" through tubes in each dryer, so that wet material will not be exposed to or come into contact with any combustion gases. The exhaust from each of the four dryer units first passes through their own condenser to remove moisture, then their own scrubber for control of particulate matter, and finally to a common thermal oxidizer for control of odors.

The thermal oil circulating through the dryers is heated in three heaters, each with a rated capacity of 27 million Btu per hour. The heaters may be fired with natural gas, fuel oil or, in the future, digester gas from the MWRDGC. The oil fired in these heaters may be used or reclaimed oil, as well as virgin fuel oil. These heaters are equipped with low-NOx burners for the control of nitrogen oxides (NOx) system. The exhaust from the heaters is vented to a two-stage scrubber system.

Emission stack testing, completed in August 2009, showed that the particulate matter emissions of the dryers at the plant are higher than those estimated in the original permit application. In its original application, MBM calculated emissions for these dryers and heaters using engineering methodology and emission factors developed for similar units. The emission testing for the dryers (which are controlled by condensers, venturi scrubbers, and a thermal oxidizer) showed PM_{10} emissions of 0.886 pounds per hour (lb/hr), compared to the "allowable emission rate" of 0.20 lb/hr. MBM has applied for a revision to the permit that would increase the emissions of PM/PM_{10} from the dryers.

At the same time, the testing for the thermal oil heaters (which are controlled by a venturi scrubber and scrubber) showed particulate matter emissions well below the permitted limits for these pollutants. MBM proposes a reduction in the permitted emissions of particulate matter from the thermal oil heaters such that the overall plant-wide emissions will decrease. In

conjunction with this reduction in emissions from the thermal oil heaters, MBM is also requesting a reduction in the permitted maximum ash content of the reclaimed oil that may be fired in the heaters (from 0.7% to 0.1%).

III. APPLICABLE EMISSION STANDARDS

All emission sources in Illinois must comply with Illinois Pollution Control Board emission standards. The Board's emission standard represents the basic requirements for sources in Illinois. The Board has standards for sources of nitrogen oxides, carbon monoxide, volatile organic material, sulfur dioxide and particulate matter. The emission units at the plant should readily comply with all applicable emission standards.

The thermal oil heaters are subject to the federal New Source Performance Standards (NSPS) for new small steam generating units, 40 CFR 60 Subpart Dc. This NSPS limits the sulfur content of the fuel oil that can be used in the heaters to no more than 0.5 lb/million Btu. This requirement continues to be met by the fuel oil supplied to the heaters.

As the fuel supply to these heaters may include reclaimed oil, as well as natural gas, virgin fuel oil and digester gas, the Board's regulations for management of waste would also establish requirements for the fuel oil supply. These regulations limit the total halogen content of reclaimed or used oil to less than 1000 parts per million (ppm). If the plant uses reclaimed oil, this requirement would be met by the fuel oil supply for the heaters. These regulations also impose requirements on the suppliers of reclaimed or used oil to ensure that the oil that they provide complies with this specification.

IV. EVALUATION OF THE CHANGE IN EMISSIONS

Overall particulate matter emissions will decrease with the requested permit revision for this project. Thus, the MBM plant will still not be a major project for purposes of new source review. A summary of the change in particulate matter emissions with the proposed revision of the permit is shown in the following table. (A complete summary of the plant's permitted emissions can be found in the Attachment of the draft revised permit.)

Permitted Emissions of Dryers and Heaters	Change in Particulate Matter Emissions (Tons/Year)	
	PM	PM_{10}
Previous Permitted Limit:	13.07	13.07
Requested Permitted Limit:	7.60	7.60
Change	-5.47	-5.47

V. CONTENTS OF PERMIT

The revised permit would include revised provisions as previously discussed. The revised permit would continue to contain appropriate conditions for

implementation of the applicable state and federal standards for emissions from the units affected by this project. These standards require ongoing monitoring and recordkeeping to verify continuing compliance.

VI. REQUEST FOR COMMENTS

It is the Illinois EPA's preliminary determination that the application for revised permit meets all applicable state and federal air pollution control requirements, subject to the conditions proposed in the draft of a revised permit.

Comments are requested by the Illinois EPA on this proposed issuance of a revised permit for this project. If substantial public concern is shown in this matter the Illinois EPA will consider holding a public hearing in accordance with 35 IAC Part 166.

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