



City of Chattanooga
 Department of Public Works
 March 1, 2013



2012 Biosolids Performance Report

CHATTANOOGA LOOKS TO CERTIFY JVAP FILTER PRESS BIOSOLIDS AS CLASS A / EQ - EXCEPTIONAL QUALITY



This spring 2013, Chattanooga hopes to submit documentation to apply for certification of its Moccasin Bend Wastewater Treatment Plant J-VAP Filter Press Biosolids as Class A / EQ per EPA 40 CFR 503 Regulations. This means that the cake produced will be available for much less restrictive beneficial reuse options, such as fertilizer for lawns and potential residential use.

While the final decision as to how to use the newly certified biosolids has yet to be determined. We are sure that it meets limits for pathogens, metals, and vector attraction set and checked by TN Department of Environment and Conservation and

Region 4 EPA biosolids coordinators. Representatives from these agencies were on site in December 2012 to tour the process. The City's Biosolids Consultant, Material Matters Inc. and Moccasin Bend's own Laboratory staff and solids operators have worked very hard to show statistically that the filter press cake meets Class A Exceptional Quality standards.

Last year our facility produced 9,900 wet tons of filter press cake. The City utilizes the Siemens J-VAP filter press process which includes six (6) filter presses that have been operating since 2009. A portion of the same thickened mixture of primary sludge, waste activated sludge, and anaerobically digested sludge that is used in the centrifuge process is being pumped to the filter press process for dewatering. Chemical conditioning takes place by the addition of ferric chloride and lime slurry. A pasteurization cycle subjects the cake solids to thirty (30) minutes of temperatures at least 160.3 degrees Fahrenheit in order to meet pathogen destruction requirements of 40 CFR Part 503 equivalent to Class A material. Resulting cake solids are approximately 60-70%. Although the City is currently land applying this material with the centrifuge cake solids as if it were all Class B material, application for certification as a Class A product is currently being prepared.



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EPA BIOSOLIDS:
 Frequently Asked

Questions <http://water.epa.gov/polwaste/wastewater/treatment/biosolids/genqa.cfm>
<http://www.biosolids.com/faq.html>

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2012 BMS SUSTAINABILITY COMMITTEE MEETING

September 27, 2012: Moccasin Bend invited external interested parties that included Farmers, TDEC Officials, City Council, Friends of Moccasin Bend, North Shore Community, Synagro, and the NPS (National Park Service). At our Training Center we expressed to interested parties the need to participate in regular meetings in order to communicate their input on environmental impacts, quality management practices, health and safety risks, program performance, and areas for improvement.



BIOSOLIDS FERTILIZER APPLIED TO CITY LANDFILL TO REESTABLISH VEGETATIVE COVER

In October, 2012, Chattanooga's land application contractor, Synagro LLC., applied biosolids to the cell closure cap of area #2 of the Landfill in order to reestablish vegetative cover and control erosion. The City's Landfill is comprised of approximately 32 acres of synthetically lined permitted footprint. The area has been receiving waste for more than 14 years.

One of the oldest problems with landfill capping is the development and maintenance of the vegetative part of a landfill cap. Almost all closures require a minimum of

6 inches of material suitable for growing vegetation be placed as the final part of a landfill closure cap. In the past, this portion of the cap, while one of the most important steps, is performed in the least engineered manner. From a maintenance perspective, having a well-developed vegetative cover on the landfill is extremely important as it armors and protects the cover soils from erosion.

The importance of a good vegetation cover in reducing the long-term cost of maintenance of a landfill cap by better control of erosion caused the City of Chattanooga to look at a way to enhance the vegetative cover at this Class I Municipal Solid Waste (MSW) Landfill. Studies have shown that the amendment of soils with biosolids will increase the development of vegetation on poor soils. Based on these previous works, the City along with ARCADIS U.S., Inc., decided to use the biosolids produced at the City's own Moccasin Bend WWTP facility to amend the soils for the cap at the City's landfill. Also, the City and ARCADIS have written a paper on the application that has been accepted for presentation at the 2013 Solid Waste Conference in Gatlinburg, TN in April.



SYNAGRO

CONTACT INFORMATION

For more information about the City of Chattanooga Biosolids Management Program, to provide comment or input to the program, or to be placed on our mailing list, please contact Matthew Snyder, BMS Coordinator at 423-757-5026, email: snyder_matt@chattanooga.gov.

Also, please visit our City of Chattanooga Biosolids webpage at www.chattanooga.gov/Biosolids There you can find the Biosolids Facts, Criteria for Land Application, and Current Regulations.

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CHATTANOOGA MAINTAINS NBP PLATINUM LEVEL

In January 2012 an independent audit of Chattanooga's BMS program was conducted by DEKRA-Registered Quality, Inc. (Interim Audit Number 3). Based on this audit, Chattanooga's program was verified as meeting the National Biosolids Partnership (NBP) requirements and was recommended for continued certification. This is considered maintaining Platinum Level.

Although the audit found One major nonconformance and five minor nonconformances, all were corrected, with the exception of one (1), before the February 2013 Internal Audit Number 4 (which will be substituted for the first time as the Independent third (3rd) Party Audit). This nonconformance involving a problem solving strategy group is still underway at present, and will be reported by the next Audit as to its effectiveness. The BMS program strengths noted by the audit were:

- The Biosolids Management Team consists of large number of managers, demonstrating wide involvement in the Biosolids Management System.

The City of Chattanooga and DEKRA have agreed that the next Interim Audit will occur sometime in 2013. Chattanooga has the option of substituting an internal audit or using a Third Party Audit Company (e.g. DEKRA) to perform this audit. If an internal audit is substituted as an interim audit, the City of Chattanooga will ask DEKRA to review that audit in order to maintain Verification.

INTERNAL AUDIT TEAM CONDUCTS YEAR 4 AUDIT

Chattanooga's Internal Audit Team, led by Ed Wellmann, conducted the Year 4 Internal audit in August, 2012.

EXECUTIVE SUMMARY

As noted in the Executive Summary, the purposes of the internal audit were:

- to determine if the Chattanooga ISS is complying with its Biosolids Management Policy and the NBP Code of Good Practice
- to determine if the Chattanooga ISS is making satisfactory progress toward its BMS Goals and Objectives.
- to evaluate the effectiveness of the City of Chattanooga's Biosolids Management System by reviewing selected processes from within the Biosolids Value Chain.

Audits were conducted for the following processes: Communication (internal & external); Compliance, Contractor Control, Corrective and Preventive Action, BMS Documentation, BMS Planning, Goals & Objectives, Internal BMS Audits, and Laboratory.

The process audits consisted of interviews with City of Chattanooga ISS staff members with responsibility in the processes covered by the audit, a review of applicable records, and, where required, direct observation of operations.

SUMMARY OF AUDIT FINDINGS

BMS Strengths

- BMP documentation and recordkeeping has greatly improved since the previous internal audit with the establishment and use of the BMP server.
- All legal requirements applicable to BMP activities continue to be adequately addressed by the established procedures.
- As in 2011, there have been zero 40 CFR Part 503 or any other biosolids-related violations to date in 2012.
- Synagro, the land application contractor, continues to go beyond regulatory requirements regarding setbacks and agronomic load rates for application of biosolids, and continues to demonstrate an excellent approach and attitude toward their role in the biosolids program, contributing significantly to greater end-user satisfaction with the City's product. Synagro's

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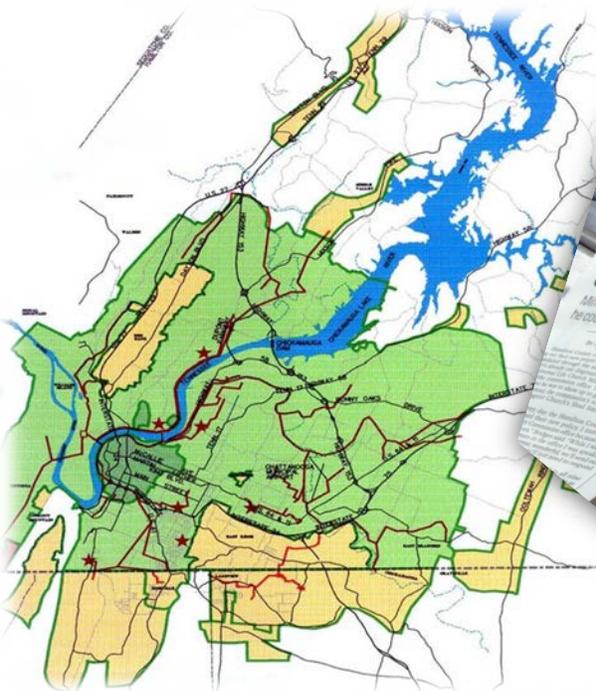
employees have extensive knowledge of biosolids production and land application processes and principles.

- The BMP employs Material Matters to conduct quantitative analysis of soils from farms on which land application will take place, and maintains analytic databases for the City, which provides an effective separation of duties of contractors as another layer of control in the land application process.
- Biosolids education for and communication with staff has significantly improved through various implemented tools such as BMS Information Stations and frequently updated website.

Members of the Internal Audit Team are Diane Benton, Alan Martin, Joe Miller, and Joan Sloan.

All Audit Reports are available in their entirety at www.Chattanooga.gov/Biosolids

CITY ENTERS INTO A CONSENT DECREE WITH THE EPA



The Tennessee Clean Water Network (TCWN), United States Environmental Protection Agency (USEPA) and the Tennessee Department of Environment and Conservation (TDEC) negotiated a Consent Decree with the City of Chattanooga (the City) to address sanitary sewer overflows (SSOs), wet weather discharges from the West Bank and East Bank outfalls, and other wastewater system issues. The City of Chattanooga entered into a mutual partnership between EPA, the State, and TN Clean Water Network to help protect the health of the Tennessee River and its tributaries, and the people who use and enjoy them. The Consent Decree calls for implementation of repair and capacity projects in various parts of the City's sewer system, which will result in a substantial improvement in water quality over time.

The Consent Decree will be implemented in two phases. During the first phase – which lasts five years – the City will focus on high priority projects (the Early Action Capital Projects listed in Appendix C). The City will also develop and implement a Phase I sewer repair program that will rehabilitate approximately 15% of the sewershed. These improvements are expected to eliminate discharges from the West Bank and East Bank outfalls and reduce SSOs. In the second phase, the City will develop and implement additional projects designed to further improve operation and maintenance of its sewer system.

<http://tcwn.org/press>

<http://tcwn.org/sites/tcwn.org/files/Chattanooga%20Appendices%20FINAL%20-%20reduced%20size.pdf>

http://tcwn.org/sites/tcwn.org/files/ChattanoogaDraft_Consent_Decree%20Final.pdf

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CONTRACTOR ACTIVITIES

During the year 2012, Chattanooga produced and land applied 69,684 wet tons of biosolids, which were applied as a Class B material. Applications were made to 1,281 acres in Hamilton County and 5,463 acres in Tennessee. In total, 215 farms were



land applied. There continues to be new farms added to the list of participating land owners weekly and demand is high.

Most of the crops supported with the biosolids program are hay or rye, followed second by corn. The nitrogen value of the biosolids for these

crops calculates to \$578,000 for the year 2012, which offsets the need for land owners to purchase commercial fertilizer for the same amount of nitrogen. On a percent dry weight basis, the biosolids averaged 3.6% in total nitrogen, 7.8% in phosphorous and 0.2% in potassium.

The City continues to perform bi-weekly inspections on land application sites. These inspections ensure that the land application contractor is following established procedures and that any concerns of neighbors and other stakeholders are addressed.

Testimonial of Service from Satisfied Farmer:

Dear Mayor Littlefield,

I would like to let you know Synagro came to my farm in August of this year and did an excellent job of disbursements of biosolids from Moccasin Bend.

I want to thank you for supporting farmers throughout Hamilton County. This is an excellent product for replenishing the soil for basically all farms that get to utilize it. I am probably good for a couple of years at my farm, but will get with Synagro the year after next. I just wanted to let you know that an excellent job was done on my farm.

*Respectfully Yours,
Jim Frost*

Jim Frost farm HA-026:



The City of Chattanooga has approved proposal for the new

Moccasin Bend Clean Water Authority.



In a 7 to 2 vote, the Council Okayed the plan to hire the company MWH Americas to put the Authority together at a cost of \$100,000. Somewhat like EPB oversees electricity, this board will oversee storm water and sanitary sewer. The Council then approved five board members to serve on the Clean Water Authority.

CHATTANOOGA (WRCB)

<http://www.wrcbtv.com/story/20977320/city-council-approves-clean-water-authority>

2/6/2013

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PROGRESS TOWARD GOALS AND OBJECTIVES

Chattanooga's Moccasin Bend Wastewater Treatment Plant (MBWWTP) has maintained its four primary goals and associated objectives for continuous improvement of its biosolids BMS. The BMS management team regularly reviews the goals and objectives and revises as necessary. The following is our 2012 progress report toward those goals:

Regulatory Compliance – All biosolids produced and land applied in 2012 met all EPA 503 compliance requirements (see below for comparison). Regular meetings and site inspections with the land application contractor are held, as well as random truck inspections. No notices of violation (NOV's) were issued in 2012, with the quality of the biosolids produced being more consistent than years past. The public input hearing took place at the TDEC field office for questions and comment for a General Land Application Permit for Biosolids. This new regulation is in the draft stage, but will allow TDEC to enforce against poor application practices. This will lead to improved environmental quality and public perception of wastewater solids reuse in agriculture.

Quality Management Practices in Biosolids – In 2012 certification of all Chattanooga biosolids as a commercial fertilizer product was continued with the Tennessee Department of Agriculture. A consultant is currently working with Chattanooga to determine the steps needed to obtain Class A / Exceptional Quality (EQ) certification of the biosolids produced from the Filter Press process. The consultant has established a timeline of milestones which include contact of both EPA and the manufacturer of the Filter Press process for data needed for the Class A certification of that material. Monthly progress meetings detail progress towards this goal. Currently, Chattanooga is in the finalization stages of new laboratory testing, which includes conducting additional pH tests on filter press cake to establish documentation of a stable product to meet Vector Attraction Reduction (VAR) standards. This testing will be submitted to EPA for review and acceptance this month.

Environmental Performance – Moccasin Bend WWTP has implemented a Strategic Energy Management Plan to reduce and study energy consumption at the facility by hiring the consultant, AEED. The initial steps will involve changes to lighting and switches to reduce waste during non occupied and occupied hours by changing existing less efficient bulbs and ballasts to more efficient types. The BMS Coordinator, Matthew Snyder, completed his LEED (Leadership in Energy and Environmental Design) professional Certification this January. LEED AP O+M (Operations & Maintenance) will enable him to take a more in depth look at the seven (7) areas of LEED at Moccasin Bend and recommend upgrades or changes that will be more sustainable for the future of the facility.

Relations With Interested Parties – Our Objective to Increase outreach attempts and Relations with interested parties through plant tours was achieved two fold in 2012 through the creation of a plant tour for children and adults. 303 Persons from ages 8 to 80 viewed outreach in the form of Wastewater Treatment presentations and walking tours at the plant, to our new "Mighty Microbe Series" which were enjoyed by all ages. In total, 583 people received information about the biosolids program. Every employee, ~ 160 total, went through the "new" BMS Training on the computer.

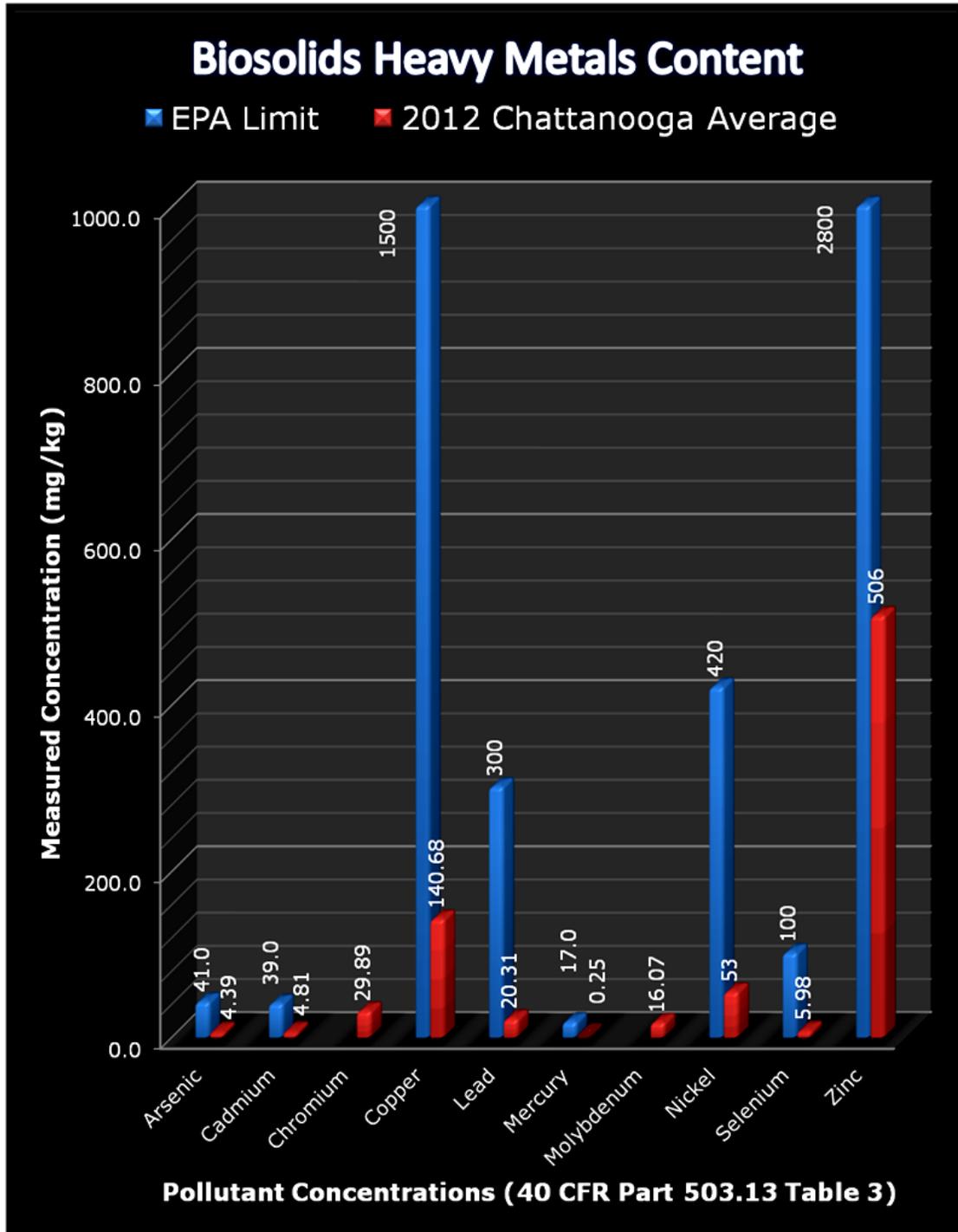


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REGULATORY COMPLIANCE

The biosolids produced at MBWWTP have consistently met all standards for Class B biosolids required by the EPA, and are well below the regulatory limits for metal concentrations as shown in the attached chart (2012 data). There have been no Notices of Violation for biosolids production and land application for the past year, and the City has met the Tennessee Department of Environment and Conservation (TDEC) Guidelines for the Land Application and Surface Disposal of Biosolids.



(EPA does not set a limit for Molybdenum or Chromium but it is tested for anyway)