NATIONAL BIOSOLIDS PARTNERSHIP THIRD INTERIM AUDIT REPORT

Louisville and Jefferson County Metropolitan Sewer District

Louisville Green Management System

Louisville, Kentucky

Audit conducted by

NSF-International Strategic Registrations

William R. Hancuff, Lead Auditor

References:

National Biosolids Partnership (NBP) EMS Elements

NBP Third Party Verification Auditor Guidance – November 2001

(Latest Revision August 2011)

NBP Code of Good Practice

Louisville Green Management System Manual

(Rev 14 – May 29, 2013)

Final Report – June 24, 2013

INTRODUCTION

The purpose of the Biosolids Management Program (BMP) re-verification audit is to verify that the Louisville and Jefferson County Metropolitan Sewer District's (MSD) Louisville Green Management System (LGMS), Louisville, Kentucky, conforms to EMS requirements of the National Biosolids Partnership (NBP).

The goal of the Third Party Re-verification audit is to collect and evaluate objective evidence that determines whether the MSD LGMS is functioning as intended, that practices and procedures are conducted as documented, and that the EMS as implemented conforms to the NBP's BMP Elements, the Code of Good Practice and the BMP objectives.

RECOMMENDATION

The results of the LGMS re-verification audit and review of corrective action plans are positive, and it is the recommendation of the audit team that the Louisville and Jefferson County Metropolitan Sewer District LGMS maintain its "Certification" status.

AUDIT SCOPE

The (NSF-ISR) conducted a third party re-verification audit of the MSD's LGMS from June 17 through June 20, 2013. The on-site re-verification audit team consisted of Dr. William R. Hancuff, Lead Auditor.

In general terms, the scope of the Third Party re-verification audit encompassed the entire biosolids value chain (pretreatment, collection and treatment, through final end use) with special attention on those practices and management activities that directly support biosolids-related operations, processes, and activities within the facilities.

The physical biosolids facilities included in the audit and visited during the reverification audit included the MSD wastewater treatment plant, the Louisville Green processing and transportation facilities, and a Louisville Green field storage barn and one of the farm application sites. The physical biosolids facilities included in the audit and visited during the interim audit included the following biosolids value chain process area critical control points: preliminary/primary treatment, secondary treatment, digestion, dewatering, drying, silo storage and truck loading and weighing.

The following individuals were interviewed or otherwise participated in meetings as part of the audit process:

Alex Novak Director of Operations

Saeed Assef Director Infrastructure and Flood Protection

Robert Bates Process Manager

Joseph Falleri Operations Project Specialist

Robin Burch Process Support Technician

Jenni Schelling Laboratory Manager, MSD Internal Auditor

Damon Talley Regulatory Engineer

Allen Adams Health and Safety Administrator
Jared Bishop Emergency Response Coordinator

Richard Galardi Process Manager
James T. Bridges Maintenance Manager
Sharon Worley Technical Services Engineer
Jacob Kennison Engineering Technician IV

Tony Glore Training and Performance Administrator

David Roth Senior Trainer: Operations

James Skinner Shift Supervisor

Aaron Smith Process Technician III
Mike Scott Process Technician III
Sevelle Rice Process Technician II

Mike Hext M&I Sales Manager, Waste Management Clark Fenimore A.J. Inc. – president (sales contractor) Tom Feree Farms, Farmer, Harrison County, IN

Michael Hom US EPA Region IV – Environmental Engineer, Biosolids

Data Management System (BDMS)

Frank Whitney Environmental Technologist III, Kentucky Department of

Environmental Protection, Division of Waste Management,

Solid Waste

Terry Hendrick Water Treatment Chief, Bowling Green, KY

Heather Stringfield Pretreatment Manager and Biosolids Coordinator, Bowling

Green KY

Benzie Timberlake Chief Chemist, Bowling Green, KY

RE-VERIFICATION AUDIT FINDINGS

The re-verification audit included review of the latest versions of relevant LGMS manual element procedures and employed the most recent version of the NBP Third Party Verification Auditor Guidance dated August 2011. The interim audit found 4 positive observations, no major non-conformances, 12 minor non-conformances and 5 opportunities for improvement.

The NBP Third Party Verification Auditor Guidance indicates that when the auditor has identified minor nonconformances during the on-site audit, the organization must resolve the nonconformances and provide documentation to the auditor within 30 days of the audit. NBP acknowledges that biosolids organizations may not be able to fully correct some minor nonconformances within 30 days, in which case NBP requires that the audited organization develop an action plan with time frames. The lead auditor must approve this plan and schedule for correcting minor nonconformances. Corrective action plans were prepared and submitted to the lead auditor and the approach and time frame for implementation were approved. Field verification of the closure of all minor findings will be finalized during the next scheduled interim audit.

The following is a review of the positive observations made during the interim audit. The minor non-conformances and opportunities for improvement follow, and are listed by item number, which correspond to the element minimum conformance requirements found in the NBP Third Party Verification Auditor Guidance. These findings are presented in the sequence of the NBP standard elements.

Positive Observations

The MSD management and all plant personnel involved in the biosolids environmental management system development should be recognized for their outstanding achievements, and the exceptional features of their Louisville Green Management System. The following is a summary of those positive observations made during the re-verification audit.

Requirement 5.1 - LFMS has established an excellent tracking program for periodically reviewing the measurable progress made toward accomplishing objectives.

Requirement 7.4 – LGMS has developed an excellent single sheet summary of contractors' roles and responsibilities relative to their requirements to perform various biosolids management activities and EMS functions.

Requirement 10.1 – LGMS has made significant improvements in it Standard Operating Procedures and continues to strive for continual improvement of these SOPs to make them more user friendly and adaptable for training.

Requirement 12.1 – LGMS has established and maintains an exemplary program for documentation, documents, files and records for the Biosolids Management Program. This organization can serve as a model for other agencies to follow.

And finally, the hard work and dedication of the Core EMS Team must be acknowledged. Maintaining BMP certification is obviously a team effort, but the hard work and dedication of Robin Burch and leadership of Robert Bates, Joseph Falleri and Rich Galardi to ensure continuous improvement must be recognized. Additionally, the support, encouragement and active participation of the Director of Operations, Alex Novac, in the BMP process has guaranteed the continued success of the program.

Minor Nonconformances

Requirements 1.5 and 3.1 – All critical control points have not been clearly or adequately identified. The solids production operations and solids hauling associated with each of the regional plants (Hite Creek, Floyds Fork, Cedar Creek, Jeffersontown, and D.R. Gutherie) are not identified as critical control points.

Requirement 1.7 – Currently Element 1: LGMS Manual Introduction does not adequately describe those specific biosolids management activities assigned to and performed by contractors.

Requirement 4.2 – The legal requirements identified in Appendix 4A: List of Legal and Other Requirements do not adequately identify the level of detail associated with applicable legal requirements.

Requirement 5.5 – Not all program goals and objectives have been developed using the Specific, Measureable, Achievable, Relevant and Time-bound (SMART) criteria.

Requirement 5.7 – Action plans containing projected schedules, milestones, resources, and responsibilities for achieving biosolids program goals and objectives have not been developed.

Requirement 7.2 – There was no objective evidence available to demonstrate that an individual has been appointed with overall responsibility for ensuring that the biosolids management program and EMS are implemented and maintained.

Requirement 7.4 – The Waste Management Contract (or service agreement) has not yet incorporated all of their roles and responsibilities to perform various biosolids management activities and EMS functions.

Requirement 10.1 – The Standard Operating Procedures for Solids Drying (and a few others) have not been completed.

Requirement 10.2 – Not all legal and other requirements have been adequately incorporated into operational controls of critical control points, such as the minimum regulatory requirements for temperature, metals concentrations, and moisture content to produce an EQ product from the drying process.

Requirement 12.2 – The printed versions of each of the LGMS element procedures are not properly marked with version number and effective date(s). This also applies to the "Corrective Action Plan Form"

Requirement 14.6 – The approach employed to track progress in completing corrective actions and periodically updating the status to reflect completion are not adequately described in the Element 14: Nonconformances – Preventive & Corrective Action procedure; for example, how is the Corrective Action Plan Form used and how is "The Win Column" form or table used. Additionally, there is a form or table used to summarize all of the currently active corrective actions, however its content and use is not presently described in the procedure.

Element 17 – Within the Element 17: Management Review procedure, procedure number 1 indicates that the review participants will be at the discretion of the Director of Operations, while Element 7: Role and Responsibilities indicates the Members of the Executive Team participate in the Management Review Process. Those management positions that have participated in the past, and who are intended to participate in the future management review process have not been clearly or specifically identified.

Opportunities for Improvement

Element 4 – Within the Element 2: Biosolids Management Policy procedure, consider clarifying that EQ biosolids are "unregulated for use."

Element 5 – Consider establishing goals and objectives and action plans for measureable improvements to be accomplished through installation and optimum operation of the soon to be constructed headworks screens, and the regional solids dewatering project.

Element 14 – Within the Element 14: Nonconformances – Preventive & Corrective Actions procedure consider if the procedures used to address nonconformances associated with a legal/regulatory violation, operational upset/unusual occurrences, deviations during routine monitoring and measurement activities and nonconformances identified during internal and external EMS audits can be simplified, streamlined and/or consolidated.

Element 16 – The "Internal EMS Audit Checklist" form is not referenced as a tool for conducting audits in the Element 16: Internal Audits procedure.

Element 16 – In the Element 16: Internal Audits procedures consider if the details of procedure number 8 provide value to the system. Additionally, some of the information contained in procedure number 9 is no longer current and other information may duplicate what has already been presented in procedure number 6. Consider reviewing the NBP auditor guidance for clarification of specific details of internal audit requirements.

For the minor non-conformances, MSD personnel prepared Corrective Action Plans, and will implement corrective actions according to their EMS procedures to provide continual improvements to their biosolids program. All proposed corrective action work plans were reviewed by the auditor and found to be acceptable and final closure will be verified during the next external third party audit. As a further measure to demonstrate continuous improvement the opportunities for improvement will be addressed to the maximum extent possible.

METROPOLITAN SEWER DISTRICT COMMENTS

The Re-verification Audit performed by Mr. Bill Hancuff was a value added experience to the Louisville Green Management System. This audit was the first time Mr. Hancuff has reviewed the entire 17 elements of the systems since he became the auditor in mid-cycle. I believe his findings were fair and accurate. Robin Burch – MSD Process Support Technician.

OUTCOMES MATTER

The Louisville Green Management System of the Louisville and Jefferson County Metropolitan Sewer District attained an enviable goal in 2012 of beneficially using 98.8 percent of its biosolids product; i.e. only 1.2% was sent to a landfill. Then District is unique in that it annually reports on some of its financial benefits resulting from the BMP. In 2011 the LGMS generated \$286,000 in sales of its product, which increased to \$380,546 in 2012. In 2011 it reported a savings of approximately \$625,000 in natural gas saving by using its digester generated biogas to fuel its drying operation and in 2012 this represented a savings of \$464,000. Also, by beneficially using its biosolids as a resource it avoided landfill costs of \$586,000 in 2011 and \$581,000 in 2012.

The LGMS established four individual goals using the title of each outcome area as a goal. Therefore, using the present approach MSD will always be four goals, specifically identified to address each of the following:

- 1. Environmental Performance,
- 2. Regulatory Compliance,
- 3. Relations with Interested Parties, and
- 4. Quality Biosolids Management Practices.

In the recent past several objectives have been established within each goal, being developed by the LGMS Core Team considering public input.

While it is not a requirement to fully attain all objectives established, it is a critical component of the system to make progress towards accomplishing the overall goals. Most of the objectives in the past were established using Specific, Measurable, Achievable, Relevant, and Time Bound (SMART) criteria.

The Policy of the LGMS is simply summarized as "MSD will produce Exceptional Quality (EQ) biosolids and promote beneficial reuse." The final Louisville Green Organic Fertilizer has consistently attained an Exceptional Quality and generated a highly marketable biosolids product. As a result of the aggressive marketing campaign and sales program the beneficial reuse of material in 2012 was 98.8%.

The facility's performance relative to each of the above listed outcome groups is addressed below.

In the <u>Environmental Performance</u> outcome area and goal, LGMS established six objectives for 2011:

1) 100 percent of the product distributed each month will meet EPA EQ standards for metals. The entire product distributed in 2011 met this objective.

- 2) 68 percent of product produced each month will meet MSD's quality specifications. It was reported that over 80.7% of the Louisville Green product met this specification.
- 3) 75 percent of dryer heat demand each month will be provided by digester gas. It was reported that between 80-90% of the heat demand in the dryer trains was met using the biogas produced by the digesters.
- 4) On an annual basis reduce the solids disposed at a landfill and waste management dependency to less than 8 percent of material produced. Only 5.3% of material was sent to landfill in 2011.
- 5) To develop an unusual discharge protocol to identify the top five industrial dischargers to the MSD system. A program was developed to allow the top five dischargers of known pollutant of concern to be queried showing how much of the pollutant they store and exactly where they discharge into the collection system.
- 6) Perform an investigation to quantify greenhouse gases at the wastewater treatment facilities. This objective was not accomplished due to being replace by a higher priority associated with air permitting.

For 2012 one objective was established: To evaluate if exceeding 96% dry solids results in product quality complaints, specifically more dust or more fractured pellets. During the year the objective was refocused on developing a new strategy for product recycle. This objective was carried forward into 2013 and considerable progress has been made in modifying equipment and operations of the crusher to improve product recycle.

In the <u>Regulatory Compliance</u> outcome area and goal, LGMS established four objectives for 2011:

- 1) Meet regulatory standards (monthly and daily where applicable) for wastewater, biosolids and air throughout 2011. There were no violations of the KPDES permit EQ standards for biosolids, or air quality in 2011.
- 2) Conduct 6 random land application site inspections per year. Seven random land application inspections were performed in 2011.
- 3) Perform an average of 5 random inspections of Louisville Green contractor hauling per month. There were 5 random inspections of Louisville Green contractor per month in 2011.
- 4) Limit significant noncompliance level of Significant Industrial Users (SIUs) to less than 8 percent per year. There were 6 significant noncompliance occurrences in 2011 from 85 SIUs, resulting in 7 percent noncompliance.

For 2012 a single objective was established to acquire a better process for high purity oxygen generation. While this specific objective does not meet all of the SMART criteria the completion should improve performance and reliability at a reduced cost and the objective was carried forward into 2013.

There were 4 additional objectives added to this outcome area in 2013, (that as presented don't completely meet the SMART criteria for biosolids):

- 1) Develop and implement a new lockout/tagout program
- 2) Review all current SOPs and develop a plan for updating.
- 3) Complete application for Federal Enforceable District Origin Operating Permit (FEDOOP).
- 4) Develop a plan to prevent bypass occurrences related to direct drainage to the Ohio River.

In the <u>Relations with Interested Parties</u> outcome area and goal, LGMS established five objectives for 2011:

- 1) Fewer than 9 product odor complaints per year. There were no odor complaints in 2011.
- 2) Fewer than 9 product quality complaints per year. There were three Louisville Green storage and quality product complaints in 2011.
- 3) At least 5 public outreach events per year. There were 21 public outreach events in 2011.
- 4) Greater than 84 percent saleable product distributed in 2011. One hundred percent of the saleable product was distributed.
- 5) Conduct internal communications every four months with plant personnel. The internal communication plan was shifted from its original approach and is addressed in shift briefings, as needed.

In 2012 there were two objectives established:

- 1) Track Louisville Green Pollutants of Concern (POC) incidents further upstream into the Morris Forman collection system. In 2012 two permanent sampling sites were installed on two main trunk lines entering the plant. Samples are collected daily to identify the areas of origin should POCs be identified.
- 2) Operate Morris Foreman Plant at or under budget. The plant was operated under budget by 3% in 2012.

In 2013 three objectives were established, including the carryover of the objective related to operating under budget:

- 1) Operate Morris Foreman Plant at or under budget. The plant was operated under budget by 3% in 2012.
- 2) Develop a request for proposal for marketing Louisville Green.
- 3) Create a Program Performance Report focused on its distribution to the public.

In the <u>Quality Biosolids Management Practices</u> outcomes area and goal, LGMS established three objectives for 2011:

- 1) Fully develop and implement standard operating procedures (SOPs) for Primary and Secondary Treatment. The objective of fully developing these SOPs was 90% accomplished and carried over into 2012.
- 2) Have two operators obtain or upgrade their wastewater licenses. Seven operators received or upgraded their wastewater licenses.
- 3) Achieve annual average preventive maintenance completion of 84 percent. The scheduled preventive maintenance was completed at a rate of 89.3 percent.

In 2012 there were three additional objectives added to the one related to development and implementation of SOPs:

- Evaluate headworks and screening technologies to limit the occurrence of digester plugging. A headworks study was completed and new headworks are scheduled for installation.
- 2) Develop a long-term dryer refurbishing plan. And evaluation was completed and the MSD Board determined that repairs should be made.
- 3) Develop operational control process supervisors and operators to more consistently manage solids processing. An operational control strategy was developed and will be implemented in 2013.

A single objective was established for this goal in 2013. It was to implement the operational control strategy formulated as a result of the 2012 objective.

CONCLUSIONS AND RECOMMENDATIONS

The results of the third party interim audit show the Louisville and Jefferson County Metropolitan Sewer District has a fundamentally strong Environmental Management System. The NSF lead auditor reviewed and approved the corrective action plans for the minor nonconformances associated with the third interim audit. Therefore, it is the

recommendation of the audit team that the Louisville Green Environmental Management System of Louisville, Kentucky retain its "certification" status.

As was mentioned previously, a BMP is a continuously improving process, and retention of certification status is not the end. The results of this and future audits will provide value added to the system and should be viewed as an overall opportunity to improve. Every audit is a snapshot in time, and does not, or cannot, identify each and every area for improvement. And yet, while no single audit identifies all of the areas for improvement the results of each audit provide an additional incremental step in the overall system's improvement.

The scope of each interim audit must include a review of the organization's progress toward goals and objectives; EMS outcomes (environmental performance, regulatory compliance, interested party relations, and quality practices); actions taken to correct minor nonconformances; the management review process; and corrective and preventive action requests and responses. This review generally includes requirements found in elements 1, 2, 5, 6, 9, 14, 15, 16 and 17.

In order to address each element of the NBP standard over the four years of interim audits the following elements are tentatively scheduled over the period between verification audits:

Year 6 (third party) – Elements 2, 5, 6, and 9

Year 7 (third party or internal) – Elements 1, 4, and 8

Year 8 (third party) – Elements 3, 10, and 13

Year 9 (third party or internal) – Elements 7, 11, and 12

Year 10 (third party) – Re-Verification audit

Attachment 1

Documents and Other Objective Evidence Reviewed During the Re-verification Audit

Element 1. Documentation of EMS for Biosolids

- Louisville Green Management System (LGMS) Manual, Rev14 May 29, 2013
- Interviews with Robert Bates, Process Manager; Robin Burch, Process Support Technician; Sharon Worley, Technical Services Engineer; and Joseph Falleri, Operations Project Specialist
- LGMS Manual Table of Contents
- LGMS Manual Appendices
- LGMS Manual Manual Revision Log
- LGMS Manual Element 1 LGMS Manual Introduction
- LGMS Manual Element 2 Biosolids Management Policy
- LGMS Manual Element 6 Public Participation in Planning
- LGMS Manual Element 9 Communication
- LGMS Manual Element 11 Emergency Preparedness & Response
- LGMS Manual Element 3 Critical Control Points
- LGMS Manual Element 10 Operational Controls
- Louisville & Jefferson County Metropolitan Sewer District Board Meeting Minutes from December 14, 2009 meeting adopting Biosolids Management Policy based on H.J. Schardein, Jr., Executive Director recommendation dated November 25, 2009 incorporating the Code of Good Practice, dated October 19, 2009.
- Louisville Green Management System Contractor Requirements

Element 2. Biosolids Management Policy

- LGMS Manual Element 2 Biosolids Management Policy
- LGMS Manual Appendix A: Code of Good Practice
- Louisville & Jefferson County Metropolitan Sewer District Board Meeting Minutes from December 14, 2009 meeting adopting Biosolids Management Policy incorporating the Code of Good Practice
- Interview with Alex Novak, Director of Operations
- Interview with Saeed Assef, Director Infrastructure and Flood Protection
- Interviews with Robert Bates, Process Manager; Robin Burch, Process Support Technician; Sharon Worley, Technical Services Engineer, Joseph Falleri, Operations Project Specialist; and Richard Galardi, Process Manager.
- December 14, 2009 MSD Board Meeting Minutes documenting approval of the new LGMS Policy, dated October 19, 2009
- MSD Louisville Green Management System website (http://www.msdlouky.org/programs/envir_man_sys.htm).

- MSD Employee Training Records: Employee Training Log for Louisville Green Management System Training conducted May 2013
- LGMS Training Power Point slide deck last updated 3-27-2013

Element 3. Critical Control Points

- LGMS Manual Element 3 Critical Control Points
- LGMS Manual Appendix 3A List of Critical Control Points and Operational Controls revised 3-29-13
- Liquid Processing flow diagram
- Solids processing air flow schematic
- Expanded versions of solids drying flow diagram
- Interviews with Robin Burch, Process Support Technician, Robert Bates, Process Manager; Sharon Worley, Technical Services Engineer; and Joseph Falleri, Operations Project Specialist
- Field observation of primary treatment, secondary treatment, digestion, dewatering, drying, silo storage and truck loading and weighting facilities.
- Interviews with Richard Galardi, Process Manager; James T. Bridges, Maintenance Manager; Jacob Kennison, Engineering Technician IV; James Skinner, Shift Supervisor; Aaron Smith, Process Technician III; Mike Scott, Process Technician III; Sevelle Rice, Process Technician II; Mike Hext, M&I Sales Manager, Waste Management; Clark Fenimore, A.J. Inc., and Tom Feree, Feree Farms, Farmer, Harrison County, IN

Element 4. Legal and Other Requirements

- LGMS Manual Element 4 Legal and Other Requirements
- Appendix 4A List of Legal and Other Requirements, Rev 17, dated 5-29-13
- Appendix 4D = List of Informational Sources (regulatory) Rev 01, dated 1-16-13
- LGMS Manual Element 10 Operational Controls
- Interviews with Robert Bates, Process Manager; Robin Burch, Process Support Technician; Sharon Worley, Technical Services Engineer, Joseph Falleri, Operations Project Specialist; and Richard Galardi, Process Manager
- Interviews with Damon Talley, Regulatory Engineer; Jenni Schelling, Laboratory
- Manager; Allen Adams, Health and Safety Administrator and Jared Bishop, Emergency Response Coordinator
- Interviews with regulators Michael Hom, US EPA Region IV Environmental Engineer, Biosolids Data Management System (BDMS) and, Frank Whitney Environmental Technologist III, Kentucky Department of Environmental Protection, Division of Waste Management, Solid Waste

Element 5. Goals and Objectives for Continual Improvement

- LGMS Manual Element 5 Goals and Objectives.
- Appendix 5A Goals and Objectives List of Goals and Objectives 1/24/2011
- Appendix 5A Goals and Objectives List of Goals and Objectives 8/13/2012

- Appendix 5A Goals and Objectives Goals and Objectives Revision Log
- Appendix 6A List of Interested Parties; Rev 997, dated 5-20-13
- Appendix 9A Record of Public Input and Inquiries, Rev 8, 10-30-12
- Interview with Alex Novak, Director of Operations
- Interview with Saeed Assef, Director Infrastructure and Flood Protection
- Interviews with Robert Bates, Process Manager; Robin Burch, Process Support Technician; Sharon Worley, Technical Services Engineer, Joseph Falleri, Operations Project Specialist; and Richard Galardi, Process Manager.
- Progress toward Goals and Objectives dated May 16, 2013
- Louisville Green Management System Program Performance Report dated 1/27/12
- Louisville Green Management System Program Performance Report dated 2/4/13

Element 6. Public Participation in Planning

- LGMS Manual Element 6 Public Participation in Planning
- Table 6.1 List of Formal and Informal Participation Mechanisms
- Appendix 6A List of Interested Parties; Rev 997, dated 5-20-13
- LGMS Manual Element 9 Communication
- Appendix 9A Record of Public Input and Inquiries, Rev 8, 10-30-12
- Notification to interested parties dated March 21, 2013 providing opportunities for observation of third party interim audit
- Interviews with Robert Bates, Process Manager; Robin Burch, Process Support Technician; Sharon Worley, Technical Services Engineer, and Joseph Falleri, Operations Project Specialist
- Interviews with Mike Hext, M&I Sales Manager, Waste Management; Clark Fenimore, A.J. Inc., and Tom Feree, Feree Farms, Farmer, Harrison County, IN
- Observers of re-verification audit day 3 Bowling Green, KY (Terry Hendrick, Water Treatment Chief; Heather Stringfield, Pretreatment Manager and Biosolids Coordinator; and Benzie Timberlake, Chief Chemist)
- MSD Louisville Green Management System website (http://www.msdlouky.org/programs/envir_man_sys.htm).
- Multi-color single sheet presentation of MSD Policy and Code of Good Practice.
- Multi-color single sheet presentation of Louisville Green Management System Four Key Outcome Areas
- Pocket version of above two information sheets
- Various color flyers presenting the benefits of the Louisville Green organic based fertilizer.
- Louisville Green Transportation Packet (general biosolids information, operational instructions, and emergency response)
- Louisville Green Management System Program Performance Report dated 1/27/12
- Louisville Green Management System Program Performance Report dated 2/4/13

Element 7. Roles and Responsibilities

- LGMS Manual Element 7 Roles and Responsibilities
- MSD Louisville and Jefferson County Metropolitan Sewer District Organizational Chart
- Interview with Alex Novak, Director of Operations and Saeed Assef, Director Infrastructure and Flood Protection
- Interviews with Robert Bates, Process Manager; Robin Burch, Process Support Technician; Sharon Worley, Technical Services Engineer, and Joseph Falleri, Operations Project Specialist
- Interviews with Emergency Preparedness and Response personnel: Allen Adams, Health and Safety Administrator and Jared Bishop, Emergency Response Coordinator
- Interviews with MSD regulatory personnel: Damon Talley, Regulatory Engineer; and Jenni Schelling, Laboratory Manager
- Interviews with operations and maintenance personnel: Richard Galardi, Process Manager; James T. Bridges, Maintenance Manager; Jacob Kennison, Engineering Technician IV; James Skinner, Shift Supervisor; Aaron Smith, Process Technician III; Mike Scott, Process Technician III; Sevelle Rice, Process Technician II; Interviews with training personnel: Tony Glore, Training and Performance Administrator and David Roth, Senior Trainer: Operations
- Interviews with contractors: Mike Hext, M&I Sales Manager, Waste Management; Clark Fenimore, A.J. Inc.

Element 8. Training

- LGMS Manual Element 8 Training
- LGMS Manual Appendix E: Employee Training Program Guidelines
- Interviews with training personnel: Tony Glore, Training and Performance Administrator and David Roth, Senior Trainer: Operations.
- Interviews with Robert Bates, Process Manager; Robin Burch, Process Support Technician; Sharon Worley, Technical Services Engineer, and Joseph Falleri, Operations Project Specialist
- MSD Employee Training Records: Employee Training Log for Louisville Green Management System Training conducted May 2013
- LGMS Training Power Point slide deck last updated 3-27-2013
- Eight-hour refresher MSD Haz-Mat Class Agenda 2012.
- Interviews with operations and maintenance personnel: Richard Galardi, Process Manager; James T. Bridges, Maintenance Manager; Jacob Kennison, Engineering Technician IV; James Skinner, Shift Supervisor; Aaron Smith, Process Technician III; Mike Scott, Process Technician III; Sevelle Rice, Process Technician II
- Interviews with training personnel: Tony Glore, Training and Performance Administrator and David Roth, Senior Trainer: Operations

- Interviews with contractors: Mike Hext, M&I Sales Manager, Waste Management; Clark Fenimore, A.J. Inc.

Element 9. Communications

- LGMS Manual Element 9 Communication
- Appendix 9A Record of Public Input and Inquiries, Rev 8, 10-30-12
- LGMS Manual Element 6 Public Participation in Planning
- Table 6.1 List of Formal and Informal Participation Mechanisms
- Appendix 6A List of Interested Parties; Rev 997, dated 5-20-13
- Notification to interested parties dated March 21, 2013 providing opportunities for observation of third party interim audit
- Interviews with Robert Bates, Process Manager; Robin Burch, Process Support Technician; Sharon Worley, Technical Services Engineer, and Joseph Falleri, Operations Project Specialist
- Interviews with Mike Hext, M&I Sales Manager, Waste Management; Clark Fenimore, A.J. Inc., and Tom Feree, Feree Farms, Farmer, Harrison County, IN
- MSD Louisville Green Management System website (http://www.msdlouky.org/programs/envir_man_sys.htm).
- Multi-color single sheet presentation of MSD Policy and Code of Good Practice.
- Multi-color single sheet presentation of Louisville Green Management System Four Key Outcome Areas
- Pocket version of above two information sheets
- Various color flyers presenting the benefits of the Louisville Green organic based fertilizer.
- Louisville Green Transportation Packet (general biosolids information, operational instructions, and emergency response)
- Louisville Green Management System Program Performance Report dated 1/27/12
- Louisville Green Management System Program Performance Report dated 2/4/13

Element 10. Operational Control of Critical Control Points

- LGMS Manual Element 10 Operational Controls
- LGMS Manual Appendix 3A List of Critical Control Points and Operational Controls revised 3-29-13
- Appendix 4A List of Legal and Other Requirements, Rev 17, dated 5-29-13
- Standard Operating Procedure for Dewatering
- Standard Operating Procedure for Dryers
- Standard Operating Procedure for Truck Loading and Weighing
- Interviews with Robert Bates, Process Manager; Robin Burch, Process Support Technician; Sharon Worley, Technical Services Engineer, and Joseph Falleri, Operations Project Specialist
- Interviews with Mike Hext, M&I Sales Manager, Waste Management; Clark Fenimore, A.J. Inc.

- Interviews with operations and maintenance personnel: Richard Galardi, Process Manager; James T. Bridges, Maintenance Manager; Jacob Kennison, Engineering Technician IV; James Skinner, Shift Supervisor; Aaron Smith, Process Technician III; Mike Scott, Process Technician III; Sevelle Rice, Process Technician II
- Interviews with training personnel: Tony Glore, Training and Performance Administrator and David Roth, Senior Trainer: Operations

Element 11. Emergency Preparedness and Response

- LGMS Manual Element 11 Emergency Preparedness and Response.
- Emergency Response Manual.
- Interviews with Emergency Preparedness and Response personnel: Allen Adams, Health and Safety Administrator and Jared Bishop, Emergency Response Coordinator.
- Interviews with Robert Bates, Process Manager; Robin Burch, Process Support Technician; Sharon Worley, Technical Services Engineer, and Joseph Falleri, Operations Project Specialist
- Interviews with Mike Hext, M&I Sales Manager, Waste Management; Clark Fenimore, A.J. Inc.
- Interviews with training personnel: Tony Glore, Training and Performance Administrator and David Roth, Senior Trainer: Operations

Element 12. EMS Documentation and Document Control

- LGMS Manual Element 12 Documentation, Document Control & Recordkeeping
- LGMS Manual Appendix B: List of Controlled Documents
- LGMS Manual Appendix C: List of Records
- LGMS Manual Appendix D: List of External Records
- Interviews with Robert Bates, Process Manager; Robin Burch, Process Support Technician; Sharon Worley, Technical Services Engineer, and Joseph Falleri, Operations Project Specialist
- Interviews with Mike Hext, M&I Sales Manager, Waste Management; Clark Fenimore, A.J. Inc.

Element 13. Monitoring and Measurement

- LGMS Manual Element 13 Monitoring and Measurement.
- LGMS Manual Appendix 3A List of Critical Control Points and Operational Controls revised 3-29-13
- Appendix 4A List of Legal and Other Requirements, Rev 17, dated 5-29-13
- Standard Operating Procedure for Dewatering
- Standard Operating Procedure for Dryers
- Standard Operating Procedure for Truck Loading and Weighing

- Interviews with Robert Bates, Process Manager; Robin Burch, Process Support Technician; Sharon Worley, Technical Services Engineer, and Joseph Falleri, Operations Project Specialist
- Interviews with operations and maintenance personnel: Richard Galardi, Process Manager; James T. Bridges, Maintenance Manager; Jacob Kennison, Engineering Technician IV; James Skinner, Shift Supervisor; Aaron Smith, Process Technician III; Mike Scott, Process Technician III; Sevelle Rice, Process Technician II;
- Interviews with training personnel: Tony Glore, Training and Performance Administrator and David Roth, Senior Trainer: Operations
- Interviews with Mike Hext, M&I Sales Manager, Waste Management; Clark Fenimore, A.J. Inc.

Element 14. Nonconformances: Preventive and Corrective Action

- LGMS Manual Element 14 Nonconformances Preventive and Corrective Action
- Corrective Action Plan (form) blank
- Appendix 14B Corrective Action Plan Form, Rev 2, dated 6/21/2011 completed for third party interim audit
- Corrective Action Plan for Operations, Rev 003, dated 6-10-13
- Corrective Action Plan for Centrifuge #2 Feed Line Rupture
- Corrective Action Tracking Table, undated
- "The Win Column" list of completed corrective actions.
- National Biosolids Partnership Louisville Green Management System Internal Audit Report #7, dated August 2, 2012.
- Appendix 14A Corrective/Preventive Action Plan Spreadsheet, revised 8-29-12
- Appendix 16A Internal Audit Findings Worksheet, Rev 4, 6-21-11
- Finding sheets from internal audit conducted on June 22, 2012
- Interviews with Robert Bates, Process Manager and Sharon Worley, Technical Services Engineer
- Interviews with internal audit team members: Robin Burch, Process Support Technician; Joseph Falleri, Operations Project Specialist; and Jenni Schelling, MSD Internal Auditor

Element 15. Periodic Biosolids Program and EMS Performance Report

- LGMS Manual Element 15 Biosolids Management Report
- Interview with Alex Novak, Director of Operations and Saeed Assef, Director Infrastructure and Flood Protection
- Interviews with Robert Bates, Process Manager; Robin Burch, Process Support Technician; Sharon Worley, Technical Services Engineer, and Joseph Falleri, Operations Project Specialist
- Louisville Green Program Performance Report, 1/27/12
- Louisville Green Program Performance Report, 2/4/13

Element 16. Internal EMS Audit

- LGMS Manual Element 16 Internal Audits.
- Appendix 16A Internal Audit Findings Worksheet, Rev 4, 6-21-11
- Appendix 14B Corrective Action Plan Form, Rev 2, dated 6/21/2011
- Interviews with Robert Bates, Process Manager and Sharon Worley, Technical Services Engineer
- Interviews with internal audit team members: Robin Burch, Process Support Technician; Joseph Falleri, Operations Project Specialist; and Jenni Schelling, MSD Internal Auditor
- National Biosolids Partnership Louisville Green Management System Internal Audit Report #7 dated August 2, 2012.
- Comprehensive Internal Audit Scope for 2012, including audit checklist.
- Audit Binder containing all necessary audit materials.

Element 17. Periodic Management Review of Performance

- LGMS Manual Element 17 Management Review
- Action Plan for 2012 Management Review Action Plan and Tracking, Rev 001, dated 5-30-13
- Interview with Alex Novak, Director of Operations.
- Interview with Saeed Assef, Director Infrastructure and Flood Protection.
- Interviews with Robert Bates, Process Manager; Robin Burch, Process Support Technician; Sharon Worley, Technical Services Engineer, and Joseph Falleri, Operations Project Specialist
- Reviewed Louisville Green Management Review Scope (agenda) for March 7, 2013
- Reviewed Minutes of Management Review Team Meeting held March 7, 2013

Attachment 2 Appeals Process National Biosolids Partnership

To obtain Gold-level Recognition or Platinum-level Certification by the National Biosolids Partnership (NBP) Biosolids Management Program (BMP), biosolids organizations are required to undergo a BMP verification audit by an independent, third party auditor and yearly interim audits. The purpose of the audit is to determine whether or not the organization's BMP conforms to the NBP program, as defined in the BMP Elements. The spirit of these requirements includes a well-documented program and meaningful opportunities for interested party involvement.

The NBP provides an appeals process for biosolids organizations and interested parties that disagree with the findings of a third party BMP audit. The verification appeals process involves an Appeals Board; representing a balance of biosolids management interested parties and wastewater industry professionals.

To warrant an appeals action before the Board, the party brining an appeal must set forth the specific BMP element(s) that they contend have not been evaluated and/or implemented consistent with NBP expectations and requirements as reflected in the BMP Elements, along with the objective evidence to support that claim. For example, a petitioner may believe that a major nonconformance exists but was not found by the auditor. In this case, the petitioner would need to identify in the petition the specific BMP element believed to be out of conformance and why.

To submit an appeal, petitioners must fill out and submit the standardized appeals petition form that is available on the NBP website at http://www.wef.org/biosolids. A notice of intent to appeal must be submitted within 30 days, and a formal appeal must be submitted within 60 days, of the public release of the third party audit report containing the verification decision or interim audit decision by the audit company.

The Appeals Board's Administrative Officer receives all appeals petitions on behalf of the Board and conducts a basic completeness check. Upon completion of this check, the petition is either forwarded to Appeals Board members or back to the petitioner with incomplete areas documented. Petitions should be sent via certified, return receipt requested mail to: The NBP Appeals Board, Attention: Board Administrative Officer, c/o Water Environment Federation, 601 Wythe Street, Alexandria, VA 22314.

The Appeals Board will examine the facts, interview parties involved, deliberate the case, and then make a determination as to whether a major nonconformance does or does not exist. Appeals cases vary in complexity. As a result, the time required for the Board to evaluate a case and make a decision might vary. However, the overall Board target for processing an appeal is approximately four months.

Appeal of minor nonconformances is through the third party audit company's internal appeals process. To place a minor nonconformance appeal the organization should provide the audit company with documentation or other objective evidence explaining why the finding at issue does not exist. These appeals are reviewed and resolved by an audit company representative who was not part of the third party audit team.