NATIONAL BIOSOLIDS PARTNERSHIP AUDIT REPORT

City of Grand Rapids
Environmental Protection Services Department
Grand Rapids, Michigan

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 March 2006)
NBP ***Code of Good Practice***
City of Grand Rapids, Michigan
Environmental Protection Services Department
Biosolids Environmental Management System Manual
(Latest Revisions – October, 2006)

Final Report – December 20, 2006

INTRODUCTION

The purpose of the Biosolids Environmental Management System (EMS) Third Party Verification audit is to verify the City of Grand Rapids, Michigan Environmental Protection Services Department conformance to EMS requirements of the National Biosolids Partnership (NBP). The goal of the Third Party Verification audit is to collect and evaluate objective evidence that determines whether Grand Rapids' biosolids EMS is functioning as intended, that practices and procedures are conducted as documented, and that the EMS as implemented conforms to the NBP's Code of Good Practice and EMS program objectives.

RECOMMENDATION

The results of the Grand Rapids verification audit and review of their corrective actions are positive and it is the recommendation of the audit team that the City of Grand Rapids, Michigan Environmental Protection Services Department Biosolids EMS receive "Verification" status. Verification is not the end, but rather the beginning of a continuously improving biosolids management system.

AUDIT SCOPE

In general terms, the scope of the Third Party Verification audit encompasses 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 Wastewater Treatment Plant's operations.

The NSF- International Strategic Registrations, Ltd. (NSF-ISR) conducted a third party verification audit of the City of Grand Rapids, Michigan Environmental Protection Services Department Biosolids Environmental Management System. The verification began with a documentation desk audit and operational readiness review (ORR) completed in early- September with the results presented to the Environmental Protection Services Department on 8 September 2006. The process continued with an on-site verification audit from 11 October to 13 October 2006. The on-site audit team consisted of Dr. William R. Hancuff, Lead Auditor.

The physical biosolids facilities included in the audit and visited during the operational readiness review and verification audit included the Grand Rapids Wastewater Treatment Plant and the two landfill sites (Ottawa County Farms and Autumn Hills) at which the biosolids are used to enhance landfill gas production and energy recovery.

The following individuals were interviewed as part of the audit process:

Corky Overmyer – Director Environmental Services Department
Randall Fisher – Assistant Director/EMS Coordinator
Mike Lunn – Biosolids Program Manager
Kathie Kuzawa – Supervisor - Maintenance/EMS Team member
Gary DeKock – Wastewater Plant Supervisor/EMS Team member
Ed Rumbergs – Shift Supervisor
Thomas Mort – Water Pollution Control Officer, Industrial Pretreatment Program
James Soper – Water Pollution Control Inspector, Industrial Pretreatment Program
James Johnson – Michigan Department of Environmental Quality – Biosolids Coordinator
David Schipper – Michigan Department of Environmental Quality – Regional Environmental Quality Analyst – Field Operations Division
Rob Carr – Facility Manager - Ottawa County Farms Landfill
Fred Sawyers – Facility Manager – Waste Management – Autumn Hills Landfill
James Laninga – Industrial Account Manager – Waste Management – Autumn Hills
Don Popma – Synagro Central – manager
Anthony Chaney – Synagro Midwest – manager
John Schweizer – Operator II
James Betts – Operator II
Jan Goosmann – Operator II-C
Linnea Westrich – Operator II-B
Tim Dryer – Operator II-C
David Van der Lugt – Plant Assistant – tanks
Tim Priddy – Utilities Maintenance Mechanic II
Eric Brogger – Carpenter
Vicky Hedland – Financial Assistant I
Ramona Rogers – Financial Assistant I

DOCUMENTATION REVIEW

Document review was conducted in two parts, the desk audit/operational readiness review audit and the verification audit. During each of these activities various documents were reviewed to verify conformance with the National Biosolids Partnership (NBP) *EMS Elements* using the NBP *Third Party Verification Auditor Guidance*. Additionally interviews were conducted with various personnel to obtain supplemental objective evidence on the effectiveness of the implementation of the EMS. Attachment 1 summarizes the documents and other objective evidence associated with each element that was considered during the above mentioned audits.

DESK AUDIT/OPERATIONAL READINESS REVIEW

A complete documents review was performed as a desk audit. The principal focus was on the Environmental Protection Services Department's EMS manual and

supplemental information supplied with that document, such as cross referenced standard operating procedures, management review records, background reference information, summary of outcomes, and various public outreach and communication materials.

The results of the desk audit/operational readiness review provided a number of observations and opportunities for improvement. This initial effort resulted in 26 observations and 12 opportunities for improvement. Detailed results from desk audit/operational readiness review are provided in Attachment 2.

Most of the observations identified during the desk audit/operational review were found to have been corrected at the time of the verification audit. In addition, all opportunities for improvement identified during the initial audit/review were addressed.

VERIFICATION AUDIT FINDINGS

The verification audit covered all elements of the standard in considerably greater detail than the desk audit/operational readiness review. The former was performed by one auditor over a period of three days and the results demonstrated a considerable improvement in the system. The verification audit found 2 major non-conformances, 6 minor non-conformances and 5 opportunities for improvement and 6 commendations or positive observations. For an environmental management system, which is more complex than the ISO 14001 standard, this is an impressive accomplishment.

The following is a review of the positive observations made during the verification audit. Minor non-conformances and opportunities for improvement follow and are listed by item number in the sequence of the NBP standard elements.

Positive Observations

The Environmental Protection Services Department's Wastewater Treatment Plant personnel involved in biosolids management should be recognized for their outstanding achievements, and the exceptional features of their Biosolids Management System. The following is a summary of those positive items observed during the audits.

Commendations:

- The Environmental Protection Services Department has an outstanding EMS Manual, which is the key to having a successful environmental management system.

- The Department employs an exemplary format in its document control procedures, making extensive use of a "change log" that documents each of the improvements in the system as it evolves.

- The City's pretreatment program was observed to be highly effective, resulting in extremely low levels of metal concentrations in the biosolids.

- Laminated information signs were posted at each critical control point providing not only the identity of the operation as a critical control point but providing additional information regarding its importance in the biosolids value chain.

- The EMS general awareness training slide show was observed to be exemplary.

- EMS and wastewater treatment plant personnel have an excellent working relationship with State regulators, ensuring good communications with this sector of interested persons.

And finally, the hard work and dedication of the EMS management team must be acknowledged. While attainment of the EMS verification goal is obviously a team effort the effectiveness of guidance provided by the Assistant Director assured attainment of this common goal.

Major Nonconformances

Item 4.2. The EMS manual (specifically Table 4.1) does not clearly identify each of the specific details of standards, limits, reports, records, etc., which the City must meet in order to be in compliance. Not identified, for example, is 40 CFR 258.20 which prohibits land filling hazardous wastes, and 40 CFR 258.28 which prohibits land filling liquids (as defined by the paint filter test). Other examples include the specific details of regulatory requirements of the pretreatment program (such as Article 4 – Permits of Chapter 27 – *City Sewer Disposal System*), sampling and analyses and regulatory reporting requirements.

Item 10.2. The standard requires that all legal and other adopted requirements be incorporated into the operational controls of critical control points. A spot check of SOPs found that the specific requirements (and legal citations where determined appropriate) were not incorporated into the SOPs for land filling (prohibition of hazardous waste and liquids) and some laboratory procedures (Semi-volatile organics and metals analyses by ICAP). Other SOPs, including those of the contractor, need to be reviewed to ensure legal requirements as well as operational practices identified in the National Manual of Good Practice or WEF Manuals of Practice are, where appropriate, being incorporated and implemented.

Minor Nonconformances

Item 6.2. The procedure does not include a discussion of approaches for interested parties to observe the independent third party audit.

Item 10.1. The contractor’s SOP for operation of the gravity belt thickener and the centrifuge does not address observation of the centrate clarity as a monitoring requirement.

Item 12.2. The format of the EMS manual procedures does not follow the format required in SOP 1110.

Item 12.2. The format of the contractors SOPs does not follow the format required in SOP 1110.

Item 12.2. The format of the laboratory SOPs does not follow the format required in SOP 1110, nor is there an explanation of how laboratory procedures are created or revised.

Item 12.2. Element 12 procedure does not explain how maintenance management procedures are created or revised.

Opportunities for Improvement

Item 4.2. In tables 3.1 and 4.1, where there are no specific regulatory legal requirements associated with critical control points, consider listing "other requirements" as identified in the *National Manual of Good Practice* or *Manuals of Practices* or other relevant sources of standard operations.

Item 5.2. Consider using regulatory inspection results in establishing future regulatory compliance goals and objectives.

Item 8.1. Consider improving the EMS general awareness training program to increase effectiveness.

Items 3, 4, 10 and 13. Elements 3, 4, 10, and 13 are all closely interrelated. Review each of the elements that involve critical control points, legal and other requirements, operational controls and monitoring and measurement to ensure there is a consistency among all these elements and their procedures.

Items 7, 15 and 17. Clarify interim audit performance and scheduling (as distinguished from internal audits).

In order to address the above major and minor non-conformances, the City of Grand Rapids, Michigan Environmental Protection Services Department will prepare a non-conformance investigation report and will implement corrective actions according to their EMS procedures to provide continual improvements to their biosolids program.

There have been significant improvements in the Department's Wastewater Biosolids EMS over the past few months as reflected in the reduction in the number of findings of the verification audit when compared with the number of observations identified in the desk audit/operational readiness review. This level of improvement will undoubtedly continue into the future.

CITY OF GRAND RAPIDS, MICHIGAN ENVIRONMENTAL PROTECTION SERVICES DEPARTMENT WASTEWATER BIOSOLIDS COMMENTS

As one of its Environmental Management System Goals the City committed to reduce heavy metal concentrations in the biosolids by reducing the volume of Ferric Chloride utilized for Phosphorus removal. To achieve this end the City implemented biological phosphorus (BioP) processes in one half of the plant. During the current fiscal year the City has already saved in excess of $100,000 in Ferric Chloride costs. While the impact this action has had on reducing heavy metals in the biosolids is still being evaluated we are confident that heavy metal concentrations in our biosolids has also been reduced. The City has included in its 5 year capital improvements plan funding to convert the remaining portion of the plant to BioP.

OUTCOMES MATTER

The City of Grand Rapids, Michigan Environmental Protection Services Department Wastewater Biosolids Program established four major groups of biosolids EMS goals and objectives for 2006 consisting of 5 goals and 13 individual objectives. These goals were developed through input from the internal EMS Team. The City's Wastewater Biosolids goals for its EMS were established cognizant of each of the four outcome focal points of the NBP program as identified below:

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

While it is not a requirement to attain all objectives established, it is a critical part of the system to make progress towards the overall goals. The Department's performance relative to each of the above groups is addressed below.

In the Environmental Performance area, the Department established two primary goals and two other related goals. The first primary goal is one of reducing ferrous chloride usage by 5% by January 2007 by phasing out chemical precipitation of phosphorus in favor or biological phosphorus removal. Biological phosphorus removal does not require chemicals, which can contain trace quantities of heavy metals. These contaminants may accumulate in the biosolids, which are transported to local landfills. In the landfills the heavy metals can leach out into the environment. Reduction in the use of this chemical reduces the quantity of heavy metals that would otherwise enter the environment. The following objectives were established for this goal:

- Implement bio-phosphorus process in the South Activated Sludge critical control point.

- Complete evaluation of need for waste activated sludge centrifuge thickening.

- Optimize ferrous chloride application points in dewatering operations.

The use of biological phosphorus removal is working effectively and a reduction in the use of ferrous chloride by 5% by January 2007 will easily be achieved.

The second primary goal in the Environmental Performance area is to have the City maintain wastewater plant equipment in top operating condition, specifically to maintain a 75% or greater ratio of preventive maintenance versus corrective maintenance in 2006. Proper equipment operation results in lower potential for process upsets, which can decrease the quality of the biosolids product and lower effluent quality. Below optimum biosolids production can increase the fuel consumption associated with the transportation of biosolids to the landfills and the resultant inefficient use of natural resources. Additionally plant upsets result in lower effluent quality and more contaminants being discharged to the receiving waters.

The primary objective in attaining this goal is to use the plant Computer Maintenance Management System (CMMS) to maximize proactive maintenance practices geared toward minimizing equipment downtime.

The City currently is maintaining a ratio of substantially greater than 80% for the first thee quarter of 2006 and should continue to meet this goal through the end of the year.

The third and forth goals related to environmental performance are maintaining 100% compliance with the NPDES permit in 2006; and having no more than 1 contractor spill incident in 2006. These latter two goals are discussed further in the regulatory compliance outcomes.

In the Regulatory Compliance area, the City established two primary goals and one related goal. The first primary goal is maintaining 100% compliance with the NPDES permit in 2006. The following objectives were established for this goal:

- Maintaining industrial permitting and inspection database and records.

- Maintain monitoring and sampling programs.

- Submit all Discharge Monitoring Reports (DMRs) in accordance with requirements.

The City reported that they had no noncompliance issues through September 2006.

The second primary goal in regulatory compliance is having no more than one contractor spill incident in 2006. The principal objectives are:

- Implementing truck inspection log sheets.

- Training truck drivers on truck inspection procedures.

The City contractor had one spill incident which occurred on September 3, 2006. Corrective actions were implemented immediately in order to prevent any future spills associated with the same root cause.

The final goal related to regulatory compliance was discussed previously in the Environmental Performance Outcome, i.e. maintaining a 75%, or greater, ratio of preventive maintenance verses corrective maintenance in 2006.

In the Relations with Interested Parties area, the City established one goal, which was to implement a City biosolids website in 2006. The principal objectives included:

- Development of a blueprint website layout.

- Development of a preliminary website layout.

- Complete final website layout.

- Test and populate website pages.

The City developed a web site to provide information about its biosolids EMS to interested parties. The website was completed ahead of schedule. Information about the EMS manual, internal audits, news and information, external verification audit, and links to related web sites are included.

In the Quality Biosolids Management Practices area, the City established three primary goals, which have already been discussed in the Environmental Performance outcomes area. They are:

Reduction of ferrous chloride usage by 5% in 2006.

Maintaining a 75% or greater ratio of preventive maintenance verses corrective maintenance in 2006.

Maintaining 100% compliance with the NPDES permit in 2006.

As was previously reported the City has met or exceeded these goals.

The City is continuing its efforts in these all of these major outcome areas and will establish new goals and objectives for 2007.

CONCLUSIONS AND RECOMMENDATIONS

The results of the verification audit are positive. The review and approval of the corrective action plans for each of the non-conformances identified during the verification audit has been completed. The implementation of the corrective actions for the major findings has been verified. Therefore the “Verification” recommendation for the City of Grand Rapids, Michigan Environmental Protection Services Department Wastewater Biosolids EMS is made to the NBP.

As was mentioned previously, an EMS is a continuous improvement process, and verification is not the end -- it is the beginning. 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.

Discussions between the Department’s Biosolids EMS Coordinator and the third party auditor resulted in agreement to the following proposed interim audit schedule. The following is the proposed interim audit schedule for the next four years:

Year 1 (third party) – Elements 1, 2, 4, 5, 6, 7, 9, 10, 14, 15 and 17

Year 2 (third party) – Elements 1, 2, 5, 6, 8, 9, 10, 14, 15 and 17

Year 3 (third party) – Elements 1, 2, 3, 5, 10, 13, 14, 15, and 17

Year 4 (third party) – Elements1, 2, 5, 10, 11, 12, 14, 15, 16 and 17.

Attachment 1

Documents and Other Object Evidence Reviewed During the Desk Audit/Operational Readiness Review And Verification Audit

Element 1. Documentation of EMS for Biosolids

- City of Grand Rapids, Michigan Environmental Protection Services Department Biosolids Environmental Management System Manual – October 2006.
- EMS Element 2 containing Biosolids Mission Statement and Code of Good Practice.
- EMS Manual signed by Randall Fisher, Assistant Director Environmental Protection Services Department.
- Interview with Corky Overmyer – Director Environmental Services Department City of Grand Rapids, Michigan.
- Letter of Understanding agreement dated December 7, 2004 between the Mayor of the City of Grand Rapids and the NBP.
- EMS Manual Elements 6, 9, and 11 addressing public participation, communications and emergency preparedness and response.
- Element 3 procedure and Table 3.1 addressing all critical control points.
- Cross references presented in EMS Manual Table of Content
- Biosolids management activities assigned to contractor described in Element 7 Section 6(d).

Element 2. Biosolids Management Policy

- EMS Element 2: Biosolids Management Policy contains Biosolids Mission Statement and Code of Good Practice.
- Interviews with Corky Overmyer and Randall Fisher.
- Letter of Understanding agreement dated December 7, 2004 between the Mayor of the City of Grand Rapids and the NBP contains commitment to code of good practice.
- Laminated page at each critical control point contains policy and code of good practice.
- EMS Biosolids Manual – Element 8 Item 8 addresses general awareness training given to contractors.
- Verified employees and contractors received awareness training through interviews.
- Policy communicated to interested parties in letter dated October 2005 also policy is available on web-site.

Element 3. Critical Control Points

- EMS Element 3 – Critical Control Points.
- EMS Table 3.1 Biosolids Critical Control Points – lists operational controls related to each critical control point
- Interviews with Randall Fisher, Mike Lunn, Kathie Kuzawa, Gary DeKock, Ed Rumbergs, John Schweizer, James Betts, Jan Goosmann, Linnea Westrich, Tim Dryer, David Van der Lugt, Tim Priddy, and Eric Brogger.
- Comparison of Environmental Protection Services Department Critical Control Points with those contained in Appendix F.
- Field review of wastewater treatment plant facilities.
- Spot check operations controls in SOPs.

Element 4. Legal and Other Requirements

- EMS Element 4: Legal and Other Requirements
- EMS Table 4.1 Legal and Other Requirements – Applicable Requirements
- Interviews with plant personnel – Randall Fisher, Gary DeKock and Mike Lunn
- Interviews with State regulators - James Johnson, and David Schipper
- Interviews with pretreatment staff - Thomas Mort and James Soper
- Figure 4.1 – Quarterly Legal and Other Requirements Document Review – Third quarter – July 18, 2006.

Element 5. Goals and Objectives for Continual Improvement

- EMS Element 5: Goals and Objectives.
- Table 5.1 – Biosolids Goals and Objectives (for 2006)
- Figure 5.1 – Action Plan Status Worksheet.
- Form 5.1 – Goals and Objectives Annual Review.
- Form 5.2 – Public Participation – Annual Goals and Objectives Selection
- Figure 5.2 – Preventive vs. Corrective Maintenance Worksheets Chart – Example
- Reviewed Quarterly progress reports for each goal and objective action plan.
- Assessment of outcomes in the four critical areas.
- Access and evaluation of website.
- Interviews with Randall Fisher, Mike Lunn, Kathie Kuzawa, Gary DeKock, and Ed Rumbergs.
- Letter to interested parties requesting input into goals and objectives – October 2005.

Element 6. Public Participation in Planning

- EMS Element 6: Public Participation in Planning.
- Table 6.2 Interested Parties Contact Information.
- Table 6.3 Public Participation in Planning Worksheet to provide meaningful opportunities for input.
- Observed tour program presented to public.
- Interviews with Randall Fisher and Mike Lunn.
- Interview with James Johnson and David Schipper – Michigan DEQ

- Interview with Anthony Chaney – Syangro contractor
- Email Invitation dated June 8, 2006 addressed to interested parties inform them of third party EMS verification audit.
- Reviewed spill information related to incident in October 2003.
- Figure 9.1 Public Request for Information Form

Element 7. Roles and Responsibilities

- EMS Element 7: Roles and Responsibilities.
- Table 7.1 – Roles and Responsibilities – Internal EMS Team.
- Table 7.2 – Roles and Responsibilities grouped by Biosolids Value Chain Component.
- Table 7.3 – Internal EMS Team – Name and Contact Information.
- Interviews with Randall Fisher, Mike Lunn, Gary DeKock, Kathie Kuzawa and Anthony Chaney.
- Figure 7.1 – Organization Chart for Environmental Services Department.
- Figure 7.2 – Schedule of Annual Biosolids Activities.
- Memorandum dated September 11, 2006 appointing Biosolids Program Manager.
- Memorandum dated September 11, 2006 appointing Biosolids EMS Coordinator.
- Reviewed Memorandum of Agreement between City and Synagro dated October 2, 2006 identifying the responsibilities of the contractor related to biosolids EMS.
- Reviewed specific budgets items for technical and financial resources required for biosolids.

Element 8. Training

- EMS Element 8: Training.
- Figure 8.1 Employee General Awareness Training – slide show.
- Figure 8.2 Employee General Awareness Training Attendance Sheet.
- Reviewed training course material slide show and attendance documentation.
- Interviews with Kathie Kuzawa, Mike Lunn, Gary DeKock and Randall Fisher.
- Interviews with Operations and administrative staff Ed Rumbergs, Thomas Mort, James Soper, John Schweizer, James Betts, Jan Goosmann, Linnea Westrich, Tim Dryer, David Van der Lugt, Tim Priddy, Eric Brogger, Vicky Hedland, and Ramona Rogers.
- Interview with contractor – Anthony Chaney.
- Reviewed contractor training records.
- Attendance lists for original EMS training – February to September 2006.
- Verified Wastewater Operator Certifications for 2006.
- Reviewed data used to track EMS training.

Element 9. Communications

- EMS Element 9: Communication and Public Outreach.
- Figure 9.1 Public Request for Information Form.
- Interviews with Randall Fisher and Mike Lunn.

- Reviewed available EMS information on the "Ant Farm" database.
- Audit observer – David Schipper – Michigan Department of Environmental. Quality – Regional Environmental Quality Analyst – Field Operations Division.

Element 10. Operational Control of Critical Control Points

- EMS Element 10: Operational Control of Critical Control Points.
- Form 10.1 – Annual Operational Controls Review.
- Form 10.2 – Contractor Compliance Inspection.
- EMS Table 3.1 Biosolids Critical Control Points – lists operational controls related to each critical control point.
- Reviewed plant operations manual (Standard Operating Procedure for critical control points.)
- Interviews with Operations staff – Ed Rumbergs, John Schweizer, James Betts, Jan Goosmann, Linnea Westrich, Tim Dryer, David Van der Lugt, Tim Priddy, and Eric Brogger.
- Reviewed contractor SOPs
- Spot checked biosolids procedures for transportation and land disposal.
- Interview biosolids handling contractor – Synagro – Anthony Chaney.
- Interviews with landfill operators - Rob Carr - Ottowa County Farms Landfill and Fred Sawyers and James Laninga – Autumn Hills landfill.
- Reviewed enhanced biogas projections related to landfills that use biosolids.
- Spot checked SOPs related to centrifuge dewatering and gravity belt thickening.
- Reviewed computer maintenance management system (CMMS).
- Reviewed laboratory SOPs

Element 11. Emergency Preparedness and Response

- EMS Element 11: Emergency Preparedness and Response.
- Table 11.1 – Emergency Response Information.
- Table 11.2 – Emergency Equipment Inventory.
- Interviews with Randall Fisher, Mike Lunn, and Anthony Chaney.
- Grand Rapids O&M – Chapter VIII – Emergency Operating Plan.
- Reviewed biosolids spill incident (September 3, 2006) information, including reporting requirements.
- Checked availability of cleanup equipment.

Element 12. EMS Documentation and Document Control

- EMS Element 12: EMS Documentation and Document Control.
- Table 12.1 – Record Documentation System.
- Table 12.2 – Biosolids EMS Related Documentation and Retention.
- Interview with Randall Fisher.
- Review EMS Manual revisions and change logs.
- Reviewed Operations SOPs, Maintenance SOPs, Laboratory SOPs and contractor SOPs,

Element 13. Monitoring and Measurement

- EMS Element 13: Monitoring and Measurement.
- Table 13.1 – Action Plan – Quarterly Progress Report.
- Table 13.2 – Action Plan (for planning goals and objectives)
- Interviews with Randall Fisher, Mike Lunn, Gary DeKock and Anthony Chaney.
- Interviews with Operations staff – Ed Rumbergs, John Schweizer, James Betts, Jan Goosmann, Linnea Westrich, Tim Dryer, David Van der Lugt, Tim Priddy, and Eric Brogger.
- Reviewed monitoring and measurement requirements in SOPs for plant operations.
- Reviewed laboratory SOPs for appropriate analyses references.
- Reviewed quarterly progress reports used for tracking goals and objectives.

Element 14. Nonconformances: Preventive and Corrective Action

- EMS Element 14: Nonconformances: Preventive and Corrective Action.
- Figure 14.1 Corrective Action Plan.
- Table 14.1 Nonconformance Summary and Response Time.
- Table 14.2 Nonconformance Investigation Worksheet.
- Interviews with Randall Fisher and Mike Lunn,
- Biosolids EMS Audit Documents Binder.
- Reviewed completed Corrective Action Plans for internal audit.
- Reviewed completed finding investigation forms and response times for internal audit.
- Reviewed the required corrective action forms for verification audit findings.
- Reviewed signoff sheets for corrective actions completed.

Element 15. Periodic Biosolids Program and EMS Performance Report

- EMS Element 15: Periodic Biosolids Program Performance Report.
- Interview with Randall Fisher.
- To be completed after verification audit.

Element 16. Internal EMS Audit

- EMS Element 16: Internal EMS Audit.
- Table 16.1 – Internal Auditor's Worksheet (including question checklist).
- Interviews with Randall Fisher and Mike Lunn.
- Reviewed EMS completed checklists for internal audit conducted June 2006.
- Reviewed Biosolids EMS 2006 internal audit results summarized in Table 14.1 – Nonconformance Summary and Response Time.
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Element 17. Periodic Management Review of Performance

- EMS Element 17: Periodic Management Review of Performance.
- Table 17.1 – Periodic Management Review of Performance Report

- Figure 17.1 – EMS Review Frequency. – Memorandum.
- Interviews with Corky Overmyer and Randall Fisher.
    - Confirmed Periodic Management review of performance was conducted on September 19, 2006.

Attachment 2

Detailed Findings Resulting From Desk Audit/Operational Readiness Review

Observations

Item 3.3 – The contractor's gravity belt thickener is not identified as a critical control point.

Item 4.2 – In the legal and other requirements element Table 4.1 presents general broad regulations and a permits list. The information given does clearly include or cross-reference what specific standards, limits, reports, records, etc. the City must meet in order to be in compliance; or the operational controls, procedures, processes, and other management methods used to achieve and maintain compliance. Additionally, some of the listed legal and other requirements do not directly apply to the biosolids value chain.

Element 5 – The procedure for establishing goals and objectives indicates that each goal and objective developed must be linked with each critical control point. Not all goals and objectives are linked to critical control points nor are they required to be.

Item 5.2 – The goals and objectives procedure does not reflect that the following are used in developing goals and objectives:

Identified priorities for improving environmental performance of biosolids management activities based on critical control points

Identified or potential environmental impacts,

Legal and other requirements

Applicable best management practices as defined in the National Manual of Good Practice and other various authoritative sources on biosolids management.

Item 5.7 – The action plan for having no more than one contractor spill incident in 2006 is incomplete without a tracking mechanism to record spills for the remainder of 2006.

Item 6.2 – The procedure does not address the organization's method for notifying interested parties about their intent to receive an independent third party audit or included a discussion of approaches for observing the audit.

Item 7.2 – There is no official appointment record of an individual with overall responsibility for ensuring that the biosolids management program and EMS are implemented and maintained.

Item 7.4 – The roles and responsibilities of the contractor retained to perform biosolids management activities and EMS functions are not clearly defined in a service agreement. Those EMS activities related to the contractor which must be addressed are included in several elements:

Element 8.4 – in the contractor service agreement, contractors must establish their own training programs consistent with their roles and responsibilities in biosolids management activities.

Element 10.5 – contractors are required to establish their own operational controls consistent with their roles and responsibilities.

Element 12.4 – contractors are required to establish documentation, document control and record keeping requirements for biosolids activities in service agreements and incorporate these into the EMS for biosolids.

Element 13.3 – contractors are required to establish and maintain regular monitoring and measurement procedures and practices for all their assigned biosolids management activities, as defined in their service agreements.

Item 8.1 – The EMS training program was found to not be fully effective.

Item 9.1 – The External Communications procedure does not define methods used to continually supplement the list of interested parties.

Item 10.2 – Not all legal and other requirements are incorporated into operational controls of critical control points.

Item 12.2 – Element 12 procedure does not explain how EMS procedures, standard operating procedures, or maintenance management procedures are created or revised.

Item 12.2 – outdated standard operating procedures for start up and shut down of the City's thickening centrifuge were found posted in the centrifuge building.

Item 12.4 – The EMS Documentation and Document Control procedure does not identify the fact that contractors will establish documentation, document control and record requirements for biosolids management activities.

Item 13.1 – The monitoring and measurement procedure does not include monitoring and measurement procedures and practices for all biosolids management activities to assure compliance with legal and other requirements.

Item 13.1 – The monitoring and measurement procedure does not include monitoring and measurement procedures and practices for all biosolids management activities to measure biosolids program performance at critical control points.

Item 13.2 – The procedure does not address recording monitoring and measurement results and maintaining records in accordance with element 12.

Item 14.1 – The procedure does not address investigation of any noncompliance with regulatory or other requirements identified during routine monitoring and measurement or periodic EMS audits.

Item 14.2 – The procedure does not address identification of the cause for and action required to correct any noncompliance.

Item 14.4 – The procedure does not address development of corrective action plans to address nonconformances identified during routine monitoring and measurements.

Item 14.6 – There is no system presently in place to track the progress of corrective action and periodically update the status to reflect completion.

Item 16.3 – The procedure does not address identification of auditor qualifications.

Element 17 – Management Review has not yet been conducted.

Opportunities for Improvement

Item 4.1 – In procedure 3 of Element 4- legal and other requirements, consider clarifying that more than Table 4.1 is reviewed on a quarterly basis when updating regulations.

Item 5.1 – The procedure for Element 5 does not specifically identify when (date or month) the annual goals and objectives are to be established other than on an on going basis.

Element 6 – Consider including in the information provided to the public and employees, the City's biosolids beneficial use associated with energy resources attributable to biogas recovery enhancement at the landfills associated with biosolids disposal.

Item 6.5 – Consider additional proactive public participation methods to obtain input from interested parties when updating goals and objectives.

Item 8.1 – Consider clarification of the employee introductory training relative to the general awareness training.

Item 8.2 – Consider providing annual refresher awareness training at the same time EMS training is provided to new employees.

Item 9.3 – Consider specifically listing each of the following in the communication procedure, indicating how they will be made available to interested parties: Biosolids management policy, applicable legal and other requirements, biosolids program goals and objectives, periodic biosolids management performance report, and detailed report of the independent third party EMS verification audit results.

Item 10.5 – Consider including a reference to Table 7.2 in Procedure #4 clarifying the schedule for periodically verifying the contactors operational controls.

Item 14.5 – Consider relocating form 16.1 to element 14 procedure.

Attachment 3

National Biosolids Partnership Appeals Process

Biosolids organizations that participate in the National Biosolids Partnership (NBP) Environmental Management System (EMS) Program are required to undergo an EMS verification audit by an independent, third party auditor assigned by the NBP and yearly interim audits. The purpose of the EMS audit is to determine whether or not the organization's EMS conforms with -- that is, meets the requirements of -- the NBP program, as defined in the EMS Elements[1]. 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 EMS audit. The verification appeals process involves an Appeals Board; representing a balance of biosolids management interested parties, including an environmental advocacy group, and wastewater industry professionals. An appeal must be submitted within 30 days of the audit company's official verification decision or interim audit decision.

To submit an appeal before the Appeals Board, the petitioner must set forth the specific EMS element(s) and requirements that is believed to have not been evaluated and/or implemented consistent with NBP requirements as reflected in the EMS 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 EMS 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.biosolids.org. A formal appeal must be submitted within 30 days of the verification decision or interim audit decision by the audit company.

The 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 EMS Appeals Board, Attention: Board Administrative Officer, c/o Water Environment Federation, 601 Wythe Street, Alexandria, VA 22314

[1] The *EMS Elements* and other program materials are available on the NBP website at http://www.biosolids.org.

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.