

**NATIONAL BIOSOLIDS PARTNERSHIP
VERIFICATION AUDIT REPORT**

**RENEWABLE WATER RESOURCES
GREENVILLE, SC**

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*
ReWa Biosolids
Environmental Management System Manual
(*Revised – September 9, 2011*)**

Final Report – October 28, 2011

INTRODUCTION

The purpose of the Biosolids Environmental Management Program (BMP) Third Party Verification audit is to evaluate the Renewable Water Resources' (ReWa) BMP to determine its conformance with the biosolids management standard of the National Biosolids Partnership (NBP). The goal of the Third Party Verification audit is to collect and evaluate objective evidence that determines whether ReWa's BMP is functioning as intended, that practices and procedures are conducted as documented, and that the BMP as implemented conforms to the NBP's BMP Elements, the Code of Good Practice and the BMP objectives.

RECOMMENDATION

Based on the results of the ReWa verification audit it is the recommendation of the audit team that ReWa's Biosolids Management Program receive "Verification" status. Verification is not the end, but rather the beginning of a continuously improving biosolids management program.

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 Plants' operations.

The NSF-International Strategic Registrations, Ltd. (NSF-ISR) conducted a third party verification audit of the ReWa Biosolids Management Program. The verification began with a document review desk audit and on-site readiness review (ORR) completed in early May with the results presented to ReWa on 9 May 2011. The process continued with an on-site verification audit from 12 September 2011 through 16 September 2011. 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 Mauldin Road WWTP, Durbin Creek WWTP, Gilder Creek WWTP, Pelham WWTP, Lower Reedy WWTP, Georges Creek WWTP, and Grove Creek WWTP. The critical control points of the biosolids value chain at these various plants were: influent pump stations, solids screens, grit collection, primary treatment, secondary treatment, thickening, aerobic digestion, anaerobic digestion, dewatering, biosolids storage, cake transfer, truck biosolids loading facilities, truck cleaning, and land application. The following land application sites were observed: Tim Ayers Site in Greenville County – Site GV-11, Field 02 (30.1 acres – fescue and Bermuda grass); Roy Jones Site in Greenville County (hay); and Martha Akins Site operated by Ken Satterfield in Laurens County – Site SC-LA-39-01 thru 05 (131 acres)

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

Ray Orvin	Executive Director
Glen McManus	Director of Operations
Charles Logue	Director Technical Services
Barbara Wilson	Director Human Resources
Joey Collins	Solids Manager
Larry Camp	Process Control
Bryan Kohart	Environmental Engineer
Jessica Brown	Customer Service
Jolene Devaney	Administrative Assistant
Stacey Flax	PR/Customer Service/Contract Manager
Mike Montebello	Manager Domestic Wastewater Permit Section – Bureau of Water – SCDHEC
Brenda Green	Staff Engineer – SCDHEC
William Armes	Pretreatment Program Manager
Carlos Diez	Senior Construction Inspector
Ken Mattison	Industrial Pretreatment Inspector
Russ Moore	Operations Foreman – Mauldin Road WWTP
Fred Nesbitt	Operator II – Mauldin Road WWTP
Keith Hill	Operator II – Mauldin Road WWTP
Doug Allen	Operator II – Mauldin Road WWTP
Adam Harvey	Operator I – Mauldin Road WWTP
Brent Dickard	Operator I – Mauldin Road WWTP
Maxie Sullivan	Operator I – Durbin Creek WWTP
Kevin James	Operations Manager – East Side (Durbin Creek, Gilder Creek and Pelham)
David Collyer	Operations Foreman – Durbin Creek WWTP and Gilder Creek WWTP
Adam Waite	Operator II – Durbin Creek WWTP
Donald Fowler	Operator II – Gilder Creek WWTP
Joe Ortiz	Operations Foreman – Pelham WWTP
John Barry	Operator II – Pelham WWTP
Brian Goldsmith	Operator II – Pelham WWTP
Jason Putman	Operator I – Pelham WWTP
Craig Neely	Operator I – Pelham WWTP
James Galloway	Operator II – Grove Creek WWTP
Virgil Fairey	Operator I – Grove Creek WWTP
Tim Camp	Operator I – Grove Creek WWTP
Rick Cheek	Operator II – Georges Creek WWTP
Chris Elliot	Operations Foreman – Georges Creek WWTP
David Skyles	Operations Foreman – Lower Reedy WWTP
Frankie Powers	Operator II – Lower Reedy WWTP
Winfred Riggins	Operator II – Lower Reedy WWTP
Will Hodges	Tech Services Manager – Synagro

Tommy Nevins
Russell Herman
Jack Nevins
Eddie Camp
Anthony Jones
Brandon Nance

Field Manager – Synagro
Lead Operator, Field Crew – Synagro
Field Crew – Synagro
Truck Driver - ReWa
Truck Driver – Synagro
Truck Driver - Synagro

DOCUMENTATION REVIEW

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

DESK AUDIT/ON-SITE READINESS REVIEW

A complete document review was performed as a desk audit. The principal focus was on the ReWa Biosolids Management Program Manual. The on-site readiness review (ORR) involved assessment of supplemental information such as cross referenced standard operating procedures, management review records, background reference information, training records, summary of outcomes, and various public outreach and communication materials. It also entailed evaluation of a biosolids land application site.

The results of the desk audit/ORR provided a number of observations and opportunities for improvement. This initial effort resulted in 22 observations and 16 opportunities for improvement and four positive commendations. Detailed results from desk audit/ORR are provided in Attachment 2.

Most, but not all, of the observations identified during the desk audit/ORR were found corrected at the time of the verification audit. In addition, almost all of the opportunities for improvement identified during the initial audit/review were also addressed.

VERIFICATION AUDIT FINDINGS

The verification audit covered all elements of the standard in considerably greater detail than the desk audit/ORR and was performed by one auditor over a period of five days. The verification audit found no major non-conformances, 11 minor non-conformances, 7 opportunities for improvement and 6 commendations or positive observations.

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 requirement number in the sequence of the NBP standard elements.

Positive Observations

The ReWa Biosolids Value Chain personnel involved in the biosolids management program development should be recognized for their outstanding achievements, and the exceptional features of their BMP. The following are those observations made during the audit that deserve commendations.

- The ReWa Element 1: Biosolids Management Documentation procedure contains an excellent outline and summary of the purpose of each element of the Biosolids Management Program.
- The program makes excellent use of laminated cards for communicating the BMP policy to all employees.
- In last column of Table 3.01 – Critical Control Points not only are the actual and potential environmental impacts associated with each critical control point presented, but the potential operational impacts, which could indirectly result in an adverse environmental consequences are also identified.
- ReWa has comprehensively developed Standard Operating Procedures for the critical control points in the biosolids value chain.
- The Pelham WWTP maintains excellent housekeeping.
- Although not fully implemented yet, ReWa utilizes an exemplary format for the annual Biosolids Performance Report, including progress on Goals and Objectives and improvements in the four outcome areas.

Minor Non-conformances

- Requirement 4.2 – In EMS Document 4.1 – Federal and State Requirements a list of Biosolids related regulation section numbers are presented, but there is no indication as to what those regulations specifically apply.
- Requirement 5.7 – Not all of the Goals and Objectives had a detailed project management plan (action plan) identifying the specifics of what, how, who and when the activities and milestones would be accomplished. Also, the description or title of some of the goals and objectives could be more clearly stated and the outcome(s) impacted by each goal could include more than one outcome area.
- Requirement 6.2 – The Element 6: Public Participation in Planning procedure did not clearly present that the biosolids organization must notify interested parties

about their intent to receive an independent third party audit and build into their BMP planning a discussion with interested parties about approaches for observing the third party audit. Additionally, interested parties were not contacted regarding the conduct of the third party verification audit.

- Requirement 6.4 – In the “Additional Participation Opportunities” Section of Element 6 the list of activities does not describe specifically how the listed activity will receive input from interested parties related to biosolids.
- Requirement 11.3 – Not all wastewater treatment plant sites have emergency response equipment on the site or readily available within a minimum response time. Additionally Element 11 procedure does not identify specifically what emergency response equipment should be available at each specific wastewater treatment plant.
- Requirement 12.1 – Several of the BMP Element Procedures refer to documents, tables, lists or other materials but did not provide a link or identify them in the Reference section of the element procedure. For example, the stakeholder list discussed in element 9 was not linked. The stakeholder list was not included in element 6 related to public participation in planning. Attachment B was not included in list of references in Element 16 procedure. Element 16 did not include a reference to an audit checklist. Element 9 did not link to “Responding to Biosolids Inquiries in Non-Emergencies,” etc.
- Requirement 12.2 – The 17 copies of the ReWa Emergency Operations Manual are uncontrolled, and there are no procedures for controlling hard copies.
- Requirement 12.2 – Element 12 procedure does not describe the method used to ensure uncontrolled documents are properly identified, such as printed versions of electronically controlled documents. Additionally there is no description of who has the ultimate authority for changing controlled documents and procedures.
- Requirement 14.2 – Element 14 procedure does not address the frequency of tracking corrective actions to closure.
- Requirement 14.5 – Although corrections have been implemented, not all findings from the third party desk audit and on-site readiness review (ORR) have been formally closed.
- Requirement 16.3 – Element 16 procedure does not specifically define the qualifications and training required for the internal lead auditor.

Opportunities for Improvement

- Element 1 – Consider including a narrative reference to the BMP schedule in Element 1: Biosolids Management Documentation procedure and a link to the table entitled BMP Schedule. Also consider including the required information on this table to demonstrate that it is a controlled document.
- Element 5 – Consider including goals and objectives for individual specific projects identified in the budget process (i.e. those that have an impact on the biosolids value chain, environmental performance, quality of product, etc.)
- Requirement 9.1 – Consider including in the Element 9 procedure a description of providing information to property owners having land adjacent to land application sites.
- Requirement 11.2 – Consider implementing spill drills to evaluate the effectiveness of emergency preparedness and response procedures.
- Requirement 12.2 – Consider revising and simplifying the Document Control Log
- Requirement 16.1 – Consider including in Element 16 procedure a description of an audit plan that defines a time schedule, scope and specific responsibilities for individual auditors.
- Requirement 16.3 – Consider establishing the internal audit schedule, resolution of non-conformances and communication of BMP audit results to management to be compatible with the overall BMP schedule diagram.

ReWa personnel addressed the foregoing nonconformances by completing their Nonconformance/Noncompliance action work order forms with schedules, and will implement corrective actions according to their BMP procedures.

There have been notable improvements in the facility's BMP over the past months as observed by the lead auditor during the verification audit. This level of improvement will undoubtedly continue into the future.

And finally, the hard work and dedication of the BMP Team must be acknowledged. While attainment of the BMP verification goal is obviously a team effort the guidance provided by the Operations Manager/Biosolids Manager and the management support of the Executive Director to ensure accomplishment of this goal must be recognized.

ReWa COMMENTS

As an agency, ReWa believes that the BMP is a powerful tool that will help to improve our biosolids management activities, promote continuous improvement and improve public relations. We believe in this program, and already see benefits from it. We are excited to be a part of this program and look forward to more good things to come.

Dr. Hancuff was very professional and a pleasure to work with. The audit process was efficient, productive and educational.

OUTCOMES MATTER

Renewable Water Resources Biosolids Management Program established four broad long-term goals for 2009, 2010 and 2011. These goals included: identifying micro constituents of concern; reducing hauling costs, educating state legislators, improving relations with interested parties, and evaluating the feasibility of converting to Class A biosolids production at Mauldin Road WWTP. Substantial progress has been made on all these fronts and new goals and objectives have been developed during 2011. The goals and objectives were developed by the Biosolids EMS coordinator and the Biosolids Team considering public interest. The wastewater treatment plant biosolids goals for its EMS was established cognizant of each of the four outcome focal points of the NBP program as identified below:

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

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 goal. The early goals and objectives did not fully utilize the Specific, Measurable, Achievable, Relevant, and Time Bound (SMART) criteria; however the system is currently incorporating this approach in development of objectives.

It should be noted that the above-mentioned goals may fulfill the needs of different outcome areas. The facilities' performance relative to each of the four outcome areas is summarized below.

In the Environmental Performance outcome area, the goal is to reduce the transportation costs for biosolids. The approach used is to conduct a field study on the effects of liquid application of biosolids on grass and hay fields at varying percent total suspended solids concentrations. The objective was to determine the maximum concentration of land application without causing any adverse environmental impact. Transportation at the highest solids concentration minimizes fuel costs and energy consumption. The study was scheduled to be conducted at Durbin Creek WWTP and associated land application site

field # 1, a Fescue/Bermuda grass mix. Four test plots were planned for the study: Plot #1: controlled area where no biosolids are to be applied; Plot # 2 apply approximately 5% total suspended solids concentration; Plot #3 apply approximately 6% total suspended solids concentration; and Plot #4 apply normal rates of 3.5% - 4%.

Two application were planned during the growing season at the recommended nitrogen application rate for fescue/Bermuda grass of 160 – 200 pounds per acre. The first application was to be at half the loading rate early in the season and the second application was to be at the same rate after the first cutting of hay in the middle of the growing season. The plot size was to be one or two tanker loads and the parameters monitored were biosolids content (NH₃, NO₃, TKN, and PO₄), soil type, soil samples per and post application at 4-foot level, weather conditions, crop growth, grass density measurements, crop samples, pre and post application, and aesthetics. The preliminary results of this goal demonstrated that solids could be applied to fields up to 5% total suspended solids concentrations with no adverse environmental impacts. This represents a transportation cost savings of 20% to 25%. Additional data is being gathered in 2011 and the goal will be completed after one more quarter of data is collected.

In the Regulatory Compliance outcome area, ReWa established the goal of identifying pollutants of concern. The objective of this goal is to conduct a headworks analyses for each of the following plants: Mauldin Road WWTP, Lower Reedy WWTP, Georges Creek WWTP, Piedmont WWTP, and Grove WWTP. Historically, no micro constituents have had an adverse environmental impact in concentrations typically found in wastewater. However, standards and regulatory requirements are continuing to evolve.

The objective of the headworks analysis is to provide initial sampling of the WWTPs influent to determine what pollutants are present through sampling priority pollutants and heavy metals (Cd, Cr, Cu, As, Ag, Hg, CN, Pb, Ni, Zn). Additionally the sampling involves testing for any other pollutant reasonably expected to be discharged to WWTPs in quantities, which could pass through or interfere, contaminate solids, or jeopardize treatment plant worker health or safety.

Once the constituents have been determined a whole plant analysis including influent, primary effluent, secondary effluent/plant effluent and biosolids is conducted. The results of the sampling are used to obtain information on individual process removals, overall treatment plant removal, solids concentration, and perform a mass balance. Ultimately this information is used to develop headworks loadings and local limits to be used in the pretreatment program.

Pollutant by pollutant, treatment plant data are used to calculate removal efficiencies, before applying the most stringent criteria such as water quality, solids quality, NPDES permit limits, or pollutant inhibition levels to back calculate the maximum allowable headworks loadings. By subtracting out contributions from domestic sources, the available industrial loading is then either evenly distributed among the industrial users, or allocated on an as needed basis to those industrial users discharging the pollutant above background levels.

ReWa has scheduled performance of the headworks analysis and determination of headworks loading pending the re-issuance of the NPDES permits for each of the above referenced plants. The renewal of the permits has been postponed and is now scheduled for issuance in 2012. Therefore without the required information related to the NPDES permits progress on this goal has been delayed.

In the Relations with Interested Parties outcome area, ReWa established two goals: one of was to educate state legislators regarding the benefits of land application of biosolids to the states agri-business and the second was to increase public education and awareness of biosolids.

The objective of the first goal was to contact county extension agents to learn about opportunities for effectively engaging the state legislature. No progress has been made on this goal because a detailed plan of approach has not yet been developed.

The initial efforts to increase public education and awareness related to biosolids was completed through developing a biosolids fact sheet for ReWa's biosolids product and program in 2011. The fact sheet was transformed into a brochure to be mailed to those who participate in the land application program and made available to the general public on request.

Additionally in 2011 ReWa initiated a significant effort in the relations with interested parties outcome area by forming a biosolids marketing feasibility group consisting of an agricultural economics professor from Clemson University, a Clemson Cooperative Extension horticultural agent, a Clemson Cooperative Extension livestock agent, a Gwinnett County Georgia Water Resource Center Superintendent and a professional engineer with Camp Dresser and McKee. The results of this effort resulted in a list of proposed ideas directed at the beneficial use of biosolids.

In the Quality Biosolids Management Practices outcomes area, established an objective of evaluating the feasibility of converting to Class A biosolids production at Mauldin Road WWTP, including the development of options for meeting this objective. A consultant was retained to perform the required study. A report was prepared in March 2011 concluding that there were regulatory or public relations drivers to pursue Class A biosolids at this time. Subsequent to this conclusion an additional effort was established to seek input from interested parties to identify ideas for alternative approaches to beneficial biosolids use. This effort resulted in identification of numerous ideas for biosolids projects related to quality biosolids management practices, which will be used to formulate future goals and objectives for the biosolids management program.

An additional quality biosolids management practice that was established in 2010 and completed in 2011 was the installation of new magnetic flow meters at all biosolids truck loading stations to ensure accurate measurement of biosolids and that all tankers are loaded to the maximum extent legally permitted. This goal also addresses the environmental performance goal of reducing the transportation costs since ReWa is charged by the tanker load. Seven new meters were installed and this objective was accomplished.

Another ReWa biosolids program development for 2011 was an initiative to formulate a biosolids business plan.

CONCLUSIONS AND RECOMMENDATIONS

The results of the verification audit are positive. The review and approval of the corrective action plans for each of the minor non-conformances identified during the verification audit has been completed. The full implementation of the corrective actions for the minor findings will be accomplished according to the schedule proposed in the corrective action work orders and it is the recommendation of the audit team that ReWa's Biosolids Management Program receive "Verification" status.

As was mentioned previously, a BMP 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 program 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 program's improvement.

Discussions between the ReWa Biosolids manager and the third party auditor resulted in agreement to the following proposed interim audit approach. Each interim audit will include a review of: the organization's progress toward goals and objectives; EMS outcomes (environmental performance; regulatory compliance; interested party relations; quality practices); actions taken to correct minor non-conformances; the management review process; corrective action requests and responses; and preventive actions. In addition to the above, the following elements will be audited according to the following tentative schedule:

Year 1 (third party) – Elements 3, 10, 12, 13

Year 2 (third party/internal) – Elements 1, 8, 15, 17

Year 3 (third party) – Elements 5, 6, 9, 14, 16

Year 4 (third party/internal) – Elements 2, 4, 7, 11

Year 5 (third party) Re-verification

Attachment 1

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

Element 1. BMP Manual

- ReWa Biosolids Environmental Management System – revised 9 September 2011, approved by Executive Director.
- Element 1: Biosolids Management Documentation, Version EMS 002, issued 06/27/08, revised 08/11/11.
- EMS Document 1.1 EMS for Biosolids Element Descriptions.
- Element 2 – Biosolids Management Policy, Version EMS001, dated 06/27/08, revised 05/31/11.
- Interviews with Ray Orvin, Executive Director; Glen McManus, Director of Operations; Charles Logue, Director Technical Services; Joey Collins, Solids Manager; Larry Camp, Process Control; Bryan Kohart, Environmental Engineer; Jessica Brown, Customer Service and Jolene Devaney, Administrative Assistant.
- Biosolids Management Policy signed by Ray Orvin, Executive Director on 31 May 2011. (Includes commitment to NBP Code of Good Practice)
- Element 3: Critical Control Points, Version EMS002, issued 06/27/08, revised 09/08/2011.
- Element 4: Legal and Other Requirements, Version EMS003, issued 06/27/08, revised 08/26/11.
- Element 6: Public Participation in Planning, Version EMS002, issued 06/27/08, revised 09/08/11.
- Element 7: Roles and Responsibilities, Version EMS004, issued 06/27/08, revised 08/26/11. (Contractors responsibilities for hauling and land application defined)
- Element 9 – Community and Public Outreach, Version EMS003, issued 06/27/08, revised 09/08/11.
- Element 10: Operational Control of Critical Control Points, Version EMS003, issued 06/27/08, revised 09/08/11.
- Element 11: Emergency Preparedness and Response, Version EMS002, issued 06/27/08, revised 09/08/11.
- Letter of Commitment to NBP program signed by Ray Orvin 2 May 2000.
- Western Carolina Regional Sewer Authority Request of Competitive Sealed Technical Proposals for Biosolids and Wastewater Residuals Management Services, August 2007.
- Biosolids and Wastewater Residuals Management Services Agreement, 5 August 2008.
- First Amendment to Biosolids and Wastewater Residuals Management Services Agreement, 5 August 2011.

Element 2. Biosolids Management Policy

- Element 2: Biosolids Management Policy (referencing Code of Good Practice), Version EMS001, issued 06/27/08, revised 05/31/2011.
- Interviews with Ray Orvin, Executive Director; Glen McManus, Director of Operations; Joey Collins, Solids Manager; Larry Camp, Process Control; Bryan Kohart, Environmental Engineer; Jessica Brown, Customer Service and Jolene Devaney, Administrative Assistant.
- Element 9 – Community and Public Outreach, Version EMS003, issued 06/27/08, revised 09/08/11.
- Interview with Barbara Wilson, Director Human Resources regarding training program.
- Policy available on ReWa Environmental Management System web page (<http://www.rewaonline.org/environmental-management-system.php>)
- Laminated 8 ½ x 11 card containing Biosolids Management Policy and Biosolids Mission Statement and Code of Good Practice – posted at various locations throughout the plant.
- Verified employees and contractors received awareness training through interviews.
- Checked employees' biosolids policy on personal laminated cards.
- Policy displayed throughout wastewater treatment plant on laminated posters.
- Biosolids and Wastewater Residuals Management Services Agreement, 5 August 2008.
- First Amendment to Biosolids and Wastewater Residuals Management Services Agreement, 5 August 2011.

Element 3. Critical Control Points

- Element 3: Critical Control Points, Version EMS002, issued 06/27/08, revised 09/08/2011.
- Table 3.01- Critical Control Points – Overall Critical Control Points – Revision date 09/02/11 (including critical control point operational areas, key processes, operational control, responsibilities, potential operational and environmental impacts.)
- Table 3.02 – Critical Control Points – Altamont WWTP – revised 09/02/11 (including critical control point operational areas, key processes, operational controls, monitoring and measurement, and responsibilities.)
- Table 3.03 – Critical Control Points – Durbin Creek WWTP – revised 09/02/11 (including critical control point operational areas, key processes, operational controls, monitoring and measurement, and responsibilities.)
- Table 3.04 – Critical Control Points – Georges Creek WWTP – revised 09/02/11 (including critical control point operational areas, key processes, operational controls, monitoring and measurement, and responsibilities.)
- Table 3.05 – Critical Control Points – Gilder Creek WWTP – revised 09/02/11 (including critical control point operational areas, key processes, operational controls, monitoring and measurement, and responsibilities.)

- Table 3.06 – Critical Control Points – Grove Creek WWTP – revised 09/02/11 (including critical control point operational areas, key processes, operational controls, monitoring and measurement, and responsibilities.)
- Table 3.07 – Critical Control Points – Lower Reedy WWTP – revised 09/02/11 (including critical control point operational areas, key processes, operational controls, monitoring and measurement, and responsibilities.)
- Table 3.08 – Critical Control Points – Marietta WWTP – revised 09/02/11 (including critical control point operational areas, key processes, operational controls, monitoring and measurement, and responsibilities.)
- Table 3.09 – Critical Control Points – Mauldin Road WWTP – revised 09/02/11 (including critical control point operational areas, key processes, operational controls, monitoring and measurement, and responsibilities.)
- Table 3.10 – Critical Control Points – Pelham WWTP – revised 09/02/11 (including critical control point operational areas, key processes, operational controls, monitoring and measurement, and responsibilities.)
- Table 3.11 – Critical Control Points – Piedmont WWTP – revised 09/02/11 (including critical control point operational areas, key processes, operational controls, monitoring and measurement, and responsibilities.)
- Comparison of Critical Control Points with those contained in Appendix F of the National Manual of Good Practice.
- Spot-checked operational SOPs with critical control points.
- Interviews with BMP team: Joey Collins, Solids Manager; Larry Camp, Process Control; Bryan Kohart, Environmental Engineer; Jessica Brown, Customer Service; Jolene Devaney, Administrative Assistant.
- Interviews with critical control point personnel: William Armes, Pretreatment Program Manager; Ken Mattison, Industrial Pretreatment Inspector; Russ Moore, Operations Foreman – Mauldin Road WWTP; Fred Nesbitt, Operator II – Mauldin Road WWTP, Keith Hill, Operator II – Mauldin Road WWTP; Doug Allen, Operator II – Mauldin Road WWTP; Adam Harvey, Operator I – Mauldin Road WWTP; Brent Dickard, Operator I – Mauldin Road WWTP; Maxie Sullivan, Operator I – Mauldin Road WWTP; Kevin James, Operations Manager – East Side (Durbin Creek, Gilder Creek and Pelham); David Collyer, Operations Foreman – Durbin Creek WWTP and Gilder Creek WWTP; Adam Waite, Operator II – Durbin Creek WWTP; Donald Fowler, Operator II – Gilder Creek WWTP; Joe Ortiz, Operations Foreman – Pelham WWTP; John Barry, Operator II – Pelham WWTP; Brian Goldsmith, Operator II – Pelham WWTP; Jason Putman, Operator I – Pelham WWTP; Craig Neely, Operator I – Pelham WWTP; James Galloway, Operator II – Grove Creek WWTP; Virgil Fairey, Operator I – Grove Creek WWTP; Tim Camp, Operator I – Grove Creek WWTP; Rick Cheek, Operator II – Georges Creek WWTP; Chris Elliot, Operations Foreman – Georges Creek WWTP; David Skyles, Operations Foreman – Lower Reedy WWTP; Frankie Powers, Operator II – Lower Reedy WWTP; Winfred Riggins, Operator II – Lower Reedy WWTP; Will Hodges, Tech Services Manager – Synagro; Tommy Nevins, Field Manager – Synagro; Russell Herman, Lead Operator-Field Crew – Synagro; Jack Nevins, Field Crew – Synagro; Eddy Camp, Truck Driver –

Synagro; Anthony Jones, Truck Driver – Synagro; Brandon Nance, Truck Driver – Synagro.

- Field review of biosolids value chain critical control points.
- Viewed various land application sites including: Tim Ayers Site in Greenville County – Site GV-11, Field 02 (30.1 acres – fescue and Bermuda grass); Roy Jones Site in Greenville County (hay); and Martha Akins Site operated by Ken Satterfield in Laurens County – Site SC-LA-39-01 thru 05 (131 acres)

Element 4. Legal and Other Requirements

- Element 4: Legal and Other Requirements, Version EMS003, issued 06/27/08, revised 08/26/11.
- EMS Document 4.1: Federal and State Requirements.
- Interviews with BMP team: Joey Collins, Solids Manager; Larry Camp, Process Control; Bryan Kohart, Environmental Engineer; Jessica Brown, Customer Service; Jolene Devaney, Administrative Assistant.
- Interviews with pretreatment personnel: William Armes, Pretreatment Program Manager; Carlos Diez, Senior Construction Inspector, and Ken Mattison, Industrial Pretreatment Inspector.
- Interviews with contractor staff (Synagro): Will Hodges, Tech Services Manager; Tommy Nevins, Field Manager; Russell Herman, Lead Operator-Field Crew; Jack Nevins, Field Crew; Eddy Camp, Truck Driver; Anthony Jones, Truck Driver; and Brandon Nance, Truck Driver.
- Interview with state regulators: Mike Montebello, Manager Domestic Wastewater Permit Section – Bureau of Water –SCDHEC and Brenda Green, Staff Engineer – SCDHEC.
- Discussed other requirements to which subscribed: Voluntary participation in biosolids operator certification program sponsored by the South Carolina Water Environment Association.
- Reviewed ReWa intranet site used to maintain regulatory requirements.
- Synagro land application site books with plans.
- Reviewed Surface Water Discharge Permit South Carolina Permit # SC0048381; effective Dec 1, 2010, expires Nov 30, 2015 for land application of sludge associated with 10 outfalls.
- Reviewed South Carolina Water Pollution Control Permits Regulation 61-9.
- Synagro Standard Operating Procedure – ReWa Water Resources Permit Summary Sheet 7/25/11.
- Reviewed the following EMS Procedures for inclusion of legal requirements: Durbin Creek WWTP – Anaerobic Digester standard operating procedure version # SOP001, issued 02/18/09.
- Grove Creek WWTP – Aerobic Digesters 1 & 2 standard operating procedure # SOP001, issued 02/19/09.
- Mauldin Road WWTP – Anaerobic Digester standard operating procedure # SOP001, issued 02/25/09.

Element 5. Goals and Objectives

- Element 5: Goals and Objectives for Continual Improvement, Version EMS003, issued 06/27/08, revised 09/09/11.
- EMS Document 5.1: Biosolids Management Program Goals and Objectives Version 1, Issue date 9/6/11. (Form)
- EMS Document 5.2: Action Plan for Goals
- Interviews with top management: Ray Orvin, Executive Director and Glen McManus, Director of Operations.
- Interviews with BMP team: Joey Collins, Solids Manager; Larry Camp, Process Control; Bryan Kohart, Environmental Engineer; Jessica Brown, Customer Service; Jolene Devaney, Administrative Assistant.
- Evaluated 2010 and 2011 Goals and Objectives for use of SMART criteria.
- Reviewed progress meeting agenda for progress and status of Goals and Objectives 9/2/10.
- ReWa Biosolids Business Plan Focus Elements updated Sept 12, 2011.
- ReWa EMS Biosolids Team Meeting May 20, 2011.
- Biosolids Marketing Feasibility Group Workshop Report, June 27, 2011.
- EMS for Biosolids – Meeting Notes of the Annual Management Review – Monday April 4th, 2011.

Element 6. Public Participation in Planning

- Element 6: Public Participation in Planning, Version EMS002, issued 06/27/08, revised 09/08/11.
- Interviews with BMP team: Joey Collins, Solids Manager; Larry Camp, Process Control; Bryan Kohart, Environmental Engineer; Jessica Brown, Customer Service; Jolene Devaney, Administrative Assistant.
- Interviews with Jessica Brown, Customer Service and Stacey Flax, PR/Customer Service/Contract Manager.
- Interview with state regulators: Mike Montebello, Manager Domestic Wastewater Permit Section – Bureau of Water –SCDHEC and Brenda Green, Staff Engineer – SCDHEC.
- Interviews with contractor staff (Synagro): Will Hodges, Tech Services Manager; Tommy Nevins, Field Manager; Russell Herman, Lead Operator-Field Crew; Jack Nevins, Field Crew; Eddy Camp, Truck Driver; Anthony Jones, Truck Driver; and Brandon Nance, Truck Driver.
- ReWa Biosolids brochure.
- ReWa wastewater treatment plant tour brochure.
- Reviewed ReWa Environmental Management System web page (<http://www.rewaonline.org/environmental-management-system.php>)

Element 7. Roles and Responsibilities

- Element 7: Roles and Responsibilities, Version EMS004, issued 06/27/08, revised 08/26/11.

- EMS Document 7.1: EMS Roles and Responsibilities.
- Element 7 – Item 10 identifies contractor’s roles and responsibilities.
- Internal Memo from Glen McManus, Director of Operations appointing EMS Team dated 2 March 2009.
- Interviews with BMP team: Joey Collins, Solids Manager; Larry Camp, Process Control; Bryan Kohart, Environmental Engineer; Jessica Brown, Customer Service; Jolene Devaney, Administrative Assistant.
- Interviews with various ReWa staff: William Armes, Pretreatment Program Manager; Ken Mattison, Industrial Pretreatment Inspector; Russ Moore, Operations Foreman – Mauldin Road WWTP; Kevin James, Operations Manager – East Side (Durbin Creek, Gilder Creek and Pelham); David Collyer, Operations Foreman – Durbin Creek WWTP and Gilder Creek WWTP; Joe Ortiz, Operations Foreman – Pelham WWTP; James Galloway, Operator II – Grove Creek WWTP; Chris Elliot, Operations Foreman – Georges Creek WWTP; and David Skyles, Operations Foreman – Lower Reedy WWTP.
- Interviews with contractor staff (Synagro): Will Hodges, Tech Services Manager; Tommy Nevins, Field Manager; Russell Herman, Lead Operator-Field Crew; Jack Nevins, Field Crew; Eddy Camp, Truck Driver; Anthony Jones, Truck Driver; and Brandon Nance, Truck Driver.
- Biosolids and Wastewater Residuals Management Services Agreement, 5 August 2008.
- First Amendment to Biosolids and Wastewater Residuals Management Services Agreement, 5 August 2011.

Element 8. Training

- Element 8: Training, Version EMS001, issued 06/27/08, revised 05/31/11.
- EMS Document 8.1: Training Requirements by Job Title.
- Interview with Barbara Wilson, Director Human Resources.
- Interviews with BMP team: Joey Collins, Solids Manager; Larry Camp, Process Control; Bryan Kohart, Environmental Engineer; Jessica Brown, Customer Service; Jolene Devaney, Administrative Assistant.
- Interviews with contractor staff (Synagro): Will Hodges, Tech Services Manager; Tommy Nevins, Field Manager; Russell Herman, Lead Operator-Field Crew; Jack Nevins, Field Crew; Eddy Camp, Truck Driver; Anthony Jones, Truck Driver; and Brandon Nance, Truck Driver.
- Contract haulers and Synagro internal training record, given 3-30-11.
- Process/EMS Training spreadsheet Feb 2011.
- Biological wastewater operator licenses.
- Voluntary Biosolids Certifications.

Element 9. Communications

- Element 9 – Community and Public Outreach, Version EMS003, issued 06/27/08, revised 09/08/11.
- EMS Document 9.1: Biosolids Inquiries Log Sheet Template.

- Interviews with BMP team: Joey Collins, Solids Manager; Larry Camp, Process Control; Bryan Kohart, Environmental Engineer; Jessica Brown, Customer Service; Jolene Devaney, Administrative Assistant.
- Interviews with public relations personnel: Jessica Brown, Customer Service and Stacey Flax, PR/Customer Service/Contract Manager.
- Interviews with contractor staff (Synagro): Will Hodges, Tech Services Manager; Tommy Nevins, Field Manager; Russell Herman, Lead Operator-Field Crew; Jack Nevins, Field Crew; Eddy Camp, Truck Driver; Anthony Jones, Truck Driver; and Brandon Nance, Truck Driver.
- Reviewed Inquiry Log in access database.
- Reviewed Contractor Communication plan.
- Reviewed use of Element 8 Training to address internal communication.
- Reviewed SOP on Responding to Inquiries.
- ReWa Biosolids brochure.
- ReWa Environmental Management System web page (<http://www.rewaonline.org/environmental-management-system.php>)
- Synagro's Community Inquiry Response Program.
- ReWa wastewater treatment plant tour brochure.
- Viewed Biosolids Performance Reports on website.
- Reviewed Biosolids EMS web page and links.
- Interview with state regulators: Mike Montebello, Manager Domestic Wastewater Permit Section – Bureau of Water –SCDHEC and Brenda Green, Staff Engineer – SCDHEC.

Element 10. Operational Control of Critical Control Points

- Element 10: Operational Control of Critical Control Points, Version EMS003, issued 06/27/08, revised 09/08/11.
- EMS Document 10.1: Operational Control Review/Change form, version 002, issue date 04/02/09, revised 07/21/11.
- Interviews with BMP team: Joey Collins, Solids Manager; Larry Camp, Process Control; Bryan Kohart, Environmental Engineer; Jessica Brown, Customer Service; Jolene Devaney, Administrative Assistant.
- Interviews with critical control point personnel: William Armes, Pretreatment Program Manager; Ken Mattison, Industrial Pretreatment Inspector; Russ Moore, Operations Foreman – Mauldin Road WWTP; Fred Nesbitt, Operator II – Mauldin Road WWTP, Keith Hill, Operator II – Mauldin Road WWTP; Doug Allen, Operator II – Mauldin Road WWTP; Adam Harvey, Operator I – Mauldin Road WWTP; Brent Dickard, Operator I – Mauldin Road WWTP; Maxie Sullivan, Operator I – Mauldin Road WWTP; Kevin James, Operations Manager – East Side (Durbin Creek, Gilder Creek and Pelham); David Collyer, Operations Foreman – Durbin Creek WWTP and Gilder Creek WWTP; Adam Waite, Operator II – Durbin Creek WWTP; Donald Fowler, Operator II – Gilder Creek WWTP; Joe Ortiz, Operations Foreman – Pelham WWTP; John Barry, Operator II – Pelham WWTP; Brian Goldsmith, Operator II – Pelham WWTP; Jason Putman, Operator I – Pelham WWTP; Craig Neely, Operator I – Pelham WWTP; James Galloway,

- Operator II – Grove Creek WWTP; Virgil Fairey, Operator I – Grove Creek WWTP; Tim Camp, Operator I – Grove Creek WWTP; Rick Cheek, Operator II – Georges Creek WWTP; Chris Elliot, Operations Foreman – Georges Creek WWTP; David Skyles, Operations Foreman – Lower Reedy WWTP; Frankie Powers, Operator II – Lower Reedy WWTP; and Winfred Riggins, Operator II – Lower Reedy WWTP;
- Interviews with contractor staff (Synagro): Will Hodges, Tech Services Manager; Tommy Nevins, Field Manager; Russell Herman, Lead Operator-Field Crew; Jack Nevins, Field Crew; Eddy Camp, Truck Driver; Anthony Jones, Truck Driver; and Brandon Nance, Truck Driver.
 - Western Carolina Regional Sewer Authority Request of Competitive Sealed Technical Proposals for Biosolids and Wastewater Residuals Management Services, August 2007.
 - Biosolids and Wastewater Residuals Management Services Agreement, 5 August 2008.
 - First Amendment to Biosolids and Wastewater Residuals Management Services Agreement, 5 August 2011.
 - Synagro Standard Operating Procedure – South Carolina Buffer Zone and Spreader Operator Instruction Sheet 7/26/11.
 - Synagro Standard Operating Procedure – ReWa Water Resources Permit Summary Sheet 7/25/11.
 - Synagro Standard Operating Procedure – Calibration Procedure (Liquid).
 - Synagro Standard Operating Procedure – ReWa Land Application Daily Field Inspection form – 16 June 2008.
 - Synagro Standard Operating Procedure – Spill Control Plan.
 - Synagro Standard Operating Procedure – Odor Control Plan.
 - Synagro Standard Operating Procedure – Incident Notification Procedure 1/24/11.
 - Synagro Standard Operating Procedure – Site Suitability Checklist.
 - Synagro Permit/Application/Map Book Manual (All Synagro documentation)
 - Synagro monitoring PAN – Plant Available Nitrogen.
 - Synagro – Residual Application Summary (for metals tracking).
 - Synagro – Rainfall monitoring and measurement.
 - ReWa – Soil Monitoring.
 - Grove Creek Monthly PM sheets.
 - Durbin Creek WWTP – Anaerobic Digester standard operating procedure version # SOP001, issued 02/18/09.
 - Durbin Creek WWTP – WAS Thickening standard operating procedure, version #SOP001, issued 02/10/09.
 - Durbin Creek WWTP – Biosolids Storage and Loading standard operating procedure # SOP001, issued 02/18/09.
 - Grove Creek WWTP – Aerobic Digesters 1 & 2 standard operating procedure # SOP001, issued 02/19/09.
 - Mauldin Road WWTP – Anaerobic Digester standard operating procedure # SOP001, issued 02/25/09.

Element 11. Emergency Preparedness and Response

- Element 11: Emergency Preparedness and Response, Version EMS002, issued 06/27/08, revised 09/08/11.
- Table 11.1: Emergency Preparedness and Response Plan Matrix.
- Interviews with: Joey Collins, Solids Manager; Larry Camp, Process Control; Bryan Kohart, Environmental Engineer; Jessica Brown, Customer Service.
- Reviewed ReWa Emergency Operations Manual, undated.
- Reviewed Solid Management Department - Spill Response Plan and Procedures, version 003, issued 1 January 1999, revised 4 April 2009.
- WCRSA Biosolids Incident Report on biosolids spill on highway from overturned truck, 19 March 2007.
- Spill Procedure (SOP) version # SP001, issued 5/1/2006, revised 3/4/10.
- Interviews with contractor staff (Synagro): Will Hodges, Tech Services Manager; Tommy Nevins, Field Manager; Russell Herman, Lead Operator-Field Crew; Jack Nevins, Field Crew; Eddy Camp, Truck Driver; Anthony Jones, Truck Driver; and Brandon Nance, Truck Driver.
- Reviewed Synagro Spill Plan.
- Reviewed Synagro Incident Notification Procedure.
- Inspected mulch and dirt piles and other equipment available for spill control and cleanup at various wastewater treatment plants.

Element 12. BMP Documentation and Document Control

- Element 12: EMS Documentation and Document Control, version EMS002, issued 06/27/08, revised 09/09/11.
- Document Control Log (for tracking all BMP procedure document changes.)
- Interviews with: Joey Collins, Solids Manager; Larry Camp, Process Control; Bryan Kohart, Environmental Engineer; Jessica Brown, Customer Service.

Element 13. Monitoring and Measurement

- Element 13: Monitoring and Measurement, version EMS001, issued 06/27/08, revised 02/11/09.
- Interviews with: Joey Collins, Solids Manager; Larry Camp, Process Control; Bryan Kohart, Environmental Engineer; Jessica Brown, Customer Service.
- Interviews with critical control point personnel: William Armes, Pretreatment Program Manager; Ken Mattison, Industrial Pretreatment Inspector; Russ Moore, Operations Foreman – Mauldin Road WWTP; Fred Nesbitt, Operator II – Mauldin Road WWTP, Keith Hill, Operator II – Mauldin Road WWTP; Doug Allen, Operator II – Mauldin Road WWTP; Adam Harvey, Operator I – Mauldin Road WWTP; Brent Dickard, Operator I – Mauldin Road WWTP; Maxie Sullivan, Operator I – Mauldin Road WWTP; Kevin James, Operations Manager – East Side (Durbin Creek, Gilder Creek and Pelham); David Collyer, Operations Foreman – Durbin Creek WWTP and Gilder Creek WWTP; Adam Waite, Operator II – Durbin Creek WWTP; Donald Fowler, Operator II – Gilder Creek WWTP; Joe

Ortiz, Operations Foreman – Pelham WWTP; John Barry, Operator II – Pelham WWTP; Brian Goldsmith, Operator II – Pelham WWTP; Jason Putman, Operator I – Pelham WWTP; Craig Neely, Operator I – Pelham WWTP; James Galloway, Operator II – Grove Creek WWTP; Virgil Fairey, Operator I – Grove Creek WWTP; Tim Camp, Operator I – Grove Creek WWTP; Rick Cheek, Operator II – Georges Creek WWTP; Chris Elliot, Operations Foreman – Georges Creek WWTP; David Skyles, Operations Foreman – Lower Reedy WWTP; Frankie Powers, Operator II – Lower Reedy WWTP; Winfred Riggins, Operator II – Lower Reedy WWTP; Will Hodges, Tech Services Manager – Synagro; Tommy Nevins, Field Manager – Synagro; Russell Herman, Lead Operator-Field Crew – Synagro; Jack Nevins, Field Crew – Synagro; Eddy Camp, Truck Driver – Synagro; Anthony Jones, Truck Driver – Synagro; Brandon Nance, Truck Driver – Synagro.

- Western Carolina Regional Sewer Authority Request of Competitive Sealed Technical Proposals for Biosolids and Wastewater Residuals Management Services, August 2007.
- Biosolids and Wastewater Residuals Management Services Agreement, 5 August 2008.
- First Amendment to Biosolids and Wastewater Residuals Management Services Agreement, 5 August 2011.
- Synagro Standard Operating Procedure – South Carolina Buffer Zone and Spreader Operator Instruction Sheet 7/26/11.
- Synagro Standard Operating Procedure – ReWa Water Resources Permit Summary Sheet 7/25/11.
- Synagro Standard Operating Procedure – Calibration Procedure (Liquid).
- Synagro Standard Operating Procedure – ReWa Land Application Daily Field Inspection form – 16 June 2008.
- Synagro Standard Operating Procedure – Spill Control Plan.
- Synagro Standard Operating Procedure – Odor Control Plan for ReWa, undated.
- Synagro Standard Operating Procedure – Incident Notification Procedure 1/24/11.
- Synagro Standard Operating Procedure – Site Suitability Checklist.
- Synagro Permit/Application/Map Book Manual (All Synagro documentation)
- Synagro monitoring PAN – Plant Available Nitrogen.
- Synagro – Residual Application Summary (for metals tracking).
- Synagro – Rainfall monitoring and measurement.
- ReWa – Soil Monitoring.
- Land application record sheet form.
- Surface Water Discharge Permit South Carolina Permit # SC0048381 – First quarter monitoring report – 19 April 2011.
- Sampling results for first quarter 2011: metals, pathogens, vector attraction.
- Annual Report for 2010 – Soil Analysis Reports (multiple fields) – organic P, K, Mg, Ca, Na, pH, Acidity, cation exchange capacity, & percent saturation. Additionally, Hg, metals, semi-volatiles, herbicides, PCBs, pesticides, volatiles, and TCLP.
- ReWa Scorecard – Measures, Reporting Frequency, and Key Tracker – 2011.
- Checked periodic progress reviews on goals and objectives.

Element 14. Nonconformances: Preventive and Corrective Action

- Element 14: Nonconformance – Preventive and Corrective Action, version EMS003, issued 06/27/08, revised 07/05/11.
- EMS Document 14.1: Nonconformance/Non-Compliance Action Work Order, version 004, issue date 4/1/09, revised 06/08/11.
- EMS Document 14.2: Nonconformance/Noncompliance Action Work Order Tracking Log.
- Reviewed electronic folder containing open Action Work Orders.
- Interviews with: Joey Collins, Solids Manager; Larry Camp, Process Control; Bryan Kohart, Environmental Engineer; Jessica Brown, Customer Service.
- Reviewed all corrective action work orders and correction status for findings identified in the ORR.

Element 15. Biosolids Management Program Report

- Element 15: Periodic Biosolids Program Performance Report, version EMS 002, issued 06/27/08, revised 09/08/11.
- Interviews with: Joey Collins, Solids Manager; Larry Camp, Process Control; Bryan Kohart, Environmental Engineer; Jessica Brown, Customer Service.
- Reviewed 2009 Biosolids Performance Report.
- Reviewed 2010 Biosolids Performance Report.
- Reviewed 2011 Biosolids Performance Report.
- Viewed Biosolids Performance Reports on website.

Element 16. Internal BMP Audit

- Element 16: Internal EMS Audit, version EMS003, issued 06/27/08, revised 09/09/11.
- Interviews with: Joey Collins, Solids Manager; Larry Camp, Process Control; Bryan Kohart, Environmental Engineer; Jessica Brown, Customer Service.
- Biosolids EMS Internal Audit Report, February 24, 2010 (audit dates March – Dec 2009)
- EMS Internal Audit Executive Summary March 24, 2010.
- EMS Biosolids Internal Audit Scope, Work Plan and Procedures for first internal audit.
- ReWa Biosolids EMS Internal Audit Checklist – completed forms.

Element 17. Management Review

- Element 17: Periodic Management Review of Performance, version EMS002, issued 06/27/08, revised 09/09/11.
- Interviews with top management: Ray Orvin, Executive Director and Glen McManus, Director of Operations

- Interviews with: Joey Collins, Solids Manager; Larry Camp, Process Control; Bryan Kohart, Environmental Engineer; Jessica Brown, Customer Service.
- EMS for Biosolids – Meeting Notes of the Annual Management Review – Monday April 4th, 2011.
- EMS Schedule of EMS Activities throughout the year.

Attachment 2

Detailed Results From Desk Audit/On-Site Readiness Review

Observations

- EMS overall – All elements that require involvement of contractor activities were either not addressed in the contractor service agreement or were otherwise not adequately addressed in the relevant procedures. (See Elements 1, 2, 7, 8, 9, 10, 11, 12, 13, and 16)
- Requirement 1.7 – The contractor responsibility section of ReWa’s Element 1 Procedure does not describe the activities assigned to and performed by the contractor.
- Requirement 2.1 – The Biosolids Management Policy and Biosolids Mission Statement are undated.
- Requirement 2.2 – The organization is required to communicate the policy to all interested parties. The method of communicating the policy to these individuals is reported to be through posting it on the ReWa web page. This posting was not accessible.
- Requirement 4.2 – EMS Document 4.1 presents general broad regulations and permits without reference to how they apply to ReWa, or what specifically is required. The information given does not clearly include or cross-reference what specific standards, limits, reports, records, etc. the facility 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 there is no reference to the NPDES pretreatment program specifics, the NPDES No. SC0048381 permit details, biosolids requirements of R.61-9 and the land application permit.
- Requirement 5.1 – The Element 5 procedure does not describe an approach used to periodically review the progress made on goals and objectives throughout the year.
- Requirement 5.3 – There was no evidence to demonstrate that input from interested parties developed through proactive public participation was considered in developing goals and objectives.
- Requirement 5.5 – Not all goals and objectives used the SMART criteria in their development.

- Requirement 5.7 – The goals and objectives action plans do not adequately address detailed actions, schedules, milestones, resources, and responsibilities for achieving goals and objectives.
- Requirement 6.1 – A proactive public participation program has not been fully developed.
- Requirement 6.5 – Input from interested parties was not considered in updating goals and objectives.
- Requirement 7.1 – The detailed and specific roles and responsibilities of the EMS Team are not adequately defined (including participation in regularly scheduled EMS meetings).
- Requirement 7.3 – There has not been an adequate upper management level (tech services division and operations division) involvement or responsibility for ensuring the biosolids management program and EMS are implemented and maintained.
- Requirement 10.2 – The legal requirements for meeting Class B biosolids through the anaerobic and aerobic digestion processes are not specifically incorporated into the SOPs for these processes.
- Requirement 12.2 – The procedure does not adequately address the approach for development of and changes to EMS procedures and SOPs, the method of properly marking procedures, the electronic method used for document control, the method used to ensure uncontrolled document are properly identified and not used, the method of archiving EMS materials, etc.
- Requirement 12.3 – The procedure does not adequately address the methods for maintaining records and retention times for EMS activities, including regulation required records, operational records, laboratory records, training records, maintenance records, etc.
- Requirement 13.1 – There is presently inadequate tracking of progress on accomplishment of goals and objectives.
- Requirement 14.3 – EMS Document 14.1: Nonconformance/Non-Compliance Action Work Order does not contain a section/space to identify the corrective actions taken to prevent a recurrence.
- Requirement 14.6 – While the procedure indicates that the progress on closing major nonconformances will be every week and tracking of the progress on closing minor nonconformances will be every two weeks; there is no evidence that this procedure is followed.

- Requirement 15.1 – There has been no Biosolids Program and EMS Performance Report prepared for 2010.
- Requirement 16.2 – The internal audit procedure specifies times for completion of the audit, resolution of the nonconformances, and communication of the results to the executive director. These time requirements were not met.
- Element 17 – The procedure requires that the biosolids program performance reported at the management review will include financial information related to biosolids management activities. No financial information related to the total cost of biosolids management has been reported.

Opportunities for Improvement

- EMS Manual and other documents – Consider employing the terms “solids” and “biosolids” in place of the term “sludge” throughout all documents.
- EMS Overall – Consider preparing an EMS schedule that includes milestone dates for each of the activities addressed in the system, such as: EMS team meetings, quarterly management briefings, annual internal audits, annual performance report preparation, annual management review meeting, formulation of goal and objectives, budgeting, etc.
- Element 1 – The ReWa Element 1: Biosolids Management Documentation procedure contains in its concluding paragraph information related to a GAP analysis and activities that will be performed; however these activities have already been completed.
- Requirement 3.2 – Consider using the title “Potential Operational and Environmental Impacts” for the last column in Table 3.01 – Critical Control Points.
- Element 4 – Consider including ReWa’s participation in the voluntary biosolids operator certification program of the South Carolina Water Environment Association as “other requirements” in element 4.
- Element 4 – The Element 4: Legal and Other Requirements procedure indicates a hard file of regulations and their updates will be maintained by the biosolids staff. This tracking procedure has been replaced by an electronic intranet web site.
- Element 5 – Consider establishing goals and objectives giving consideration to all critical control points throughout the entire biosolids value chain.
- Requirement 7.1 – Review the EMS roles and responsibilities for all ReWa positions to determine if they should be included in the EMS and/or their responsibilities more clearly defined.

- Element 9 – Review this procedure to determine if it can be updated, simplified or streamlined.
- Requirement 9.2 – Consider defining more clearly what a “timely manner” is when responding to requests, complaints and inquiries.
- Requirement 10.4 – Consider how preventive maintenance procedures, and work management systems for maintaining equipment, instrumentation, vehicles, and other treatment technology and process control systems associated with biosolids management activities can be addressed in SOPs and included in the biosolids EMS.
- Element 14 – Consider the extent to which corrective action plans should be used by maintenance shop personnel for preventive and corrective maintenance activities and/or equipment repairs.
- Element 14 – There is no reference in the procedure to Document 14.3 and how it will be used.
- Requirement 14.1 – Consider identifying in the purpose and the scope sections of the procedure that corrective and preventive actions include compliance with regulations.
- Requirement 15.1 – Consider including the results of the vector attraction reduction tests for producing Class B biosolids through both anaerobic and aerobic digestion in the Performance Report.
- Requirement 16.3 – Consider more clearly defining the qualifications and training for EMS internal auditors.

Positive Commendations

- Element 1 – The ReWa Element 1: Biosolids Management Documentation procedure contains an excellent outline and summary of the purpose of each element of the Environmental Management System.
- Element 2 – Excellent use of laminated cards for communicating the policy to all employees.
- Element 10 – ReWa has a comprehensive development of Standard Operating Procedures (SOPs) for the critical control points in the biosolids value chain.
- Element 15 – Exemplary format for the annual Biosolids Program and EMS Performance Report prepared for 2009.

Attachment 3

National Biosolids Partnership Appeals Process

Biosolids organizations that participate in the National Biosolids Partnership (NBP) Biosolids Management Program (BMP) are required to undergo a BMP verification audit by an independent, third party auditor assigned by the NBP and yearly interim audits. The purpose of the BMP audit is to determine whether or not the organization's BMP conforms with -- that is, meets the minimum requirements of -- the NBP program, as defined in the BMP Elements¹. 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, 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 BMP element(s) and requirements that are believed to have not been evaluated and/or implemented consistent with NBP 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.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 BMP 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.

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