NATIONAL BIOSOLIDS PARTNERSHIP
VERIFICATION AUDIT REPORT

Atlantic County Utilities Authority
Wastewater Treatment Plant
Atlantic City, New Jersey

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***
Atlantic County Utilities Authority
Biosolids Management Program (BMP) Manual
(March 11, 2013)

Final Report – August 1, 2013

INTRODUCTION

The purpose of the Biosolids Environmental Management Program (BMP) Third Party Verification audit is to verify the Atlantic County Utilities Authority (ACUA) Wastewater Treatment Plant BMP conforms to National Biosolids Partnership (NBP) requirements. The goal of the Third Party Verification audit is to collect and evaluate objective evidence that determines whether the ACUA 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 program objectives.

RECOMMENDATION

The results of the ACUA verification audit and review of their corrective action plans are positive, and it is the recommendation of the audit team that the ACUA Wastewater Treatment Plant BMP receive "Certification" status. Certification 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, solids processing through final end use or disposal) with special attention on those practices and management activities that directly support solids and biosolids-related operations, processes, and activities within the wastewater treatment plant's functions.

The NSF- International Strategic Registrations, Ltd. (NSF-ISR) conducted a third party verification audit of the ACUA Wastewater Treatment Plant's BMP. The verification began with a documentation desk audit and operational readiness review (ORR) conducted from 20 February 2013 to 22 February 2013 with the results presented to the Authority in a letter report on 22 February 2013. The process continued with an on-site verification audit from 2 May 2013 to 3 May 2013. 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 were the ACUA wastewater treatment facilities, including septage and liquid receiving and screening, septage and liquid storage, headwork's bar screens, primary clarifiers, primary solids thickening, secondary clarifiers, waste biosolids thickening centrifuges, solids blend tank, dewatering centrifuges, customer dewatered solids receiving station, biosolids incinerator, and ash loading facilities.

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

- Chris Harris – Director of Operations
- Katie Vesey – Deputy CFO/Director of R&D
- Matt von der Hayden – Project Analyst
- Gregg Fosket – Project Analyst
- Greg Seher – Project Analyst
- Robert Carlson – Technical Assistant
- Kim Shell – Instrument/Electrical Group Leader
- Larry Renze – Incinerator Operator, WPC3
- Gerald Seyler – Relief Supervisor
- Arthur Williams – WPC1
- Vaughn Quintana – WPC1
- John Rosania –Environmental Specialist II – NJDEP, Air and Hazardous Materials Enforcement, Title V Inspector.

DOCUMENTATION REVIEW

Documentation review was conducted in two parts, the desk audit combined with the ORR, and the verification audit. During each of these activities various documents were reviewed to verify conformance with the National Biosolids Partnership (NBP) EMP 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 EMP. 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 document review was performed as a desk audit. The principal focus was on the BMP Element procedures of November 20, 2012 and March 11, 2013. The ORR involved assessment of supplemental information such as cross referenced standard operating procedures, monitoring and measurement records, background reference information, summary of goals and objectives related to outcomes, and various public outreach and communication materials. It also entailed observation of the solids incinerator used for the ultimate processing of solids and biosolids.

The results of the desk audit/ORR provided a number of observations and opportunities for improvement. This initial effort resulted in 22 observations, 7 opportunities for improvement, and 1 positive finding. Detailed results from the desk audit/ORR are provided in Attachment 2.

Most of the observations identified during the desk audit/ORR were addressed by the time of the verification audit. Although significant improvements in the BMP were made as a result of these efforts there were a few shortcomings that required corrections before certification could be recommended.

VERIFICATION AUDIT FINDINGS

The verification audit supplemented the desk audit and ORR such that all elements of the standard were addressed in considerable detail. The verification audit included review of the latest version of the ACUA Biosolids Management Program Manual dated March 11, 2013 containing the current element procedures, and utilized the most recent version of the NBP Third Party Verification Auditor Guidance dated August, 2011. The verification audit found 3 major non-conformance, 17 minor non-conformances and 4 opportunities for improvement, as well as 1 commendation or positive observation.

The following is a review of the positive observation made during the audit process. Major non-conformances, minor non-conformances and opportunities for improvement follow and are listed by requirement number, which correspond to the Element minimum conformance requirement, in the sequence of the NBP standard elements.

Positive Observation

The Atlantic County Utilities Authority Wastewater Treatment Plant Biosolids Management Program Manual makes excellent use of hyperlinks to all related documents and procedures.

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 hard work and dedication of Bob Carlson, Katie Vesey, Greg Seher, Matt von der Hayden, and Gregg Fosket should be recognized. Also, the encouragement, support and active participation of the Chris Harris, Director of Operations, ensure the success of this program.

Major Nonconformances

- Element 5 requirements – Biosolids Program Goals are defined as "performance improvement goals that are consistent with an organization's biosolids management policy to assure biosolids activities comply with applicable laws and regulations, meet quality and public acceptance requirements, and prevent other unregulated adverse environmental and public health impacts by effectively managing all critical control points. Biosolids program goals may include but are not limited to compliance with specific regulatory requirements, expanding beneficial use, improving biosolids quality, improving public acceptance and reducing or eliminating direct/indirect negative environmental impacts." One of the commitments made in the Code of Good Practice, which ACUA management adopted is continual improvement – to seek continual improvement in all aspects of biosolids management. The BMP goals and objectives drive and guide an organization's continual improvement efforts. The goals and objectives standard requirements and the ACUA goals and objectives have not adequately addressed this element. (Note: some goals and objectives have not established clear units of

measure baselines for comparison of progress, some have not established detailed action plans with measurable milestones, some have not been determined to be achievable, some have not delineated specific details, and most have not provided clear evidence of progress toward performance improvements.)

- Element 14 requirements– The procedure addressing this element has not been adequately implemented, and several minor nonconformances in this element point to a systemic breakdown.

- Element 17 requirements – The Element 17 – Periodic Management Review of Performance procedure has not been implemented; i.e. no Management Review was conducted.

Minor Nonconformances

- Requirement 1.7 – The ACUA BMP manual procedures do not adequately address all of the BMP elements' minimum conformance requirements for contractors, such as, requirements 2.2, 7.4, 8.4, 9.4, 10.4, 11.4, and 16.1. While most of these requirements have been agreed to in the signed letters of understanding not all of element procedures contain a description of the specific approach used to address the contractor's requirement.

- Requirement 4.2 – The list of applicable regulatory requirements identified in Element 4 procedure has not been fully developed, and the detailed specific regulatory citations (references) have not been presented (for example, Title V, Septage Haulers, Section 503 and Solid Waste Regulations, NJAC 7.26, Subchapter 2A – Regulations for Sanitary Landfill). Note: descriptions are required to present the exact requirements.

- Requirement 5.6 – The ACUA goals and objectives are not current. A few of the goals and objectives have been determined to be infeasible, some others are on hold for an undefined period of time and a new goal with objectives are not clearly related to biosolids.

- Requirement 8.1 – Most employees interviewed did not have a clear understanding of the biosolids value chain concept and were not aware of what critical control points were or how they were important in controlling the quality of the solids and biosolids.

- Requirement 10.1 – Not all of the critical control points have standard operating procedures.

- Requirement 10.1 – Not all of the standard operating procedures for the critical control points include startup, shut down and troubleshooting.

- Requirement 10.2 – Not all legal and other adopted requirements are included in the operational control procedures associated with critical control points.

- Requirement 10.4 – The organization has not yet fully implemented the new comprehensive maintenance management system for preventive maintenance procedures and work management systems for maintaining equipment, instrumentation, vehicles and other treatment technology and process control systems associated with its biosolids management activities included in SOPs.

- Requirement 12.2 – The Element 12 procedure does not describe the method used to ensure uncontrolled documents are properly identified, such as printed versions of electronically controlled documents.

- Requirement 13.1 – The SOPs for critical control points do not contain a description of the required monitoring and measurement and practices to assure compliance with applicable legal and other requirements (for example ash, metals, temperature, and solids).

- Requirement 14.2 – The organization has not implemented a procedure to identify the cause of nonconformances.

- Requirement 14.3 – The organization has not implemented a procedure to document the necessary corrective actions taken to prevent a recurrence.

- Requirement 14.4 – The organization has not developed corrective action plans that identify root causes.

- Requirement 14.5 – Corrective action plans specifically describing the approach and detailed steps proposed to be taken to address operational malfunctions and nonconformance and noncompliance issues have not adequately been developed and presented in the Corrective Action/Improvement Form for each improvement/finding.

- Requirement 14.6 – The procedure does not adequately address the specifics of how ACUA tracks progress in completing the corrective actions and has not specifically identified the frequency required for periodic updates that reflect status of completion.

- Requirement 15.1 – The Biosolids Management Program Report for 2012 does not include a summary of the monitoring, measurement and other results that demonstrate performance of the biosolids program relative to legal requirements. Also there is no summary of the measureable improvements made as a result of accomplished goals and objectives.

Opportunities for Improvement

- Overall – Encourage the discontinuance of the term "sludge," using in its place "residuals," "solids" or "biosolids".

- Requirement 7.1 – Review Element 07 – Roles and Responsibilities procedure to ensure that the roles contained in the Responsible Parties section of each BMP element procedure is addressed in the general descriptions of the roles and responsibilities for the BMP implementation team in the Element 7 procedure.

- Requirements 8.1 and 8.2 – Consider developing a formal SOP training program for all employees

For the non-conformances, the ACUA BMP Team will prepare Corrective Action/Improvement Forms and implement corrective actions according to their BMP procedures to provide continual improvements to their biosolids program. The corrective action/Improvement Forms will be presented to the lead auditor within 30 days.

All corrective actions for major nonconformities will be resolved and have the lead auditor verify that the nonconformance has been corrected within 90 days of the audit. Failure to correct these findings within 90 days may result in the requirement to have another full verification audit completed.

All corrective actions for minor nonconformities must be corrected within 30 days of the audit, or within the extensions beyond 30 days found to be acceptable and approved by the lead auditor.

As a further measure to demonstrate continual improvement the opportunities for improvement will be addressed to the maximum extent possible.

The final report and recommendation for verification will be submitted to NBP within two weeks following closure of major findings by the lead auditor, and approval of the corrective actions for the minor nonconformities submitted to the lead auditor.

ATLANTIC COUNTY UTILITIES AUTHORITY COMMENTS

Atlantic County Utilities Authority values the importance of periodic third-party audits and understands the benefit of using the audit's findings to improve our Environmental Management System. Based on the conducted verification audit, Atlantic County Utilities Authority agrees with the result of the audit and is committed to addressing all non-conformances as well as the opportunities for improvement. We are preparing action plans and dedicated resources to address each.

OUTCOMES MATTER

ACUA Biosolids Management Program initially identified five biosolids BMP goals and 7 objectives within those goals. The BMP Team and ACUA supervisor developed the goals and objectives. The initial ACUA goals and objectives for its BMP considered each of the four outcome areas 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 component of the system to make progress towards accomplishing the overall goals. The initial goals were established to a limited degree using Specific, Measurable, Achievable, Relevant, and Time Bound (SMART) criteria, while later modifications to the goals were developed specifically using that criteria. Most of the initial goals and objectives were longer term and were not attained or determined to be financially infeasible. The facility's performance relative to each of the above outcome groups is addressed below.

The first goal and objective was to obtain NBP Certification, which does not specifically relate to any of the required outcome areas. Additionally ACUA's initial fifth goal was to find new revenue and grant sources, which did not meet the SMART criteria or focus on the above outcome areas, and was therefore replaced with a new goal and objective.

In the Environmental Performance outcome area, ACUA established three goals with five related objectives. Using ACUA goal and objective numbering system shows the first relevant goal for this performance area was Goal 2: Reduce greenhouse gases initially set at 10% by the year 2018 and modified to be 20% of the base year 2000 by the year 2018. The first objective within this goal was to reduce natural gas usage for incinerator use by 25%. Several of the action plans were determined to be presently economically unjustifiable. However, if regulations change it may force these action plans to be implemented. In the mean time other alternative objectives and action plans may be developed to accomplish reductions in natural gas use. A second objective within this goal is to reduce electrical energy usage by 15% (presently without a baseline measure) related to the aeration unit process (an excellent objective without direct impact on biosolids value chain). And a third objective is to find a beneficial use of incinerator waste heat, all options for which have been determined to be economically infeasible.

Goal 3 is to find a beneficial use for waste streams with the objective of finding a use for fats, oils and greases (FOG) and incinerator ash. Some progress has been made on ACUA Incinerated Biosolids Ash Recycling through identifying alternative options for ash use. However, not all of the components of the SMART criteria have been clearly delineated for both the FOG and ash objectives to demonstrate environmental performance measurability.

Goal 4 is to reduce the cost of dewatering waste activated solids by 50% with an objective of evaluating the system hydraulics. This is an excellent goal that has not presently been quantified in measureable terms of an environmental performance parameter. The initial steps of determining achievability are in progress.

In the Regulatory Compliance outcome area, ACUA established two related goals. The first is Goal 2, which is discussed above, dealing with green house gases (GHG). It is anticipated that new regulations may be developed that force implementation of GHG controls. The second is Goal 5, which is to become compliant with new storm water regulations. The objective associated with this regulation is to construct a truck wash for ACUA fleet vehicles. Since ACUA fleet vehicles are used to haul liquid wastes and ash they are considered to be part of the biosolids value chain.

In the Relations with Interested Parties outcome area, some of the ACUA goals and objectives discussed above in the Environmental Performance Outcome area overlap with this outcome area.

Specifically Goal 2 relates to public concern associated with green house gases and Goal 4 relates to reducing operating costs, which always has high public interest.

In the Quality Biosolids Management Practices outcomes area, again some of the ACUA goals and objectives discussed above in the Environmental Performance Outcome area overlap with this outcome.

Specifically, Goal 2 requires the improvement in biosolids quality if reduction in the consumption of natural gas for incineration is going to be achieved. Goal 3 involves development of options for beneficially using FOG and ash, both of which result in the need to improve biosolids management practices. Goal 4 is to reduce the cost of dewatering waste activated solids by 50%, which requires improvement in biosolids management practices. And Goal 5 represents an improved management practice of washing trucks used to transport solids and biosolids and ash.

CONCLUSIONS AND RECOMMENDATIONS (TO BE MADE)

The results of the verification audit show the Atlantic County Utilities Authority Wastewater Treatment Plant has a strong Biosolids Environmental Management Program. The NSF lead auditor reviewed and approved the corrective action plans for each of the major and minor non-conformances identified during the verification audit. In addition the implementation of the corrective actions associated with major nonconformities was verified. Therefore the “Certification” recommendation for the Wastewater Treatment Plant Biosolids Management Program (BMP), Atlantic City, New Jersey is made to the NBP. The full implementation of the corrective actions for the minor nonconformances will be accomplished according to the schedule proposed in the corrective action worksheets. It is expected that the opportunities for improvement will each be addressed although they do not require formal closure.

As was mentioned previously, a BMP is a continuous improvement process, and certification 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.

Based on discussions between the Biosolids Management Program Team and the third party auditor the following tentative interim audit schedule is proposed for the next four years:

Each interim audit will include a review of: the organization's progress toward goals and objectives; EMP outcomes (environmental performance; regulatory compliance; interested party relations; quality practices); actions taken to correct minor nonconformances; 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 5, 6, 9, 14, 16

Year 2 (internal or third party) – Elements 1, 10, 12, 13

Year 3 (third party) – Elements 3, 8, 15, 17

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

Attachment 1

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

Element 1. BMP Manual

- Interview with Chris Harris – Vice President Wastewater, Director of Operations
- Interview with Katie Vesey – Deputy CFO/Director of R&D
- Interview with Matt von der Hayden – Project Analyst
- Interview with Robert Carlson – Technical Assistant
- Interview with Gregg Fosket – Project Analyst
- Interview with Greg Seher – Project Analyst
- BMP Manual including all element procedures – November 20, 2012 and March 11, 2013.
- BMP manual elements approvals by Chris Harris – Vice President Wastewater, Director of Operations.
- Element 01 – Atlantic County Utilities Authority (ACUA) Biosolids Management Program Manual procedure, Version 1, dated 3/11/2013.
- Process Flow Table (monthly schedule of BMP tasks).
- ACUA Biosolids Management System Letter of Understanding and Expectations (to be signed by contractors).
- Biosolids Management Policy
- ACUA Organization Charts

Element 2. Biosolids Management Policy

- Interview with Chris Harris – Vice President Wastewater, Director of Operations
- Interview with Katie Vesey – Deputy CFO/Director of R&D
- Interview with Matt von der Hayden – Project Analyst
- Interview with Robert Carlson – Technical Assistant
- Element 02 – Biosolids Management Policy procedure, Version 1, dated 3/11/2013.
- Resolution 11-11-170: Affirming the ACUA's Commitment to following the National Biosolids Partnership's Code of Good Practices for Biosolids (Sludge) treatment and disposal and the ACUA's Biosolids Management Policy. Adopted November 17, 2011.
- ACUA Webpage containing ACUA's resolution to adopt the Biosolids Policy, the Code of Good Practice and the Elements of the Biosolids Management Policy. (http://www.acua.com/acua/contact_us.aspx)

Element 3. Critical Control Points

- Interview with Chris Harris – Vice President Wastewater, Director of Operations
- Interview with Katie Vesey – Deputy CFO/Director of R&D
- Interview with Matt von der Hayden – Project Analyst
- Interview with Robert Carlson – Technical Assistant
- Interview with Gregg Fosket – Project Analyst
- Interview with Greg Seher – Project Analyst
- Interview with Kim Shell – Instrument/Electrical Group Leader
- Interview with Larry Renze – Incinerator Operator, WPC3
- Interview with Gerald Seyler – Relief Supervisor
- Interview with Arthur Williams – WPC1
- Interview with Vaughn Quintana – WPC1
- Atlantic County Utilities Authority Wastewater Treatment Facilities, Process Flow and Bio-solids Diagram.
- Element 03 – Critical Control Points procedure, Version 1, dated 3/11/2013.
- Table 3.1: Critical Control Points, Operational Controls, SOPs, Monitoring/Measurements and Environmental Impacts, undated.
- Electronic hyperlinks to each SOP associated with the corresponding critical control points.

Element 4. Legal and Other Requirements

- Interview with Chris Harris – Vice President Wastewater, Director of Operations
- Interview with Katie Vesey – Deputy CFO/Director of R&D
- Interview with Matt von der Hayden – Project Analyst
- Interview with Robert Carlson – Technical Assistant
- Interview with Gregg Fosket – Project Analyst
- Interview with Larry Renze – Incinerator Operator, WPC3
- Interview with Gerald Seyler – Relief Supervisor
- Interview with Arthur Williams – WPC1
- Interview with Vaughn Quintana – WPC1
- Interview with John Rosania –Environmental Specialist II – NJDEP, Air and Hazardous Materials Enforcement, Title V Inspector.
- Element 04 – Legal and Other Requirements procedure, Version 1, dated 3/11/2013.
- Table 4.1 – ACUA Wastewater Permits.
- Title V Emissions Limits for Incinerator "B" dated March 11, 2013.
- Table 4.1a- Legal Requirements – ACUA.
- Review of Industrial Waste Pretreatment program (State managed because of fewer than 5 significant industrial users.)
- ACUA 2012 Pretreatment Program Report and Schedule B, pertaining to the local sewer use ordinance.
- NJ Solid and Hazardous Waste Transporters Quick Access Guidebook – March 2001 [NJAC 7:26-2.13(g)]

Element 5. Goals and Objectives

- Interview with Chris Harris – Vice President Wastewater, Director of Operations
- Interview with Katie Vesey – Deputy CFO/Director of R&D
- Interview with Matt von der Hayden – Project Analyst
- Interview with Robert Carlson – Technical Assistant
- Interview with Gregg Fosket – Project Analyst
- Element 05 – Goals and Objectives for Continual Improvement procedure, Version 1, dated 3/11/2013.
- 2012 Biosolids Management System Goals and Objectives
- Table 5.1 - Goals and Objectives updated for 2013.
- Action Plans contained in Table 5.1 – Goals and Objectives, updated for 2013.

Element 6. Public Participation in Planning

- Interview with Chris Harris – Vice President Wastewater, Director of Operations
- Interview with Katie Vesey – Deputy CFO/Director of R&D
- Interview with Matt von der Hayden – Project Analyst
- Interview with Robert Carlson – Technical Assistant
- Interview with Gregg Fosket – Project Analyst
- Element 06 – Public Participation in Planning procedure, Version 1, dated 3/11/2013.
- Table 6.1 Atlantic County Utilities Authority (ACUA) Public Participation Mechanisms, undated.
- Information sheet on Incinerated Biosolids Ash, undated.
- ACUA National Biosolids Partnership section of Website (http://www.acua.com/acua/contact_us.aspx): email contact form.

Element 7. Roles and Responsibilities

- Interview with Chris Harris – Vice President Wastewater, Director of Operations
- Interview with Katie Vesey – Deputy CFO/Director of R&D
- Interview with Matt von der Hayden – Project Analyst
- Interview with Robert Carlson – Technical Assistant
- Interview with Gregg Fosket – Project Analyst
- Interview with Greg Seher – Project Analyst
- Interview with Kim Shell – Instrument/Electrical Group Leader
- Interview with Larry Renze – Incinerator Operator, WPC3
- Interview with Gerald Seyler – Relief Supervisor
- Interview with Arthur Williams – WPC1
- Interview with Vaughn Quintana – WPC1
- Element 07 – Roles and Responsibilities procedures, Version 1, dated 3/11/2013.
- Multiple Organization Charts for ACUA.
- Wastewater Administration and Systems Organization Chart.
- ACUA Biosolids Management System Letter of Understanding and Expectations (to be signed by contractors).

Element 8. Training

- Interview with Chris Harris – Vice President Wastewater, Director of Operations
- Interview with Katie Vesey – Deputy CFO/Director of R&D
- Interview with Matt von der Hayden – Project Analyst
- Interview with Robert Carlson – Technical Assistant
- Interview with Gregg Fosket – Project Analyst
- Interview with Greg Seher – Project Analyst
- Interview with Kim Shell – Instrument/Electrical Group Leader
- Interview with Larry Renze – Incinerator Operator, WPC3
- Interview with Gerald Seyler – Relief Supervisor
- Interview with Arthur Williams – WPC1
- Interview with Vaughn Quintana – WPC1
- Element 08 – Training procedure, Version 1, dated 3/11/2013.
- BMP Training Sign-in sheets.
- BMP Training Materials.

Element 9. Communications

- Interview with Chris Harris – Vice President Wastewater, Director of Operations
- Interview with Katie Vesey – Deputy CFO/Director of R&D
- Interview with Matt von der Hayden – Project Analyst
- Interview with Robert Carlson – Technical Assistant
- Interview with Gregg Fosket – Project Analyst
- Interview with Greg Seher – Project Analyst
- Interview with Kim Shell – Instrument/Electrical Group Leader
- Interview with Larry Renze – Incinerator Operator, WPC3
- Interview with Gerald Seyler – Relief Supervisor
- Interview with Arthur Williams – WPC1
- Interview with Vaughn Quintana – WPC1
- Interview with John Rosania –Environmental Specialist II – NJDEP, Air and Hazardous Materials Enforcement, Title V Inspector.
- ACUA Biosolids Management System Letter of Understanding and Expectations (to be signed by contractors).
- Table 6.1 Atlantic County Utilities Authority (ACUA) Public Participation Mechanisms, undated.
- Element 09 – Communication procedure, Version 1, dated 3/11/2013.
- ACUA National Biosolids Partnership section of Website (http://www.acua.com/acua/contact_us.aspx).
- Biosolids Management Program Performance Report for 2012.
- Wastewater Fact Sheet – June 2009.
- Wastewater Fact Sheet – April 2013.
- Information sheet on Incinerated Biosolids Ash, undated.

Element 10. Operational Control of Critical Control Points

- Interview with Chris Harris – Vice President Wastewater, Director of Operations
- Interview with Matt von der Hayden – Project Analyst
- Interview with Robert Carlson – Technical Assistant
- Interview with Gregg Fosket – Project Analyst
- Interview with Greg Seher – Project Analyst
- Interview with Kim Shell – Instrument/Electrical Group Leader
- Interview with Larry Renze – Incinerator Operator, WPC3
- Interview with Gerald Seyler – Relief Supervisor
- Interview with Arthur Williams – WPC1
- Interview with Vaughn Quintana – WPC1
- Element 03 – Critical Control Points procedure, Version 1, dated 3/11/2013.
- Table 3.1: Critical Control Points, Operational Controls, SOPs, Monitoring/Measurements and Environmental Impacts, undated.
- Electronic hyperlinks to each SOP associated with the corresponding critical control points.
- Element 10 – Operational Control of Critical Control Points procedure, Version 1, dated 3/11/2013.
- Element 13 – Monitoring and Measurement procedure, Version 1, dated 3/11/2013.
- Process Flow Table (monthly schedule of BMP tasks).
- Outside Operations – WPC 1 (includes standard operational controls and monitoring & measurement for head structure, primary clarifiers, aeration, secondary clarifiers, disinfection, and effluent pumping.) Version 1, dated 3/11/2013.
- Solids Handling Operations – WPC 3 (placeholder for development of standard operating procedures and monitoring & measurement for thickened waste activated solids, primary thickener, blend tank, dewatering centrifuges, polymer systems, incinerator A, incinerator B, ash handling, process air, and scum hopper.) Version 1, dated 3/11/2013.
- Ash Hauling SOP, dated 3/11/2013.
- Incinerator B Operating Procedure, EMS Series, dated 3/11/2013.
- Title V Emissions Limits for Incinerator B – summary table.
- Thickening Operator, Receiving Procedure, EMS Series, dated 3/11/2013.
- Computerized Maintenance Management System (CMMS).
- ACUA Biosolids Management System Letter of Understanding and Expectations (to be signed by contractors).

Element 11. Emergency Preparedness and Response

- Interview with Chris Harris – Vice President Wastewater, Director of Operations
- Interview with Matt von der Hayden – Project Analyst
- Interview with Robert Carlson – Technical Assistant
- Interview with Gregg Fosket – Project Analyst
- Element 11 – Emergency Preparedness and Response procedure, Version 1, dated 3/11/2013.
- Emergency Operating and Response Program Wastewater Division, undated.
- List of available emergency equipment, supplies and locations.
- ACUA Biosolids Management System Letter of Understanding and Expectations (to be signed by contractors).

Element 12. BMP Documentation and Document Control

- Interview with Chris Harris – Vice President Wastewater, Director of Operations
- Interview with Matt von der Hayden – Project Analyst
- Interview with Robert Carlson – Technical Assistant
- Interview with Gregg Fosket – Project Analyst
- Element 12 – EMS Documentation, Document Control and Recordkeeping procedure, Version 1, dated 3/11/2013.
- Element 01 – Atlantic County Utilities Authority (ACUA) Biosolids Management Program Manual procedure, Version 1, dated 3/11/2013.
- BMP Manual including all element procedures – March 11, 2013.
- Element 02 – Biosolids Management Policy procedure, Version 1, dated 3/11/2013.
- Resolution 11-11-170: Affirming the ACUA's Commitment to following the National Biosolids Partnership's Code of Good Practices for Biosolids (Sludge) treatment and disposal and the ACUA's Biosolids Management Policy. Adopted November 17, 2011.

Element 13. Monitoring and Measurement

- Interview with Chris Harris – Vice President Wastewater, Director of Operations
- Interview with Katie Vesey – Deputy CFO/Director of R&D
- Interview with Matt von der Hayden – Project Analyst
- Interview with Robert Carlson – Technical Assistant
- Interview with Gregg Fosket – Project Analyst
- Interview with Greg Seher – Project Analyst
- Interview with Kim Shell – Instrument/Electrical Group Leader
- Interview with Larry Renze – Incinerator Operator, WPC3
- Interview with Gerald Seyler – Relief Supervisor
- Interview with Arthur Williams – WPC1
- Interview with Vaughn Quintana – WPC1
- Element 13 – Monitoring and Measurement procedure, Version 1, dated 3/11/2013.

- Element 10 – Operational Control of Critical Control Points procedure, Version 1, dated 3/11/2013.
- Element 03 – Critical Control Points procedure, Version 1, dated 3/11/2013.
- Table 3.1: Critical Control Points, Operational Controls, SOPs, Monitoring/Measurements and Environmental Impacts, undated.
- Electronic hyperlinks to each SOP associated with the corresponding critical control points.
- Outside Operations – WPC 1 (includes standard operational controls and monitoring & measurement for head structure, primary clarifiers, aeration, secondary clarifiers, disinfection, and effluent pumping.) Version 1, dated 3/11/2013.
- Solids Handling Operations – WPC 3 (placeholder for development of standard operating procedures and monitoring & measurement for thickened waste activated solids, primary thickener, blend tank, dewatering centrifuges, polymer systems, incinerator A, incinerator B, ash handling, process air, and scum hopper.) Version 1, dated 3/11/2013.
- Ash Hauling SOP, dated 3/11/2013.
- Incinerator B Operating Procedure, EMS Series, dated 3/11/2013.
- Title V Emissions Limits for Incinerator B – summary table.
- Dewatered Sludge Sampling Protocol, dated 3/11/2013.
- Thickening Operator, Receiving Procedure, EMS Series, dated 3/11/2013.
- Process Flow Table (monthly schedule of BMP tasks).

Element 14. Nonconformances: Preventive and Corrective Action

- Interview with Chris Harris – Vice President Wastewater, Director of Operations
- Interview with Katie Vesey – Deputy CFO/Director of R&D
- Interview with Matt von der Hayden – Project Analyst
- Interview with Robert Carlson – Technical Assistant
- Interview with Gregg Fosket – Project Analyst
- Element 14 – Nonconformance: Preventive and Corrective Action procedure, Version 1, dated 3/11/2013.
- NBP – Corrective Action/Improvement Form, dated April 17, 2013.
- Completed Corrective Action/Improvement Forms for findings identified during third party desk audit and Operational Readiness Review.
- Desktop Review and Internal Audit Report – Audit dates: July 19 and 20, 2012.
- Process Flow Table (monthly schedule of BMP tasks).

Element 15. Biosolids Management Program Report

- Interview with Chris Harris – Vice President Wastewater, Director of Operations
- Interview with Matt von der Hayden – Project Analyst
- Interview with Robert Carlson – Technical Assistant
- Interview with Gregg Fosket – Project Analyst
- Element 15 – Biosolids Management Program Performance Report procedure, Version 1, dated 3/11/2013.
- Biosolids Management Program Performance Report for 2012.
- ACUA National Biosolids Partnership section of Website (http://www.acua.com/acua/content.aspx?id=3930).
- Process Flow Table (monthly schedule of BMP tasks).

Element 16. Internal BMP Audit

- Interview with Chris Harris – Vice President Wastewater, Director of Operations
- Interview with Katie Vesey – Deputy CFO/Director of R&D
- Interview with Matt von der Hayden – Project Analyst
- Interview with Robert Carlson – Technical Assistant
- Interview with Gregg Fosket – Project Analyst
- Element 16 – Internal EMS Audit procedure, Version 1, dated 3/11/2013.
- Document 16.1 - Sample Internal Audit Plan, undated.
- Process Flow Table (monthly schedule of BMP tasks).
- Desktop Review and Internal Audit Report – Audit dates: July 19 and 20, 2012.
- Internal audit assignments and schedule.
- Process Flow Table (monthly schedule of BMP tasks).

Element 17. Management Review

- Interview with Chris Harris – Vice President Wastewater, Director of Operations
- Interview with Matt von der Hayden – Project Analyst
- Interview with Robert Carlson – Technical Assistant
- Interview with Gregg Fosket – Project Analyst
- Element 17 – Periodic Management Review of Performance, Version 1, dated 3/11/2013.
- Management Review content for 2012 management review, dated 3/11/2013.
- Process Flow Table (monthly schedule of BMP tasks).

Attachment 2

Detailed Findings of the Desk Audit/Onsite Readiness Review

Positive Findings

Element 14 – Exemplary Corrective Action/Improvement Form.

Observations

Item 1.7 – The EMS manual does not adequately describe those biosolids management activities assigned to and performed by contractors (industrial furnace maintenance, haulers, chemical suppliers, and laboratory).

Item 1.7 – EMS manual procedures do not adequately address all of the EMS elements' minimum conformance requirements for contractors, for example, items 2.2, 7.4, 8.4, 9.4, 10.4, 11.4, and 16.1. While most of these requirements have been agreed to in the signed letters of understanding not all of element procedures contain a description of the specific approach to address the requirement.

Item 2.1 – The Element 02 – Biosolids Management Policy procedure does not indicate that changes to the Policy must be approved by the top management (President or Board Chairman).

Item 3.1 – Not all of the critical control points in the biosolids value chain have been identified in Table 3.1, e.g. pretreatment program, primary sedimentation, secondary clarification, scum collection, and scum concentrator.

Item 4.2 – The list of applicable regulatory requirements identified in Element 4 procedure has not been fully developed, and the detailed specific regulatory citations (references) have not been presented (for example, Title V, Septage Haulers, Section 503 and Solid Waste Regulations, NJAC 7.26, Subchapter 2A – Regulations for Sanitary Landfill). Note: descriptions are required to present the exact requirements.

Item 5.1 – Goals and Objectives are not current. A few of the goals and objectives have been determined to be infeasible, some others are on hold for an undefined period of time and new goals and objectives have not yet been added.

Item 6.1 – Consider additional or new approaches to implementing a proactive public participation program that will draw out the interests or concerns of interested parties that can be used in the biosolids management program and EMS planning process, especially the development of goals and objectives.

Item 10.1 – No SOP has been developed for ash hauling (a critical control point in the biosolids value chain).

Item 10.1 – The SOPs for the critical control points do not include procedures for startup, shut down and troubleshooting.

Item 10.2 – Not all legal/other requirements are incorporated into operational controls (SOPs) of critical control points.

Item 10.4 – The organization has not yet fully implemented the new comprehensive maintenance management system for preventive maintenance procedures and work management systems for maintaining equipment, instrumentation, vehicles and other treatment technology and process control systems associated with its biosolids management activities included in SOPs.

Item 11.2 – The Element 11 – Emergency Preparedness and Response procedure does not adequately describe the frequency of evaluation of the effectiveness of the emergency preparedness and response procedure (spill drills).

Element 12 – The document control procedure has not yet been implemented.

Item 12.2 – The Standard Operating Procedures (SOPs) for the critical control points are not properly marked with version number, version date(s) and revision history.

Item 13.1 – The SOPs for critical control points do not contain a description of the required monitoring and measurement and practices to assure compliance with applicable legal and other requirements (for example ash, metals, temperature, and solids).

Item 14.5 – The Element 14 – Nonconformances: Preventive and Corrective Action procedure does not include the use of the Corrective Action/Improvement Form to address findings associated with the results of internal BMP audits and audits conducted by third parties.

Item 14.6 – The procedure does not include a description of how the organization tracks progress in completing the corrective actions and periodically updates the status to reflect completion.

Element 15 – The Element 15 – Biosolids Management Program Performance Report procedure has not yet been implemented, i.e. no Biosolids Management Program Performance Report has been prepared.

Item 15.1 – The Element 15 – Biosolids Management Program Performance Report procedure does not presently address that the annual report contains those biosolids management activities conducted by contractors.

Item 16.3 – The Element 16 – Internal EMS Audit procedure does not presently identify what documents or records will address the audit methodology, protocol, scope, schedule, lead auditor and other auditor qualifications, and auditors roles and responsibilities.

Element 17 – The Element 17 – Periodic Management Review of Performance procedure has not been implemented; i.e. no Management Review has been conducted.

Item 17.1 – The Element 17 – Periodic Management Review of Performance procedure doesn't include how the management review recommendations will be addressed.

Opportunities for Improvement

Item 1.1 – Consider removing "Monthly – Schedule of Tasks" from each of the procedures in which it appears and describing how it will be used in Element 01 procedure. Also consider including in this procedure a description of a process flow diagram or table presenting the time frame for accomplishing each element requirement.

Item 1.1 – Review the References section of each procedure to determine if the document listed plays a direct role in the procedure in which it is cited. Determine if the specific procedure includes a narrative description of how the document is to be used in the procedure.

Item 4.2 – Consider if clarification is needed in the list of permits table for renewal dates and expiration dates.

Item 7.1 – Review the Responsible Parties section of each procedure to ensure that the positions listed actually have a role or responsibilities in the procedure described.

Item 11.3 – The "Emergency Operating and Response Program Wastewater Division" is not a controlled document and does not currently have an accurate inventory of equipment/vehicles.

Element 14 – Consider the value of the table in Procedure 1 of Element 14 – Nonconformances: Preventive and Corrective Action.

Item 15.1 – Review the list of items identified as minimum contents of the BMPPR of procedure #2 in the Element 15 – Biosolids Management Program Performance Report procedure to ensure they are complete, comprehensive and correct.

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

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.