



**National Biosolids Partnership
Biosolids EMS Interim Audit Report**

**Greater Moncton Sewerage Commission
Riverview, NB Canada**

Audit Dates: April 27 – 29, 2011

Audit Conducted By: DEKRA Certification, Inc. (Chalfont, PA)

Audit Team: Mr. Jon Shaver, Certified Biosolids EMS Lead Auditor / Biosolids Auditor

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Report Date: June 7, 2011

Reviewed By: Marc Hebert, Greater Moncton Sewerage Commission

Approved By: Pierre Salle, President – DEKRA Certification, Inc.

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1. SUMMARY

DEKRA Certification, Inc. (DEKRA) conducted an independent audit of the environmental management system (EMS) being used by the Greater Moncton Sewerage Commission (GMSC) in managing its biosolids program. The audit was conducted April 27 to 29, 2011 at GMSC's request and was an interim audit following Verification of the GMSC biosolids management system in May 2010.

Audit Purposes

The purposes of this audit were to:

- Verify that the biosolids management system being used by the Greater Moncton Sewerage Commission conforms to expectations and requirements of the National Biosolids Partnership (NBP) *Environmental Management System for Biosolids*, comprised of 17 EMS Elements
- Verify that the Greater Moncton Sewerage Commission biosolids management system is functioning as intended, with practices and procedures being performed as documented.
- Examine outcomes the Greater Moncton Sewerage Commission is achieving by using a systematic approach for managing its biosolids program.

Summary of Audit Activities

Consistent with NBP requirements for interim audits, DEKRA reviewed the dynamics of the management system being used by GMSC in managing its biosolids program and audited parts of that system for conformance with expectations and requirements of the National Biosolids Partnership EMS Elements (audit criteria). The scope of the audit was consistent with the interim audit program and Statement of Work agreed upon by GMSC and DEKRA.

Audit Conclusions

The audit determined that:

- The Greater Moncton Sewerage Commission biosolids management system is generating positive outcomes, particularly in the production and distribution of compost material.
- No major nonconformances and three minor nonconformances were found during this audit with respect to the audit criteria. Corrective action plans are in place to address the nonconformances.
- All nonconformances from prior third party audits have been effectively corrected.
- Opportunities for improving the effectiveness of the management system were noted.

Based on results of this audit, DEKRA has verified that the Greater Moncton Sewerage Commission biosolids management system meets the expectations and requirements of the NBP EMS Elements. Our Verification will continue for 12 months and we recommend continuing certification within NBP's Biosolids Management (EMS) Program.

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2. AUDIT DETAILS

2A. Local Agency Details

Agency Name: Greater Moncton Sewerage Commission (referred to as GMSC in this report)

Facility: GMSC Wastewater Treatment Facility, Riverview NB

Number of Employees (approximate): 14

Volume of Wastewater Treated (approximate): = 77,000 cubic meters per day

Tons of Biosolids Produced (approximate): 10,000 metric tonnes / year (wet)

Biosolids Use / Disposition Sites Audited

GMSC Composting Facility, Moncton NB

Contractors included in Audit

None

2B. Audit Team

The Greater Moncton Sewerage Commission requested that DEKRA Certification, Inc. conduct this third party interim audit. DEKRA is an accredited Third party Audit Company within the NBP Biosolids Management (EMS) Program. Mr. Jon Shaver conducted the audit for DEKRA. Mr. Shaver is certified by NBP as a Biosolids EMS Lead Auditor and Biosolids Auditor. DEKRA and the auditor assigned to this audit have an independent relationship with The Greater Moncton Sewerage Commission that meets criteria established by the National Biosolids Partnership for Third Party Audit Companies and Auditors.

2C. Audit Scope and Methodology

The scope of this audit covered parts of the GMSC biosolids program, with special attention to practices and management activities that directly support biosolids-related operations, processes and activities.

The audit covered the following topics, consistent with NBP requirements for biosolids EMS interim audits and the interim audits program agreed to by DEKRA and GMSC.

1. Management System Dynamics / Effectiveness Reviews

- Significant changes
- Policy commitments
- Goals & objectives process
- Corrective & preventive action process
- Management Review process

2. Audit of the following processes

- Biosolids Use & Disposition - Composting
- Communication Program

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- Compost Product Sales & Distribution
 - Corrective & Preventive Action
 - Critical Control Points & Operational Controls
 - Goals & Objectives
 - Internal EMS Audits
 - Management Involvement
3. Correction of open nonconformances from previous third party audit (2010 Verification Audit)
 4. Examination of outcomes - regulatory compliance, interested party relations, environmental performance and quality practices.
 5. Interested party interviews

The audit was conducted by interviewing key personnel involved in the GMSC biosolids program, observing practices in place and reviewing pertinent documents and records. Interested parties were interviewed and transaction tests were performed to verify management system effectiveness. It was performed in a manner consistent with the NBP Auditor Guidance (August 2007). Standard audit sampling techniques were used.

2D. Definitions of Audit Findings & Required Corrective Action

Major Nonconformance – a serious omission from requirements and/or other departure that represents, or could cause, a systemic failure, or the existence of multiple related minor nonconformances, or failure to effectively correct a nonconformance in a timely manner. For verification to proceed, correction of major nonconformances must be verified by a third party audit within 90 days.

Minor Nonconformance – an isolated departure from requirements that does not represent a systemic failure. Minor nonconformances require timely and effective correction by the agency and verification by a Third Party Auditor during the next third party audit.

Opportunity (for improvement) – possible improvement in the EMS based on auditor observations. There is no obligation for action in response to these observations.

2E. Reference Materials

The following documents were referenced during this audit:

- Greater Moncton Sewerage Commission Environmental Management System (EMS) Manual
- National Biosolids Partnership “EMS Elements” standard (May 2002)
- National Biosolids Partnership Biosolids EMS Third Party Auditor Guidance (August 2007)
- National Biosolids Partnership Code of Good Practice
- National Biosolids Partnership Manual of Good Practice

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3. SUMMARY OF AUDIT RESULTS

3A. Verification Conclusion

Based on the results of this audit, DEKRA has verified that the Greater Moncton Sewerage Commission biosolids management system continues to meet the expectations and requirements of the National Biosolids Partnership Biosolids EMS Program. DEKRA's verification of that management system will continue and we recommend continuing certification of the GMSC biosolids management system within the National Biosolids Partnership Biosolids Management Program.

3B. EMS Strengths

DEKRA noted the following strengths in the Greater Moncton Sewerage Commission biosolids management system.

- Desire to expand systems approach to managing all aspects and to develop a management system (sustainability?) designed specifically for GMSC
- The Public Inquiry Form is a practical and easy to use way to monitor customer suggestions and perceptions.

3C. Nonconformances

Three minor nonconformances with respect to requirements of the NBP EMS Elements were found during this audit. GMSC has prepared corrective action plans to address each nonconformance and DEKRA's Lead Auditor has reviewed those plans and found them acceptable. The nonconformances found are listed below.

Minor Nonconformance JS / 11-01/9 NBP EMS Element 9 requires a procedure be in place for receiving inquiries and requests for information from interested parties. GMSC uses a "Public Inquiry" record, however this practice is not mentioned or described as part of their external "Communications" process.

Minor Nonconformance JS / 11-02/10 NBP EMS Element 10 requires appropriate operational controls be in place at all critical control points. "Operator skills" is recognized by several persons as a key operational control (especially in composting), however this control is not included in the GMSC EMS.

Minor Nonconformance JS / 11-03/17 NBP EMS Element 17 requires that management review the biosolids EMS and the GMSC system prescribes topics to be included in the reviews. Management reviews conducted in April 2010 and subsequently have not included some topics that GMSC states are necessary.

3D. Plans for Closure of Nonconformances

DEKRA's Lead Auditor will verify the effective correction of each nonconformance found during this audit during the next Third Party Audit, currently planned to occur in April 2012.

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3E. Opportunities for Improvement

The following “opportunities” for improving the Greater Moncton Sewerage Commission biosolids program were noted during the audit. Opportunities do not represent nonconformances and the Greater Moncton Sewerage Commission has no obligation to take any action in response to them.

Management Involvement

- Management reviews could be considered to be a process, involving different levels of review and formal reviews could be conducted more frequently than once in 13 months (most recent management review was April 9, 2010).
- The review of progress towards biosolids goals and objectives could have a higher priority when done as part of the internal audit process.

Management System Dynamics

- A “Management of Change” procedure could be useful in planning significant changes.
- Emergency exercises / drills could be conducted at least annually.

Critical Control Points & Operational Controls

- Determining the need for operational controls could include assessing risks of impacts on quality, compliance, public acceptance, safety and health and the environment.

Biosolids Use & Disposition - Composting

- Inspection of the condition of public vehicles used to transport compost material could be included as a step in preventing emergencies related to transporting the material.
- Liability related to product pickups at the compost plant could be controlled by requiring sign-in and providing information on hazards that visitors may encounter.

3F. Appeals

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 official verification decision or interim audit decision by the Audit Company. Anyone who may need help in understanding the appeals process should contact the National Biosolids Partnership staff, Mr. Jim Cox by e-mail at jcox@wef.org.

An appeal process is available to persons concerned about the methods and/or scope of this audit. Further information about this appeal process can be obtained directly from DEKRA (contact Pierre Salle, pierre.salle@kema.com or Jon Shaver jon.shaver@kema.com) or from NBP (contact Jim Cox, jcox@wef.org).

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3G. Agreements

GMSC and DEKRA have agreed that the next Interim Audit will occur in April 2012. GMSC has the option of substituting an internal audit or using a Third Party Audit Company (e.g. DEKRA) to perform this audit. If substituting an internal audit, GMSC will ask DEKRA to review that audit in order to maintain Verification. GMSC will make arrangements directly with DEKRA.

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4. MANAGEMENT SYSTEM DYNAMICS

Review of the management system dynamics and outcomes is intended to verify that the biosolids management system is functioning effectively and generating positive outcomes (results) and that changes are being incorporated into the system. The following summarizes DEKRA's review of the dynamics of the Greater Moncton Sewerage Commission's biosolids management system.

4A Outcomes

The GMSC biosolids program is improving through the use of their management system. The following outcomes within the past two years were confirmed.

Regulatory Compliance

Implementing biological treatment process for improved effluent quality – going well beyond regulatory requirements

Environmental Performance

Water usage reduced by 33% (cost basis)

Energy use reduction programs being developed (some initial practices in place)

Quality Practices

Achieved BNQ "AA" compost quality

Employee / management interaction improved – more employee empowerment

Recordkeeping improved – organized records, trend analysis

Customer comment program improved (e.g. Inquiry Form) – led directly to method to control moisture in compost

Interested Party Relations

Monitoring / measuring customer perceptions – response enabling 100% of product disposed

4B Significant Changes

No significant changes have occurred in the past year affecting the Greater Moncton Sewerage Commission biosolids management system. Plans are in place to install a Biological Treatment process at the wastewater treatment plant within the next 2 years. When that process becomes operational it will be included in DEKRAQ audits of the GMSC biosolids management system

4C Management System and Documentation Revisions

Major changes to the EMS Manual, top level documentation and major processes within the biosolids management system were reviewed. There were no structurally significant revisions. The manual continues to follow the NBP EMS Elements sequentially.

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4D Correction of Nonconformances From Previous Third Party Audits

Corrective action taken in response to nonconformances from KEMA's Verification Audit of the GMSC Biosolids Management System in May 2010 and the status of those nonconformances are summarized below.

Minor Nonconformance JS/10-04/ 9 NBP EMS Element 9 requires a procedure to be established for receiving and responding to public inquiries. The "Odour Complaint" dated 5/14/09 records the incoming inquiry, but does not record any response.

Corrective Action - In response to this nonconformance, GMSC developed a Public Inquiry Form that describes input from external (and internal) interested parties and the action and response to the inquiry. This nonconformance is now closed.

Minor Nonconformance JS 10-06/12 NBP EMS Element 12 requires GMCS to establish and maintain document control procedures. Two different versions of the Emergency Preparedness and Response Plan were in place in the dewatering area, "draft" operating procedures were in use in the composting plant and material safety data sheet for Dowtherm was not available in the composting area. In each case a significant document was not effectively controlled.
incoming inquiry, but does not record any response.

Corrective Action - In response to this nonconformance, GMSC removed the obsolete emergency plans from use, approved the operating procedures and obtained and recorded an MSDS for Dowtherm SR-1. This nonconformance is now closed.

4E Biosolids Policy Commitments

The GMSC Biosolids Management Policy remains as approved in 2009. The Policy includes a commitment to follow the principles of the NBP Cde of Good Practice. The following summarizes DEKRA's review of GMSC operational consistency with that commitment:

Compliance – Required regulatory reports are submitted on time. CCME guidelines and BNQ certification is achieved.

Product – GMSC compost continually meets BNQ certification requirements. Users respond very favorably to the product (# customers has doubled in past year).

Environmnetal Management System – A "biosolids management system" is in place. Annual audits are conducted to verify it meets requirements of NBP EMS Elements.

Quality Monitoring and Practices – Bioslids quality is monitored through routine testing to ensure compliance & consistency with BNQ requirements. Good housekeeping practices are ensured through routine inspections by Supervisors.

Emergency Plans – Emergency plans are in place and reviewed periodically.

Sustainable Management Practices – Procedures are in place for ensuring sustainability.

Preventive Maintenance - Practices for preventive maintenance are in place. A Reliability Management program is used and some predictive maintenance has begun.

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Communications – Proactive communications with interested parties occurs through public meetings and an interactive website. No complaints have been received in approximately 2 years. Regular internal communication occurs through staff meetings and ongoing supervision.

Continual Improvement – A Texel cover used on compost piles improves drying without additional energy use. Examples of outcomes are discussed under “Outcomes”.

4F Effectiveness - Biosolids Goals and Objectives Process

11 of 12 biosolids objectives were achieved or are proceeding with good progress. New objectives are in place for continually improving performance.

4G Effectiveness - Management Involvement (including Management Reviews)

Management involvement has been demonstrated through actions taken regarding issues raised in management reviews and programs for measurement and improvement. The actions taken are consistent with defined objectives. Performance against established Key Performance Indicators (KPIs) is reviewed at least monthly. Management staff reviews biosolids program activities monthly and EMS performance annually .

4H Effectiveness - Corrective and Preventive Action Process

The Corrective and Preventive Action process was used to address nonconformances from previous Third Party Audits and observations by provincial regulators, BNQ inspectors and interested party inquiries. Nonconformances from previous DEKRA audits have been effectively corrected and closed.

4I Use of NBP Certification and DEKRA Verification

Use of Certificate References and DEKRA's Verification were reviewed. There were no concerns.

4J Audit Conclusion – Management System Effectiveness

Review of the dynamics of the Greater Moncton Sewerage Commission Biosolids Management System confirmed that it is generating positive outcomes and functioning effectively, except as noted below:

Minor Nonconformance JS / 11-03/17 NBP EMS Element 17 requires that management review the biosolids EMS and the GMSC system prescribes topics to be included in the reviews. Management reviews conducted in April 2010 and subsequently have not included some topics that GMSC states are necessary.

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5. PROCESS AUDITS

The following describes the results of DEKRA's audit of processes that the Greater Moncton Sewerage Commission uses in managing biosolids activities. Consistent with NBP requirements, only parts of the management system are audited during interim audits, such that the entire management system and all 17 EMS Elements are covered at least once during the four interim audits between Verification and Reverification.

5A Description of GMSC Biosolids Program

GMSC's biosolids management system is comprised of a series of processes that cover management of biosolids quality, compliance with legal and other requirements, relations with interested parties and environmental performance throughout its biosolids value chain. That value chain includes pretreatment and collection, wastewater treatment and solids generation, solids dewatering, solids storage and transportation and composting. Composting is performed at a nearby composting facility operated by GMSC. Other processes are controlled at the GMSC Wastewater Treatment Plant in Riverview New Brunswick.

5B Processes Audited

Consistent with NBP requirements, DEKRA audited parts of the GMSC biosolids management system during this interim audit. In all cases, minimum conformance requirements and other guidance provided in NBP Auditor Guidance were followed.

The following processes were audited for conformance with all applicable requirements of the NBP EMS Elements:

- Biosolids Use & Disposition - Composting
- Communication Program
- Compost Product Sales & Distribution
- Corrective & Preventive Action
- Critical Control Points & Operational Controls
- Goals & Objectives
- Internal EMS Audits
- Management Involvement

5C Interested party Interviews

During this audit, DEKRA interviewed representatives of the New Brunswick Department of Environment familiar with GMSC operations and one user of GMSC compost (Landscape Architect). The NBDOE representatives noted that GMSC is cooperative and readily provides information when requested and that they have not received any complaints about GMSC operations or products. The Landscape Architect was positive about GMSC products and information and noted that GMSC compost had been successfully applied to a new wetlands near Moncton.

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5D Process Audit Results

Audit of the process outlined above found they are functioning effectively, meet NBP expectations and conform to applicable requirements of the NBP EMS Elements, with 2 minor exceptions noted below:

Minor Nonconformance JS / 11-01/9 NBP EMS Element 9 requires a procedure be in place for receiving inquiries and requests for information from interested parties. GMSC uses a “Public Inquiry” record, however this practice is not mentioned or described as part of their external “Communications” process.

Minor Nonconformance JS / 11-02/10 NBP EMS Element 10 requires appropriate operational controls be in place at all critical control points. “Operator skills” is recognized by several persons as a key operational control (especially in composting), however this control is not included in the GMSC EMS and there is limited reference for improving this important control.

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APPENDICES

List of Participants

The following persons participated in this audit. Other persons provided additional explanations, as necessary.

GMSC Personnel

Conrad Allain	Director of Operations
Aline Bourque	Secretary/Receptionist
Peter Brown	Chief Operator
Patricia Casas	Technician
Val Cormier	Industrial Electrotechnician
Marc Hebert	Technical Assistant-EMS Coordinator
Jordan Welsh	Compost Facility Operator

Other

Tim Leblanc	New Brunswick Dept of Environment
Jeff Porter	New Brunswick Dept of Environment
Larry Stewart	General Manager BDA Landscape Architects

List of Documents & Records Reviewed

Biosolids Policy	Internal audit schedule March 2011
Biosolids EMS Report 2010 & 2009	Management review report 4/9/10
BNQ audit reports	Operations Manual June 2010 + various contents
BNQ request for corrective action 10/2/10	Operator certificates of approval (various)
Corrective Action Plans (various)	Public complaints / inquiries 5/25/10, 5/28/10
EMS Manual + various contents	Register of nonconforming report of action 5/19/2010
Environmental aspects & CCP (table 3.0)	Staff EMS meeting 4/20/11, 1/7/11
GMSC website	Wastewater Treatment Facility Process Program
Goals & objectives 2011,2010	
Internal audit report 3/24/11	

END OF REPORT