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EMS Abbreviations

CCP – Critical Control Point

EMS – Environmental Management System

FOG - Fats, Oils and Grease

HHW – Household Hazardous Waste

IPP – Industrial Pretreatment Program

MDEQ – Michigan Department of Environmental Quality

MDOT - Michigan Department of Transportation

MWEA – Michigan Water Environment Association

NBP – National Biosolids Partnership

NPDES – National Pollutant Discharge Elimination System

OC – Operational Controls

SOP –Standard Operating Procedure

PSRP – Process to Significantly Reduce Pathogens

PW - Public Works

SCADA – Supervisory Control and Data Acquisition

SVOC – Semivolatile Organic Compound

VAR – Vector Attraction Reduction

VOC – Volatile Organic Compound

WEFTEC – Water Environment Federation's Annual Technical Exhibition and Conference

WMEAC – West Michigan Environmental Action Council

EMS Definitions

Audit Criteria - Policies, practices, procedures, or requirements against which the auditor compares collected audit evidence about the subject matter. (Note: Requirements may include but are not limited to standards, guidelines, specified organizational requirements, and legislative or regulatory requirements.)

Audit Findings - Results of the evaluation of the collected audit evidence compared with the agreed audit criteria.

Biosolids – Solid organic matter recovered from a wastewater treatment process and used especially as fertilizer – usually used in plural.

Biosolids Management Activities – A wide range of activities that impact the quality of wastewater solids and biosolids, including pretreatment activities, wastewater treatment processes, solids stabilization processes, conditioning and dewatering processes, transportation, storage, and beneficial use or disposal.

Biosolids Management Policy – Statement by an organization committing it to the principles set forth in the NBP *Code of Good Practice* with respect to biosolids management and any other overall environmental goals voluntarily adopted by the organization.

Biosolids Management Program – A comprehensive program covering all aspects of the organization's biosolids activities throughout the biosolids value chain, including management processes for all critical control points in order to mitigate environmental impacts, meet legal and other requirements, and execute action plans to achieve biosolids program goals and objectives.

Biosolids Program Goal(s) – Environmental performance improvement goals that are consistent with an organization's biosolids management policy to ensure 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.

Biosolids Program Objective(s) – A detailed environmental performance improvement requirement, quantified wherever possible, based on a biosolids program goal. One or more objectives usually must be met for the underlying goal to be achieved.

Biosolids Public Acceptance Requirements – Biosolids physical, chemical, biological, and aesthetic characteristics and management methods that must be met consistently and reliably to achieve public acceptance of the organization's selected biosolids management method(s).

Biosolids Quality Requirements – Biosolids physical, chemical, biological, and aesthetic characteristics that must be met consistently and reliably to apply the organization's selected biosolids management method(s).

Biosolids Value Chain – Sequence of activities from wastewater pretreatment, discharge, and collection through wastewater treatment, solids treatment, and handling, storage, transportation,

and disposal or beneficial use of biosolids that impact the quality and stability of biosolids and their suitability for the selected management method.

Changing Circumstances – Internal and external changes that affect the organization's EMS, including changes in legislation, varying expectations of interested parties, changes in the organization's products or activities, technological advances, consumer interests, and feedback from environmental incidents.

Continual Improvement – EMS process for systematically improving the overall management of biosolids to achieve the organization's biosolids program goals and objectives set forth in the organization's biosolids management policy and the National Biosolids Partnership *Code of Good Practice.*

Corrective Action – Specific actions and steps taken to correct an organization's nonconformance(s) to policies, procedures, and other legal, quality, and public-acceptance requirements, and to mitigate any resulting negative impacts on the environment.

Critical Control Points – Those locations, unit processes, events, and activities throughout the biosolids value chain under the organization's direct control or influence that require effective policies, programs, procedures, practices, monitoring, and measurements to ensure the biosolids activities meet legal, quality, and public acceptance requirements and do not have undesirable environmental impacts. Critical control points include all biosolids management activities that are covered under applicable legal and other requirements.

Document Control – Procedures and practices to ensure that biosolids EMS documentation and documents are available and can be located easily, created following established document creation protocols, kept up to date through periodic reviews and revisions, properly marked with version number, effective date(s), and references to replaced or superseded versions; and approved by authorized personnel.

Elements of an EMS for Biosolids – These Elements are the standards or benchmarks by which your EMS should be developed and by which your program will be judged.

Emergency Preparedness – A structured emergency planning process to ensure that plausible emergency situations that can affect appropriate biosolids management have been identified, response plans and procedures have been developed, and trained emergency response personnel and equipment are available and in a state of readiness.

Emergency Response – Specific emergency plans and activities that are initiated to contain an emergency situation and bring it under control to minimize environmental impacts.

EMS Action Plans – Action plans designate schedules, milestones, resources, and responsibilities for achieving biosolids program goals and objectives.

EMS Audit - A systematic and documented verification process of objectively obtaining and evaluating evidence to determine whether an organization's environmental management system conforms to the environmental management system audit criteria set by the organization, and for communicating the results of this process to management.

EMS Audit (Internal) – A systematic and documented internal audit process for objectively evaluating whether an organization's environmental management system for biosolids conforms

with the requirements of the NBP *Code of Good Practice,* the organization's biosolids policy, and the 17 EMS Elements.

EMS Audit (Third-Party Verification) – A systematic, structured, and documented audit of the organization's biosolids EMS performed by a qualified independent third-party auditor using a standardized protocol to verify conformance with the requirements of the *Code of Good Practice,* the organization's biosolids policy, and the 17 EMS Elements.

EMS Coordinator – The person with overall responsibility and authority to organize and lead the group that will develop and play a key role in implementing the EMS.

EMS Demonstration Program - The focus of the demonstration program is to roll out and test the EMS documents and to select the features of the independent, third-party verification program.

EMS Documents – Various documents that collectively compose the biosolids environmental management system documentation, including the biosolids management policy, procedures, practices, operating instructions, and other supporting documents required by the environmental management system and applicable biosolids laws and regulations.

EMS Guidance Manual – A detailed manual with useful step-by-step guidance on how to implement the EMS Elements.

EMS Implementation Plan - Plan that outlines action items necessary to close any gaps, strengthen weaker procedures, reinforce good practices, and develop new procedures where necessary — all to establish the Elements of the organization's biosolids EMS.

EMS Implementation Planning Visit - Visit by a technical assistant to help the organization define its starting point on the path to identifying, consistently implementing, and continuously improving best management practices and environmental management systems.

EMS Records – Various records or reports of biosolids management activities required by the environmental management system and applicable biosolids laws and regulations, including but not limited to records or reports of monitoring, measurement, laboratory testing, inspections, operating logs, emergency response incidents, outside party inquiries, public participation meetings, audits, corrective actions, management reviews, and periodic performance reports. Records describe the results of specific biosolids management activities for a prescribed event, activity, or period of time.

EMS Team - Group representing all major operational and decision making areas related to biosolids, tasked with developing, implementing, and maintaining the EMS.

Environmental Impacts – Any change to the environment (positive or negative), including public health, public nuisances, and odor problems, that wholly or partially result directly or indirectly from the organization's activities, products, or services, including those activities associated with biosolids management, and those activities that alter (positively or negatively) the acceptable disposal or use method or create public nuisance and public health risks.

Environmental Management System for Biosolids (EMS) – An organized management system that meets the requirements of the EMS Elements for achieving the biosolids management policy requirements and for developing, implementing, reviewing, and maintaining effective biosolids

management programs, procedures, and practices. The EMS needs to manage all critical control points associated with biosolids activities where there is a potential to create significant negative environmental impacts.

Environmental Performance – measurable results of the environmental management system based on its biosolids management policy and goals and objectives.

Interested Parties – Individuals, groups, or other public or private organizations interested in, involved with, or otherwise affected by the organization's biosolids management activities, including customers, farmers, regulators, and other local or state governmental officials, community residents, the media, environmental and public interest groups, university professors, and the general public.

Knowledge – To recognize, be familiar with, or understand information, activities, and actions based on experience or association; acquaintance with a science, art, or technique.

Legal Requirements – The environmental federal, state, and local laws and regulations that are applicable to an organization's biosolids management program activities.

Measurement – A systematic method for estimating, testing, or otherwise evaluating key parameters and characteristics of an organization's biosolids management activities to determine compliance with a specific standard, regulatory, or other performance requirement, or to measure progress toward its biosolids program goals and objectives.

Monitoring – A systematic process of watching, checking, observing, inspecting, keeping track of, regulating, or otherwise controlling key parameters and characteristics of an organization's biosolids management activities to determine compliance with a specific standard, regulatory, or other performance requirement, or to measure progress toward its biosolids program goals and objectives.

National Manual of Good Practice – A detailed set of documents that provide guidance on identifying critical control points and selecting appropriate management practices.

Noncompliance – A deviation from federal, state, or local laws, regulations or other compliance requirements applicable to the organization's biosolids management activities.

Nonconformance – A deviation in an organization's established biosolids management policy and environmental management system from the NBP *Code of Good Practice* principles or the requirements of the EMS Elements. Nonconformances include circumstances that have the potential to create a noncompliance situation or significant environmental impacts.

Objective Evidence – Policies, ordinances, procedures, manuals, inspection checklists, operating logs, annual reports, various other documents, and various records, such as monitoring, inspection, enforcement, and training records, that objectively document conformance with the EMS Elements requirements.

Operational Controls – Ordinances, regulations, standard operating procedures, practices, technology, instrumentation, and process controls, monitoring and other criteria developed, implemented, and maintained by an organization to ensure effective management of all critical control points associated with its biosolids management activities, including conformance with

biosolids management policy requirements, and achievement of biosolids program goals and objectives.

Organization – Enterprise, authority, or institution, or part thereof, responsible for individual or a combination of, biosolids management activities.

Other Requirements – Other binding biosolids management practices and environmental requirements to which an organization voluntarily subscribes as part of its environmental management system. Examples include binding agreements with customers, suppliers, and public organizations and commitments to "beyond-compliance" performance.

Preventive Action – Specific actions and steps taken to identify, analyze, and eliminate the root causes of noncompliance(s) and nonconformance(s) and to put in place permanent solutions that will prevent a recurrence.

Procedure – Documented protocol for meeting the requirements of an EMS Element that defines the purpose, terms, detailed actions, responsible persons, and supporting documentation relevant to that Element.

Public (Interested Parties) – Same as the definition of interested parties.

Public Education – Systematic public communication program for educating interested parties and other stakeholders on an organization's biosolids management activities.

Public Participation – Specific approach(es) and action(s) taken by an organization to involve interested parties and the general public in its biosolids management program, including establishing improvement goals and objectives.

Responsibility(ies) – The specific task(s) a group or individual carries out in a lead or supporting role that accomplishes or supports operational or strategic goals and objectives.

Role(s) – The purpose(s) of the activity(ies) a group or individual performs with respect to the biosolids value chain, the biosolids management program, and the biosolids EMS.

Service Agreement(s) – Contractual or other legally binding agreements that define the roles and responsibilities of contractors and other groups in supporting the organization's EMS for biosolids.

Skills – The ability to use knowledge effectively and readily in execution or performance of tasks and activities; a developed aptitude or ability; the ability to do something competently.

Third-Party Verification – The process of having an EMS verified by an independent qualified party provided by the NBP.

Total Quality Management - Both a philosophy and a set of guiding principles that represent the foundation of a continuously improving organization. TQM is the application of quantitative methods and human resources to improve the material and services supplied to an organization, all the processes within an organization, and the degree to which the needs of the customer are met, now and in the future.

Training – Teaching to make fit, qualified, or proficient; preparation for a test of skill or knowledge; instruction in disciplines and techniques.

Element 1: Documentation of Biosolids Management Program	
This Manual was Approved by:	Date:
Myron Erickson, P.E., Plant Superintendent	12 Apr 2012

Manual Revision History	
Date	Description
1/16-2/29/12	Condense and revise elements as result of 2010 audit

Background

The City of Wyoming Clean Water Plant provides wastewater treatment for the City of Wyoming, the City of Kentwood, Byron Township, Gaines Township, and the City of Grandville. In addition to the clean water discharged back into the natural environment at its Grand River outfall, approximately 8500 dry tons of biosolids are annually produced as a byproduct.

The City of Wyoming biosolids program works to promote the beneficial reuse of biosolids through an agronomically based, environmentally safe, and publicly acceptable program. This will be done by developing and maintaining a management system for biosolids that is consistent with the National Biosolids Partnership's Code of Good Practice and that includes: third party verification; quality monitoring; emergency response plans; sustainable and environmentally acceptable management practices and operations; preventive maintenance guidelines; and methods for effective communication with all those involved with the biosolids program.

Procedures

1. The EMS Team is responsible for communicating the biosolids management policy to employees, contractors, and other interested

parties, using one or more of the communication tools listed under Element 5 of the EMS.

2. The EMS will be revised by the EMS Coordinator as needed. The EMS Coordinator will inform upper management and the EMS Team of significant revisions to the EMS Manual through the use of one or more of the communication tools described in Element 5. The EMS Coordinator is responsible for incorporating the above policy into the Clean Water Plant's biosolids program, procedures, and practices.

3. The most recent version of the EMS Manual will be posted on the City's intranet and internet pages.

References

EMS Guidance Manual (January 2005 Revision)
EMS Manual, Element 5: Communication
NBP Code of Good Practice
City of Wyoming's Clean Water Plant NPDES Permit
City of Wyoming Guiding Principles
Pretreatment Program Procedures-40 CFR 403.8(f)(2)(v)
Land Application of Biosolids-Administrative Rule Part 24, R 323.2410

Responsibility

EMS Coordinator
EMS Team

Element 2: Control of Operations	
	4/12/12

Background

Critical control points (CCPs) are those locations, processes, events, activities, and other requirements in the chain of activities from pretreatment/collection through to final disposition of biosolids that are under the organization's direct control or influence.

Operational controls (OCs) are those ordinances, regulations, standard operating procedures, work practices, etc., used for effective management. CCPs must be properly managed to produce biosolids that meet all applicable legal, quality, and public acceptance criteria, and achieve environmental performance. Operational controls are in place to manage the critical control points of the Clean Water Plant's biosolids value chain. Wyoming recognizes that proper and consistent management of the operational controls is a major predictor of the success of its program.

The City of Wyoming's Clean Water Plant has established and maintains regular monitoring and measurement procedures and practices for all of its biosolids management activities in order to:

1. Ensure continued compliance with applicable State/Federal regulatory and other legal requirements.
2. Measure biosolids program performance at critical control points.
3. Track progress toward achieving its biosolids program goals and objectives as requires under Element 4.

The Clean Water Plant's NPDES permit identifies monitoring, measurement and reporting requirements specified by the MDEQ and the EPA. These elements pertain to all management categories in the Biosolids Value Chain, which is the complete sequence of activities from industrial pretreatment, the collection system, wastewater treatment, and solids treatment and disposition.

Procedures

1. The EMS Team will review the critical control points, operational controls, and monitoring and measurement activities on an annual basis, or sooner

whenever a major operational or regulatory change dictates. The NBP Manual of Good Practice will be considered in this process.

2. Whenever the CCPs are revised, related information pertaining to roles and responsibilities (Element 67) will also be revised as appropriate. The revisions must be approved by the EMS Coordinator after discussion by the EMS Team.

3. Critical control points and associated operational controls and affiliated impacts on the NBP Key Outcomes are identified in Table 2.1 of the biosolids EMS. The table also identifies the appropriate EMS members responsible for evaluating the critical control points for the EMS program.

4. The City's biosolids contractor will have input into identifying and establishing operational controls for any activities they undertake that can impact the biosolids value chain.

5. Analytical or instrumentation data is stored electronically following the procedures established in Element 8.

6. Progress toward meeting goals and objectives established in Element 4 will be tracked at intervals deemed appropriate by the EMS Coordinator. Progress will be noted on the action plan template, which is included under the Element 4 procedures.

7. The City of Wyoming requires its contractors to establish and maintain regular monitoring and measurement procedures and practices for all their assigned biosolids management activities, as defined in their service agreements.

8. Monitoring and measurement results shall be recorded and the records maintained as established in the recordkeeping procedures under Element 8.

9. All revisions will be documented in writing by the EMS Coordinator.

References

EMS Guidance Manual (January 2005 Revision)
NBP National Manual of Good Practice, Appendix F

Responsibility

EMS Team
EMS Coordinator

Table 2.1: Biosolids Value Chain Table

Biosolids Value Chain Link	Operational Controls	Critical Control Point	Key Outcome Impacts	Legal & Other Requirements	Monitoring and Measurement	Roles and Responsibilities
Pretreatment & Collection System	Permit generation Inf/Eff monitoring Mass balance analysis IPP SOPs	Industrial Outfall	Compromised biosolids quality Collection system odors Sanitary sewer overflows	40 CFR Part 403	Analytical data IPP Annual report Biosolids Annual report	Director of Public Works; Plant Superintendent; Environmental Services Supervisor; Env Srvcs Inspector; Environmental Srvcs Specialist
	Site inspections Trap cleaning User education PW communication	Restaurant Grease Trap (i.e., the FOG control program)			IPP Annual report	
	Illicit discharge detection Trunk line monitoring PW communication Citizen informants	Collection System			Analytical Data Response records	
	Discharge Permit Hg Reduction Plan Inspection 7 sampling	Dental Control			Influent data Effluent data Biosolids quality	

Biosolids Value Chain Link	Operational Controls	Critical Control Point	Key Outcome Impacts	Legal & Other Requirements	Monitoring and Measurement	Roles and Responsibilities
Wastewater Treatment & Solids Generation	Daily: metals, compatibles, solids, pH Monthly: VOC, SVOC Continuous: temperature, pH, visuals	Influent Quality	Permit violation (loading to receiving stream) Compromised biosolids quality Plant odors	NPDES permit NIOSH Pub No. 2002-149 Federal Clean Air Act – Article II,Part 55 Michigan Public Act 451	Monthly Discharge Monitoring Report	Director of Public Works; Plant Superintendent; Environmental Services Supervisor; Maintenance Supervisor, Laboratory Services Manager; Operations Supervisor
	SOPs; Operator skill	Centrifuge			Centrifuge (daily) data	
	Pumping/inventory strategy	Primary Clarification			Operator's white board/ weekly meetings	
	Operators' set points SOPs Skills SCADA Maintenance	Treatment process control				

Biosolids Value Chain Link	Operational Controls	Critical Control Point	Key Outcome Impacts	Legal & Other Requirements	Monitoring and Measurement	Roles and Responsibilities
Solids Stabilization, Conditioning and Handling	Skills, SOPs, mixing formula	Stabilization process/mixing tank	Field odors PSRP failure VAR failure	NPDES permit NIOSH Pub No. 2002-149 Federal Clean Air Act – Article II,Part 55 Michigan Public Act 451	Laboratory analysis to confirm PSRP (mixing and pH documentation)	Director of Public Works, Plant Superintendent, Biosolids Coordinator, Operators, Contractors, GVRBA Project Mgr
	Polymer addition	Belt presses; Pumping/Polymer dosing			Lbs/day polymer used	

Biosolids Value Chain Link	Operational Controls	Critical Control Point	Key Outcome Impacts	Legal & Other Requirements	Monitoring and Measurement	Roles and Responsibilities
Solids Storage and Transportation	Monitoring of stored biosolids (e.g. nitrogen data)	Storage	Site spillage/slop Field odors	MDOT rules and regs (contractor) Contractor MOU	Superintendent's Monday morning meetings	Director of Public Works; Plant Superintendent, Environmental Services Supervisor; Maintenance Supervisor; Laboratory Services Manager; Operations Supervisor, GVRBA Project Mgr
	Storage management (e.g. jet mixing) Dewatering	Use and optimization of storage capacity			Solids content;	
	Spill prevention Spill response Sampling records Flow metering Truck & trailer p.m. Point of use deodorizer Foul air scrubbing	Truck Loading			Spills; complaints	
	Truck and trailer p.m. Spill prevention Spill response Driver credentials: illicit substance testing, valid drivers license, driver orientation	Hauling, Route, Neighbor Notification			Drivers Inspections	
	Storage management Spill prevention & response Flow metering Pump preventive maintenance	Pipeline to Grand Rapids WWTP (GVRBA)				

Solids Storage and Transportation (cont'd)	pH monitoring; chemical addition	Scrubbers		Air Regs		

Biosolids Value Chain Link	Operational Controls	Critical Control Point	Key Outcome Impacts	Legal & Other Requirements	Monitoring and Measurement	Roles and Responsibilities
Biosolids Re-Use or Disposition	Site Location Location for off loading trucks Perimeter of biosolids application site (isolation distances) Agronomic rates Contractor "Pre-Op" sheets – approval by Biosolids Coordinator	Site Selection & Approval	VAR Field Odors	Mich Part 24 Rules 40CFR Part 503	Biosolids Coordinator's Inspections	Contractor, Env Srvcs Inspector; Biosolids Coordinator; Plant Superintendent; Environmental Services Supervisor
	Landfill contract	Landfilling	Vector attraction at landfill Odors at landfill	Landfill Contract; Contractor "special waste profile"	Paint filter test TCLP Test	Contractor, Biosolids Coordinator, Plant Superintendent

Element 3: Compliance	
	4/12/12

A. Legal and Other Requirements

Background
The practice of land applying biosolids is subject to great oversight and regulation. Hence, the Wyoming Clean Water Plant has in place a process to identify and interpret, all applicable regulations.

Legal requirements are considered to be the federal, state, and local laws and regulations that are applicable to the Wyoming Clean Water plant's biosolids management program activities as well as any service agreements with contractors.

Other requirements are considered to be other binding practices and environmental requirements to which the organization voluntarily subscribes as part of its biosolids management system. Examples include binding agreements with customers, suppliers, and public organizations and commitments to performing beyond minimal compliance.

Operational control procedures are other management methods such as contract agreements, contractor oversight procedures, pretreatment ordinances, permit programs, inspection and monitoring programs.

Procedures
The City of Wyoming's Clean Water Plant will utilize a variety of sources for identifying, tracking, analyzing and determining the impact of the various legal, regulatory and legislative initiatives on the biosolids value chain. These include but are not limited to the following:

1. The plant superintendent will strive to attend conferences, workshops and seminars made available to our industry, which, in his judgment, are the most appropriate.

2. Michigan Water Environment Association Committee work. EMS Team members will attend and participate in MWEA and other trade and industry committees.

3. Environmental Services Supervisor and Laboratory Services Manager will keep abreast of changes in Federal regulations affecting the industry. This can include periodic searches of the Michigan Register, the Federal Register, and industry related journals and newsletters. It can also include communicating with individuals at local, state and federal agencies.

4. The EMS Coordinator will be responsible for communicating new requirements (e.g. monitoring and reporting requirements) to affected parties. Communication may occur through a variety of mechanisms, including email, internal memoranda, all-plant meetings, quarterly EMS Team meetings, EMS Team e-mail distribution list, Environmental Services Quarterly Report, which, taken together also comprise on-going management review (see Element 17 for more detail). The EMS Coordinator will also make any necessary changes to the EMS manual and/or supporting documentation.

B. Monitoring and Measuring Compliance

NEED something for compliance measurements

C. Corrective Non-Compliance

Background

The purpose of this section is to develop and implement procedures for investigating noncompliance with legal/regulatory and other requirements, including conformance issues that may arise from monitoring/measurement activities, EMS protocols, or nonconformances noted as a result of internal or external EMS audits. This section will also establish procedures for identifying the cause and taking actions to correct the non-conformance issues, and document the necessary corrective actions taken to prevent a recurrence.

The City of Wyoming has developed the following procedures to ensure prompt response to any nonconformance events. Events of this nature will be treated with the utmost attention by Clean Water Plant Supervisory personnel.

Procedures

Corrective Action Procedures for Nonconformances

City of Wyoming corrective action procedures have been established to address nonconformances identified during routine monitoring and measurement. This plan identifies the nonconformance, the root cause(s), and the corrective action being taken. The corrective action procedures also identify changes to policies, programs, plans, operational controls, or monitoring/measurement procedures to prevent future nonconformances.

1) Upon identification of a nonconformance during routine monitoring and measurement procedures, the EMS Coordinator will inform the EMS Team who

will be charged with investigating the cause(s) of the nonconformance and making recommendations for corrective action(s).

2) The EMS Coordinator will review the findings and work with appropriate Supervisors to select the proper corrective action and oversee the action implementation.
3) Changes to policies, programs, plans, operational controls, or monitoring/measurement procedures will be identified to help prevent future nonconformances as appropriate.
4) Records will be maintained on any nonconformances including all relevant data and reports along with recommendations and follow-up information. Tables 14.1 and 14.2 will be completed by the auditor and the EMS Coordinator.
5) Additionally, legal/regulatory requirements are specifically identified in the City of Wyoming's NPDES Permit. The permit contains procedures for investigating nonconformances with the legal/regulatory requirements identified in the permit, one of which is the Residuals Management Program.

Corrective Action Procedures for EMS Audits

Formal corrective action plans have been established to address the findings of internal EMS audits under Element 16, and EMS verification audits conducted by third parties. The corrective action plan will be documented, and describes what actions will be taken to address the audit findings, the individual(s) responsible, the estimated completion date, and required resources to develop and implement corrective and preventive action. Progress in completing the corrective actions will be tracked and periodically updated. The corrective action plan includes recommended changes to policies, programs, plans, operational controls, or monitoring/measurement procedures to prevent future nonconformances. These changes are subsequently documented in the corrective action plan, and in the EMS manual and other relevant EMS documentation.

1. EMS Nonconformances Identified During Internal Audits

- Internal audits will be conducted in accordance with procedures developed under Element 16.
- An audit worksheet (Table 14.2) will be completed for each element audited. The worksheet will contain the following information:
    a) Element #
    b) Auditor's name
    c) Period being audited
    d) Audit date(s)
    e) Summary of findings
    f) Nonconformances (if any) and cause
    g) Corrective actions already taken (if any)
    h) Recommended additional corrective actions (if any)
    i) Person(s) responsible for implementing corrective action(s)
    j) Changes in policies, programs, plans, operational controls and monitoring/measurements needed to prevent reoccurrence (if any)
    k) Estimated completion date
    l) Required resources

m) Method of tracking progress

- EMS Coordinator is responsible for tracking progress, using Table 14.1. Progress will be tracked using methods that the EMS Coordinator deems appropriate. For minor nonconformances progress will be tracked every two weeks. For major nonconformances, progress will be checked every four weeks. Tracking will be documented by completing the tracking sheet which is included as part of the audit worksheet.
- Any changes to policies, programs, plans, operational controls, or monitoring/measurement procedures will be documented in the corrective action plan, and in the EMS manual and other relevant EMS documentation.
- The EMS Coordinator will prepare and submit a written report to the EMS team and the Clean Water Plant Superintendent within 30 days after the conclusion of the audit. The report will summarize the internal audit results and corrective actions (if necessary) that have already been taken or will be taken to address any nonconformances.

2. EMS Nonconformances Identified During Third Party Audits

- Third party audits will be conducted in accordance with the procedures identified by the National Biosolids Partnership.
- Audit reports will be submitted to the City of Wyoming's EMS Coordinator.
- If the auditor identifies nonconformances, the EMS Coordinator will follow the steps listed for internal audits (1 - b, c, d and e).
- Minor nonconformances will be corrected within a 30 day period and major nonconformances will be corrected within a 90 day period, unless the auditor and the Clean Water Plant agree that these timeframes need to be extended.

References

Table 3.1: Legal and Other Requirements
EMS Guidance Manual (January 2005 Revision)
Table 9.1: Tracking Worksheet
Table 9.2 Audit and Corrective Action Worksheet
City of Wyoming Residuals Management Plan
City of Wyoming Clean Water Plant NPDES Permit
City of Wyoming EMS Manual, Element 10: Internal Audits
EMS Guidance Manual (January 2005 Revision)

Responsibility

Director of Public Works
Plant Superintendent
Biosolids Coordinator
Environmental Services Supervisor

Table 3.1: Legal and Other Requirements

Regulation or Guidance	Description/Point of Application	Electronic Location (if applicable)	Hard Copy Location (if applicable)	Governing Agency
Federal				
CFR Title 40 Chapter I Part 503	Standards for Use or Disposal of Sewage Sludge	http://www.epa.gov/owm/mtb/biosolids/503pe/503pe_1.pdf	Environmental Services Supervisor's Office	US EPA
CFR Title 40 Chapter I Part 403	Guidance Manual for POTW Pretreatment Program Development	http://www.epa.gov/npdes/pubs/owm0003.pdf	Environmental Services Supervisor's Office	US EPA
NIOSH Guidance DHHS (NIOSH) Publication Number 2002-149	NIOSH Guidance Related to Worker Exposure to Class B Biosolids	http://www.cdc.gov/niosh/docs/preprint/pdfs/biosolidsb.pdf	Environmental Services Supervisor's Office	NIOSH
Federal Clean Air Act Article II, Part 55	Regulation of nuisance odors and discharge of air streams treated for odor control	http://www.epa.gov/air/caa/		US EPA
State				
NPDES Permit (CFR Title 40 Chapter I Part 122)	National Pollutant Discharge Elimination System Pollutant Minimization Plan for Total Mercury	http://cfpub.epa.gov/npdes/index.cfm (General information on permit requirements)	Environmental Services Supervisor's Office	US EPA MDEQ
Part 24 of Section 323 of PA 451	State of Michigan Biosolids Regulations	http://www.michigan.gov/deq/0,1607,7-135-3313_3683_3720-9615--,00.html	Environmental Services Supervisor's Office	MDEQ
Residuals Management Plan	Residuals Management Plan developed by the City as required by the NPDES Permit	http://www.ci.wyoming.mi.us/	Env Srvcs Supv Office	MDEQ
Part 115 of Section 323 of PA 451	Solid Waste Management: Landfill Disposal Regulations	http://www.legislature.mi.gov/documents/mcl/pdf/mcl-451-1994-ii-3-115.pdf	Environmental Services Supervisor's Office	MDEQ
Michigan Public Act 451	Regulation of nuisance odors and discharge of air streams treated for odor control	http://www.legislature.mi.gov/(S(2wq45aahkb2no545h2myzj45))/mileg.aspx?page=getObject&objectname=mcl-act-451-of-1994		MDEQ
DOT regulations	State and Highway Rules and Regs	http://www.michigan.gov	Synagro Office	MDOT
Local				

Chapter 86 of the City of Wyoming Code of Ordinances	Sewer Use Ordinances	http://www.municode.com/resources/gateway.asp?pid=10150&sid=22	Environmental Services Supervisor's Office	City of Wyoming
Other				
Contractor Service Agreement	Contract and MOU for hauling and land application services with Synagro. Specifies contractor responsibilities.	n/a	Environmental Services Supervisor's Office	City of Wyoming
National Biosolids Partnership	Biosolids EMS Guidance Manual	http://www.biosolids.org	Env Srvcs Supv Office	NBP

Element 4: Goals & Objectives	
	4/12/12

Background

The City of Wyoming Clean Water Plant believes that values shape our goals and we support Recycling/Reuse in the agricultural community. In keeping with the vision set forth in the City's Guiding Principles to optimally utilize its natural and human resources, the purpose of this element is to drive the continual improvement of our biosolids operations by establishing a combination of long-term and short-term biosolids program goals and objectives for biosolids management activities.

The City's Biosolids Management Policy identifies overarching goals for the CWP's biosolids management program. Specifically, *"It shall be the objective of the City of Wyoming Biosolids Recycling Program to promote the beneficial reuse of biosolids through an agronomically based, environmentally safe, and publicly acceptable program."* All of the City's goals and objectives will serve the purpose of enhancing and fulfilling this policy.

Procedures

1. The EMS Team will review and evaluate new and existing goals at least annually at the end of the biosolids reporting year (September 30).

2. Goals will be established using SMART criteria (Specific, Measurable, Achievable, Relevant, and Time-bounded).

3. The draft set of goals and strategies will be presented to the EMS Team for review and comment. Modifications will be made by the EMS Coordinator if deemed appropriate.

4. The final goals and roles/responsibilities will be shared with upper level management. They will also be included in the annual biosolids management program report. The current goals and objectives are contained in Table 4.1.

5. The EMS Coordinator will prepare an action plan containing schedules, milestones and resources available to support each goal, consistent with template 4.1.

6. The EMS Coordinator will be responsible for tracking progress on each goal, at intervals deemed appropriate by the EMS Coordinator. Progress will be noted in the action plan template.

References

City of Wyoming Guiding Principles
City of Wyoming EMS Element 2: Biosolids Management Policy
Template 4.1: Action Plan and Tracking Template
EMS Guidance Manual (January 2006 Revision)
Table 4.1: Goals and Objectives

Responsibility

EMS Coordinator
EMS Team

Template 4.1: Action Plan and Tracking Template

Objective	**Target Date**	**Person Responsible**	**Resources Available**	**Date Completed**	**Integration of Elements; Potential Impacts; and Outcomes**
Objective #		**EMS Coordinator,** (include any other individuals as necessary)	Cite budget and/or other resources	Insert date completed	Cite relevant elements, etc
Objective #		**EMS Coordinator,** (include any other individuals as necessary)	Cite budget and/or other resources	Insert date completed	Cite relevant elements, etc
Objective #		**EMS Coordinator,** (include any other individuals as necessary)	Cite budget and/or other resources	Insert date completed	Cite relevant elements, etc
Objective #		**EMS Coordinator,** (include any other individuals as necessary)	Cite budget and/or other resources	Insert date completed	Cite relevant elements, etc
Objective #		**EMS Coordinator,** (include any other individuals as necessary)	Cite budget and/or other resources	Insert date completed	Cite relevant elements, etc

Table 4.1: Goals and Objectives

Goal	Objective(s)	Anticipated Completion Date	Roles/Responsibilities
Goal #1 Integrate EMS activities between Grand Rapids and Wyoming (GVRBA). Key Outcome Affected: All four key outcomes	Get Wyoming's EMS certified by NBP.	09/30/2009	EMS Coordinator
	Initiate cooperative venture with GR staff. Have draft revised EMS by 12/31/09.	10/30/09	EMS Coordinator
	Gain NBP acceptance of GVRBA EMS.	07/01/10	EMS Coordinator
Goal #2 Increased attendance at public events in the 2009/2010 fiscal year. Key Outcome Affected: Improved Relations w/ Interested Parties	Develop a calendar that includes events that Biosolids staff should attend.	12/01/2008	Biosolids Coordinator/ Env Srvcs Supv
	Gain consensus on promotional activities and a budget for such.	02/28/2009	Plant Superintendent
	At the end of the 2009/2010 fiscal year, compare the number of events attended and compare to the last two fiscal years.	06/30/2010	Biosolids Coordinator/ Env Srvcs Supv
Goal #3 Incorporate a space for biosolids on the City's website. Key Outcome Affected: Quality Mgt, Improved Relations	Develop preliminary website layout.	10/01/2009	EMS Coordinator
	Get webpage approval from necessary authorities and secure funding (if necessary).	12/01/2009	Plant Superintendent/ EMS Coordinator
	Work with IT to build page and make it public. Include items described in Element 9, Procedure 2.	05/01/2010	Information Technology/ EMS Coordinator
Goal #4	Complete training on new GVRBA equipment (e.g., pump station, etc.)	06/30/09	Operations Supervisor Maintenance Supervisor

Complete plant process SOPs related to GVRBA 12/31/09 <u>Key Outcome Affected:</u> Quality Mgt	Start-up of GVRBA operations.	07/01/09	Operations Supervisor Maintenance Supervisor
	Develop SOPs.	12/31/09	Operations Supervisor Maintenance Supervisor

Element 5: Communication	
[illegible]	4/12/12

Background

Communication is key for the long-term stability of the City's biosolids program. The communication program has two components, one for external communication with partnering agencies, other stakeholders, and the public, and one for internal communication with management, employees, and contractors. The underlying purpose of all our communication efforts is to actively promote the City's commitment to the NBP Code of Good Practice and to our own EMS.

The City's EMS communication channels have the following purposes:

- ✓ To create avenues for the public and interested parties to receive or access information about the biosolids EMS, biosolids management activities, and the Clean Water Plant's performance in these areas.
- ✓ To establish a high quality, two-way flow of information that allows interested parties to communicate their perceptions and concerns regarding biosolids management activities.
- ✓ To allow communication to occur with interested parties before problems arise or negative incidents occur.
- ✓ To accommodate the sharing of key EMS Elements and 3rd party verification audit results with interested parties.
- ✓ To foster an environment that leads to the timely response to inquiries and requests for information.
- ✓ To define the communication roles and responsibilities of contractors.

Procedures

As noted above, the City's communications approach follows two channels based on internal related communication and external directed communication.

A. External Communication and Public Participation

Formal and informal mechanisms of participation are listed below, and communications with external/interested parties will follow these participation mechanisms. These mechanisms allow the interested parties to give and receive information from the Clean Water Plant, thus fostering a two-way flow of information.

1. Public Participation: The principles enumerated in the NBP Code of Good Practice and the City's Guiding Principles form the foundation for all the City's public participation activities. Where reasonable and appropriate or when legally required, opportunities will be provided for the public to formally participate in planning processes. This determination will generally be made by the Clean Water Plant Superintendent, the City Council and/or the EMS Coordinator. Formal and informal participation opportunities are described below.
2. Information on the status of Wyoming's EMS, including the third party verification process, will be shared with interested parties using any of the formal or informal participation opportunities identified below, as deemed appropriate by the EMS Coordinator. Information will be shared with the public via the following methods:

   a. **Formal Public Participation Mechanisms:**
   MDEQ Annual Report. As stipulated in the City's NPDES permit, the MDEQ requires an annual report to be submitted every year. The report contains technical information on biosolids quantity and quality and application locations.

   City Council Meetings. All biosolids-related contracts, projects, etc. are open to public comment at regular sessions of the City Council.

   Public Informational Meetings. Where reasonable and appropriate, opportunities will be provided for the public to formally participate in the planning process. This determination will generally be made by the Director of Public Works.

   Grand Valley Regional Biosolids Authority. The public is invited to attend monthly authority meetings.

   Biosolids Stakeholder Meeting. Interested parties are invited to participate in an annual meeting to provide input/feedback. Relevant information regarding the biosolids program will be provided to the public at this time. Examples of the Stakeholder meeting are Farmer Appreciation Day, CWP Open Houses, etc.

   b. **Informal Public Participation Mechanisms:**
   City Web Site. Information related to the City's biosolids program will be posted on the City's website. The City maintains an email link so that public comment or questions may be directed to City staff for response.

   Print and Broadcast Media. From time to time and where appropriate, the City may use various print, broadcast, or electronic media to disseminate information and receive feedback on selected

biosolids-related activities. This method may be exercised by the Director of Utilities, the Plant Superintendent, or the EMS Coordinator.

Informational brochures. As necessary, the City may develop brochures with information on its biosolids management program along with ways that interested parties can communicate with the City to express their views and suggestions (e.g., by providing the City's website address).

Email. The City may use emails to provide information to interested parties and receive feedback.

Newsletters. The City may utilize informational newsletters, possibly published by other entities (MDEQ, NBP, etc) that would be distributed to plant personnel and interested parties. The newsletters would provide timely information on biosolids-related activities.

Plant Tours and Presentations to School or Community Groups. The City provides tours of its Clean Water Plant to a wide variety of school and community groups. Biosolids-related issues are an important part of this function.

3. Response to Public Input: The City is committed to active public participation and will actively seek input from the public both during the initial program development and during the continuous improvement phase of the program. The City will record and respond to significant input received from interested parties. An effort will be made to initially respond to all inquiries or requests for information within 2 business days of receipt of inquiry or request. Complex inquiries/requests may require additional response time.The respondent will vary depending on the nature of the input received. The methods of recording and responding may also vary and will be left to the discretion of the responder. Available methods include, but are not limited to, phone calls/logs, complaint forms, emails, letters, memoranda, transcripts from public meeting/hearings, etc. The City will strive to minimize its response time to input received from the public.

4. Interested Parties: The following groups may have an interest or stake in Wyoming's biosolids program.

City of Wyoming staff
City Council Members
Citizens and Sewer Rate Payers
Downstream Communities
Adjacent Communities
Michigan Township Association
Landfill Owner/Operator
Regulators (MDEQ)
Educators

Media Representatives
Local Environmental Organizations (WMEAC, etc)
Grand Valley Metro Council
Biosolids Contractor
Grand Valley Regional Biosolids Authority
Elected Officials/Community Leaders
Water Quality Professionals
Farmers and Farm Organizations

Information to be made available to interested parties will include the following, which will also be posted on the City's website:

a) The City's Biosolids management policy
b) The applicable legal and other requirements (i.e., Table 4.1)
c) The biosolids program goals and objectives for continual improvement (i.e., Table 5.1)
d) The periodic biosolids management program performance report
e) A detailed report of the independent, third-party EMS verification audit results
f) The City's Residuals Management Program (RMP)

5. Contractors will direct requests for external information to the EMS Coordinator who will either provide a response or forward it to the appropriate department for a response.

B. Internal Communication

To keep Clean Water Plant employees and contractors informed and aware of the biosolids EMS and related SOPs, the City will employ a variety of communication methods such as emails, intranet posting, written memoranda, all-plant meetings, and verbal communication.

Internal communications are either directly dealt with, or they are forwarded to the Biosolids Coordinator, depending on the nature of the inquiry or request.

The EMS Team will meet not less than quarterly to discuss the EMS, the biosolids program and policy, and to review any changes, responses, new happenings, etc. The purpose of the EMS Team meetings is to color and inform the opinions of the major policy makers (i.e., Director, Superintendent) and to keep the EMS on track and moving forward.

C. Management Program Reporting

Annually the EMS Coordinator will prepare a written report that summarizes the performance of the biosolids management program. The report shall be issued by the end of June each year and will be made available to the public on the City's website as well as in hardcopy form.

The performance report will address performance during the previous biosolids reporting year (i.e., October through September). The report will include the following information:

- Summaries of monitoring data and other measurements that demonstrate the performance of the City's biosolids program relative to established goals, objectives, and legal requirements.
- A summary of relevant contractor activities
- Summaries of actions that have been taken on a voluntary basis.
- Performance relative to each of the 11 elements of the EMS, including nonconformance issues and resolutions.
- A summary of internal audits conducted during the year.
- A summary of information regarding third party audits conducted during the year.

References
EMS Guidance Manual (January 2005 Revision)
City of Wyoming Annual Biosolids Report (as submitted to the MDEQ)

Responsibility
Plant Superintendent
EMS Coordinator
City of Wyoming City Council
Biosolids Coordinator
Biosolids Contractors

References
EMS Guidance Manual (January 2005 Revision)
NBP Code of Good Practice
City of Wyoming's Clean Water Plant NPDES Permit
City of Wyoming Guiding Principles

Element 6: Competency	
	4/12/12

Background

Wyoming is committed to making sure each Clean Water Plant employee understands his or her role in the biosolids re-use program. Since the plant spans many different job descriptions, each staff member should have a clear comprehension of how any given task can impact biosolids quality or the public perception of our work. Training plays an important role in the overall performance of the biosolids program and is necessary to effectively implement, manage, and maintain the EMS. Employees receive a variety of training relevant to their job classifications and in various forms ranging form hands-on, classroom, web-based, etc. All training is documented and records are maintained of all training the employees receive. This element defines the responsibilities and training of all the staff members directly involved in the EMS and makes clear their authority to act.

Procedures

1. Roles and responsibilities for various individuals, workgroups, and contractors pertaining directly to the biosolids EMS are assigned by the EMS Coordinator. Changes are made as necessary.

2. The EMS Coordinator will also review existing roles and responsibilities whenever significant operation changes are made to ensure that roles and responsibilities are appropriately defined.

3. Within the EMS Manual, each individual element contains a list of staff members responsible for overseeing the procedures within that element. Additionally, Table 2.1 in Element 2 identifies Critical Control Points, Operational Controls, and the responsible persons for each control and Table 4.1 in Element 4 identifies Goals and Objectives, and the person(s) responsible for each objective listed.

4. General descriptions of the roles and responsibilities for various positions and workgroups are provided below. The City's Union Contract embodies specific job descriptions for represented employees.

Director of Public Works. This position is responsible for oversight of the wastewater treatment utility. It plays a major role in setting program direction, budgeting, and communicating to City Council.

Clean Water Plant Superintendent. This position is responsible for coordinating activities within the various workgroups, for establishing overall direction, determining broad priorities, and ensuring that all aspects of the operation and maintenance of the Clean Water Plant are conducted in an efficient, cost effective manner and are compliant with the existing rules and regulations that control our profession. The Superintendent reports to the Director of Public Works and has overall management responsibility for the activities of the following workgroups:

Environmental Services (IPP and Biosolids Programs)
Maintenance
Laboratory
Operations
Administrative

Laboratory Services Manager. This position reports directly to the Plant Superintendent and is responsible for managing the Utility Department's laboratories.

Environmental Services Supervisor. This position reports directly to the Plant Superintendent and is responsible for ensuring compliance with all biosolids and industrial pretreatment program requirements. Furthermore, it plays a major role in tracking legal and legislative initiatives at the local, state, and federal levels. The Environmental Services Supervisor is the EMS Coordinator.

Environmental Services Inspector. This position reports to the Environmental Services Supervisor and is responsible for the industrial sewer use inspection and investigation, cross connection inspection, and may assist in the inspection of biosolids application sites.

Biosolids Coordinator. This position reports to the Environmental Services Supervisor. It oversees the day-to-day field activities of the program and serves as the first point of contact for the contractor. It also plays a major role in tracking legal and legislative initiatives at the local, state, and federal levels. A key position, the Biosolids Coordinator is directly responsible for the following on a day-to-day basis:

Farmer contact
Scheduling
Field set up (with input and assistance from the contractor)
Site inspection
Sampling

Loading calculation and tracking
Report generation
Interaction with local elected officials
Interaction with appointed health officials
Interaction with regulatory agency personnel
Communication with and direction of contractor crew
Contract compliance

GVRBA Project Mgr. Reports to GVRBA Board quarterly on activities related to both plants' (GR, COW) solids handling programs.

Contractor. The Clean Water Plant utilizes the services of a contractor to provide biosolids transportation and application. The contractor is responsible for following policies and procedures necessary to ensure that operations are conducted in a safe and environmentally sound manner. The contractor is involved in the Biosolids EMS development from the beginning and develops internal procedures utilized by its employees to support and supplement the Clean Water Plant's program.

EMS Team: The Clean Water Plant's EMS Team consists of the major CWP workgroup supervisors, the Plant Superintendent, the Biosolids Coordinator, the Environmental Services Inspectors, the Director of Public Works, and can include contractor representation. The purpose of the team is to discuss policy and program changes, assure communication between different plant functions and the EMS Coordinator, and to color and inform the opinions of the major policy makers (i.e., Director, Superintendent). In this way, the EMS Team aims to keep the EMS on track and moving forward.

5. All employees and contractors, as appropriate, will receive training that addresses the following awareness, skills, and knowledge areas.

   - ✓ The biosolids value chain
   - ✓ Any biosolids-related legal and regulatory requirements that apply directly or indirectly to a given employee's job
   - ✓ Standard Operating Procedures and work instructions that are necessary to meet all the legal, quality, and public acceptance requirements.
   - ✓ Monitoring and measurement as it relates to any given employee's job
   - ✓ Documentation, document control and record keeping as it relates to a given employee's job

6. An introductory employee training program introduces employees to the concepts of EMS, consistent with the items listed above, and keeps the concepts fresh by regular discussion at regularly scheduled all-plant meetings. Existing employees and contractors will participate and new or transfer employees will receive this training as part of their orientation.

The Plant Superintendent (with input from EMS Coordinator) is responsible for ensuring that all employees and contractors receive the initial training and that all new employees receive the training as part of their orientation. Record of this orientation is logged in Table 6.1: Employee Orientation Training Records, or similar, which is maintained in the plant's human resources files, as outlined in Element 8: Documentation, Document Control and Recordkeeping.

References

EMS Guidance Manual (January 2005 Revision)
City of Wyoming Clean Water Plant Employee Union Contracts
Element 2: Critical Control Points, Table 2.1: Critical Control Points
Element 4: Goals and Objectives, Table 4.1 Goals and Objectives
City of Wyoming and Synagro Contract Services Agreement
Table 6.1: Employee Orientation Training Records
City of Wyoming EMS Manual, Element 8: Documentation, Document Control and Recordkeeping

Responsibility

All Clean Water Plant staff
All Clean Water Plant Contractors

Table 6.1: Employee Orientation Training Records

Employee orientation is provided to all employees and contractors who influence Biosolids quality to introduce them to the concepts of our Biosolids EMS. This mandatory training covers the basic principles of a Biosolids EMS, how it impacts employees and how their activities impact the quality of biosolids. Employees are encouraged to participate and lean how managing critical control points along the Biosolids Value Chain improve biosolids quality and maximize beneficial re-use opportunities

Employee Name	Employee Signature	Date	EMS Coordinator's Signature

Element 7: Emergency Preparedness and Response	
	4/12/12

Background

Well-defined emergency preparedness and response procedures are a significant element of the biosolids management program. The following procedures help to ensure effective response to accidents and emergency situations associated with biosolids management activities. These procedures help to minimize the potential impact on human health or the environment should an unusual or emergency situation arise.

The City of Wyoming's Clean Water Plant will review and evaluate the efficiency of its emergency preparedness and response procedures, including its communication systems, and revise them as needed. Wyoming also requires its contractors to establish and maintain emergency preparedness and response plans and procedures to ensure effective response to accidents and emergency situations associated with its biosolids management activities.

Procedures

The Clean Water Plant has developed individual operating procedures for emergency-specific situations. Updates and revisions to the procedures are made on an as-needed basis or as program/plant operations change. Revisions and updates to biosolids-specific emergency procedures are the responsibility of the EMS Coordinator.

1. Preventive Action: During annual inspections of Industrial Users, the Environmental Services Inspector evaluates the need for a slug control plan at each significant industrial user site. In the event of an unusual industrial loading occurrence, the industrial representative is required to notify the Environmental Services Supervisor who works in conjunction with the Operations Supervisor to develop an action plan that minimizes impact on the plant.

2. Preventive Action: Procedures and requirements for land application during extreme weather conditions (flooding, frozen soil, etc.) are established within the City's approved Residuals Management Program (RMP) in accordance with the State of Michigan Administrative Rules Part 24.

3. In the case of flooding of the Clean Water Plant, employees will follow the Operational Changes for Plant Flooding guidance document, which is maintained by the Maintenance Supervisor.

4. In the event of a power interruption or outage, Clean Water Plant staff will follow the Standard Operating Procedure for switching the plant to generated power, which is maintained by the Maintenance Supervisor.

5. Preventive Action: Awareness level training on emergency procedures will be done for all employees at an all-plant meeting at least annually. Contractor drivers are trained when they first come on the job site. Employees directly involved with the biosolids program (Environmental Services) also receive training at formally organized training events (MWEA, NBP, MDEQ, etc.).

6. Copies of the Emergency Response Plan are made available to employees in electronic form via the employee intranet and also in hard copy form. Important emergency contact information is kept in all contractor trucks.

7. Preventive Action: Testing of the procedures and response plan will be done periodically as determined by the Plant Superintendent or Environmental Services Supervisor. All emergency response equipment shall be on site or readily available within a minimum response time.

8. The City of Wyoming's Biosolids contractor has developed emergency response plans to supplement and enhance those already in place. These include transportation and applicable spill response.

<u>References</u>
City OF Wyoming Residuals Management Program
NBP EMS Guidance Manual (January 2005 Revision)
Pretreatment Program Procedures-40 CFR 403.8(f)(2)(v)
Land Application of Biosolids-Administrative Rule Part 24, R 323.2410
Emergency Response Manual
Operational Changes for Plant Flooding
SOP for Switching to Generated Power
Contractor Spill Control Plan

<u>Responsibility</u>
Plant Superintendent
Environmental Services Supervisor
Biosolids Contractors
Operation Supervisor
Maintenance Supervisor
IPP Staff
EMS Coordinator

Element 8: Document Control and Recordkeeping	
[illegible]	4/12/12

Background

The City of Wyoming's Clean Water Plant has established and maintains documentation and records for its biosolids management program. This element distinguishes between documents and records. Documents describe *what is going to happen*. Records comprise *evidence that something has happened*.

Procedures for Document Control

1. All printed (i.e., hard copy) documents are considered uncontrolled. The party responsible for the document is responsible for removing obsolete versions of the document. The following documents related to the City of Wyoming's Biosolids Mgt System are considered controlled documents:

Document Type	*Responsible Party*	*Location*
Standard Operating Procedures	Work Group Supervisors	Work Group Supervisor offices
Policy Statements	Plant Superintendent	Superintendent's office
Emergency Plans	Plant Superintendent	Superintendent's office
Job Descriptions	Plant Superintendent	Superintendent's office
Contractor documents	Env Srvcs Supv	Env Srvcs Supv Office
Mgt System Manual	EMS Coordinator	EMS Coord Office

Procedures for Record Control

2. Records are controlled by the responsible party listed below. They are secure, accessible, identifiable, and retained in a accordance with COW

retention policy. The following records related to the City of Wyoming's Biosolids Mgt System are considered controlled records:

Record	*Responsible Party*	*Location*
List of inquiries from external parties and response	Environmental Services Supervisor (ESS)	ESS' office
EMS Training records	EMS Coordinator	EMS Coordinator's office
Safety Training records	COW Risk Control Officer	Risk Control
Competency Records (e.g., performance appraisals, licenses)	Plant Superintendent	Plant Superintendent's office
SCADA records	Operations Supervisor	Operations Supervisor's office
Emergency Drills	Plant Superintendent	Plant Superintendent's office
Emergency incidents/investigations	Environmental Services Supervisor (ESS)	ESS' office
Corrective Actions in response to non-compliance, non-conformance	Environmental Services Supervisor (ESS)	ESS' office
Biosolids Annual Report	Environmental Services Supervisor (ESS)	ESS' office
Internal Audit Results	EMS Coordinator	EMS Coordinator's office
Management Review minutes	EMS Coordinator	EMS Coordinator's office

References

Biosolids Related SOPs

City of Wyoming EMS Manual, Element 2: Critical Control Points, Table 2.1 Critical Control Points

City of Wyoming EMS Manual, Element 4: Goals and Objectives, Table 4.1: Goals and Objectives, Template 4.1: Action Plan and Tracking Template

City of Wyoming EMS Manual, Element 6: Training, Table 6.1: Employee Orientation Training Records
City of Wyoming Safety Program Training Matrix
City of Wyoming EMS Manual Element 1: Biosolids Management Policy
City of Wyoming EMS Manual, Element 9: Nonconformance: Preventive and Corrective Action, Table 9.1: Tracking Worksheet, Table 9.2: Audit and Corrective Action Worksheet
Standards for Use or Disposal of Sewage Sludge-CFR Title 40 Chapter I Part 503
City of Wyoming EMS Manual, Element 11: Biosolids Management Report, Table 11.1: Annual Management Review of Performance Report

Responsibility
EMS Coordinator
Risk Management Supervisor
Biosolids Contractors
Maintenance Department Staff

Element 9: Corrective and Preventive Action	
	4/12/12

Background

The purpose of this element is to develop and implement procedures for investigating noncompliance with legal/regulatory and other requirements, including conformance issues that may arise from monitoring/measurement activities, EMS protocols, or nonconformances noted as a result of internal or external EMS audits. This element will also establish procedures for identifying the cause and taking actions to correct the non-conformance issues, and document the necessary corrective actions taken to prevent a recurrence.

The City of Wyoming has developed the following procedures to ensure prompt response to any nonconformance events. Events of this nature will be treated with the utmost attention by Clean Water Plant Supervisory personnel.

Procedures

Corrective Action Procedures for Nonconformances

City of Wyoming corrective action procedures have been established to address nonconformances identified during routine monitoring and measurement. This plan identifies the nonconformance, the root cause(s), and the corrective action being taken. The corrective action procedures also identify changes to policies, programs, plans, operational controls, or monitoring/measurement procedures to prevent future nonconformances.

1) Upon identification of a nonconformance during routine monitoring and measurement procedures, the EMS Coordinator will inform the EMS Team who will be charged with investigating the cause(s) of the nonconformance and making recommendations for corrective action(s).
2) The EMS Coordinator will review the findings and work with appropriate Supervisors to select the proper corrective action and oversee the action implementation.
3) Changes to policies, programs, plans, operational controls, or monitoring/measurement procedures will be identified to help prevent future nonconformances as appropriate.
4) Records will be maintained on any nonconformances including all relevant data and reports along with recommendations and follow-up information. Tables 9.1 and 9.2 will be completed by the auditor and the EMS Coordinator.

5) Additionally, legal/regulatory requirements are specifically identified in the City of Wyoming's NPDES Permit. The permit contains procedures for investigating nonconformances with the legal/regulatory requirements identified in the permit, one of which is the Residuals Management Program.

Corrective Action Procedures for EMS Audits

Formal corrective action plans have been established to address the findings of internal EMS audits under Element 10, and EMS verification audits conducted by third parties. The corrective action plan will be documented, and describes what actions will be taken to address the audit findings, the individual(s) responsible, the estimated completion date, and required resources to develop and implement corrective and preventive action. Progress in completing the corrective actions will be tracked and periodically updated. The corrective action plan includes recommended changes to policies, programs, plans, operational controls, or monitoring/measurement procedures to prevent future nonconformances. These changes are subsequently documented in the corrective action plan, and in the EMS manual and other relevant EMS documentation.

1. EMS Nonconformances Identified During Internal Audits

- Internal audits will be conducted in accordance with procedures developed under Element 10.
- An audit worksheet (Table 9.2) will be completed for each element audited. The worksheet will contain the following information:
    a) Element #
    b) Auditor's name
    c) Period being audited
    d) Audit date(s)
    e) Summary of findings
    f) Nonconformances (if any) and cause
    g) Corrective actions already taken (if any)
    h) Recommended additional corrective actions (if any)
    i) Person(s) responsible for implementing corrective action(s)
    j) Changes in policies, programs, plans, operational controls and monitoring/measurements needed to prevent reoccurrence (if any)
    k) Estimated completion date
    l) Required resources
    m) Method of tracking progress
- EMS Coordinator is responsible for tracking progress, using Table 14.1. Progress will be tracked using methods that the EMS Coordinator deems appropriate. For minor nonconformances progress will be tracked every two weeks. For major nonconformances, progress will be checked every four weeks. Tracking will be documented by completing the tracking sheet which is included as part of the audit worksheet.

- Any changes to policies, programs, plans, operational controls, or monitoring/measurement procedures will be documented in the corrective action plan, and in the EMS manual and other relevant EMS documentation.
- The EMS Coordinator will prepare and submit a written report to the EMS team and the Clean Water Plant Superintendent within 30 days after the conclusion of the audit. The report will summarize the internal audit results and corrective actions (if necessary) that have already been taken or will be taken to address any nonconformances.

2. EMS Nonconformances Identified During Third Party Audits

- Third party audits will be conducted in accordance with the procedures identified by the National Biosolids Partnership.
- Audit reports will be submitted to the City of Wyoming's EMS Coordinator.
- If the auditor identifies nonconformances, the EMS Coordinator will follow the steps listed for internal audits (1 - b, c, d and e).
- Minor nonconformances will be corrected within a 30 day period and major nonconformances will be corrected within a 90 day period, unless the auditor and the Clean Water Plant agree that these timeframes need to be extended.

References

Table 9.1: Tracking Worksheet
Table 9.2 Audit and Corrective Action Worksheet
City of Wyoming Residuals Management Plan
City of Wyoming Clean Water Plant NPDES Permit
City of Wyoming EMS Manual, Element 10: Internal Audits
EMS Guidance Manual (January 2005 Revision)

Responsibility

EMS Coordinator
EMS Team
Internal Audit Team
Third Party Auditors

Table 9.1: Tracking Worksheet

Date	Status of corrective action	Supporting documentation

Table 9.2: Audit and corrective action worksheet

Element #:	
Audit type:	
Auditor's name:	
Period being audited:	
Audit date(s):	
Summary of findings:	
Nonconformances (if any) and cause:	
Recommended additional corrective actions (if any):	
Person(s) responsible for implementing corrective action(s):	
Changes in policies, programs, plans, operational control and monitoring/measurements needed to prevent reoccurrence (if any):	
Estimated completion date:	
Required Resources:	
Tracking:	

Element 10: Internal EMS Audit	
	4/12/12

Background

The Clean Water Plant will utilize an internal audit process to monitor its conformance with procedures specified in the Biosolids EMS. This process will better enable the Clean Water Plant to successfully complete mandatory external audits and play an important role in the continual improvement process. It is designed to provide an unbiased, internal evaluation of conformance with EMS common procedures, legal and other requirements, and programmatic goals and objectives.

Procedures

1. Internal audits will be completed on an ad hoc basis, or may be triggered by a nonconforming or emergency event. Internal audits may not be completed in those years when a formal 3rd party audit is conducted.

2. The audit will address program activities completed since the immediately preceding internal or external audit.

3. The audit will be conducted by peer agencies whenever possible.

4. The audit will assess the success of policy commitments.

5. The audit will assess the results of a contractor assessment.

6. In the event that a peer agency is unavailable, Clean Water Plant staff will be responsible for auditing selected elements of the EMS, and an effort will be made to ensure that individuals are not assigned audit responsibilities for an area that they manage as part of their day-to-day activities. If this scenario becomes the audit procedure, audit responsibilities are as follows:
   - Laboratory: Elements 1, 2, 3,
   - Operations: Elements 4, 5, 6,
   - Maintenance: Elements 7, 8, 9
   - Environmental Services: Elements 10, 11

7. All audit results will be submitted to the EMS Coordinator within 10 days of its conclusion.

8. The audit will evaluate performance relative to established biosolids program goals, objectives, and performance measures. The audit will cover the 11 Elements of the City of Wyoming's EMS program and will include any applicable contractor activities.

9. All documents and records related to internal audits will be maintained in accordance with the documentation and record keeping procedures established in Element 8.

10. Auditors will have access to the NBP Third Party Auditor's guidance document and other appropriate material. Auditors will utilize one or more of the objective methods listed in the Third Party Auditor's Guidance document to evaluate conformance. The objective methods listed in the Auditor's Guidance are as follows:
    1. Document and records review
    2. Interviews
    3. Direct observation

11. Auditors will complete an audit worksheet that is specific to each element. Information contained in the worksheet includes:
    a) Element being audited
    b) Audit type (e.g. internal or external audit)
    c) Auditor's name
    d) Period being audited
    e) Audit date(s)
    f) Summary of findings
    g) Nonconformances (if any) and cause
    h) Corrective actions already taken (if any)
    i) Recommended additional corrective actions (if any)
    j) Person(s) responsible for implementing corrective action(s)
    k) Changes in policies, program, plans, operational controls and monitoring/measurements needed to prevent reoccurrence (if any)
    l) Estimated completion date
    m) Required resources
    n) Method of tracking progress

12. The auditors will complete (a) through (e) above as well as all specific questions contained in the worksheets. Completed worksheets will then be submitted to the EMS Coordinator.

13. The EMS Coordinator will complete (f) through (n). This may be done by completing the appropriate sections directly on the worksheet or addressing them through a separate written report.

14. The worksheet reporting process allows management to take action to make necessary modifications to the EMS and biosolids management

program. Nonconformances will be addressed using the procedures identified in Element 9.

15. The EMS Coordinator will prepare and submit a written report to the Clean Water Plant superintendent within 30 days of the audit completion, summarizing the internal audit results and corrective actions (if necessary) that have already been taken or will be taken to address any nonconformances. The audit report will be available electronically both on the City's website and on the City's intranet site.

16. The EMS Coordinator will periodically evaluate the need to provide training or guidance to the internal auditors. The EMS Coordinator will be responsible for coordinating any subsequent activities related to training or guidance.

References

EMS Guidance Manual (January 2005 Revision)
NBP Third Party Audit Guidance Document
City of Wyoming EMS Manual, Element 9: Nonconformances: Preventive and Corrective Action
City of Wyoming EMS Manual, Element 8: Documentation, Document Control and Recordkeeping

Responsibility

Clean Water Plant Supervisory Personnel and Selected Staff

Table 1: Tracking Worksheet

Date	Status of corrective action	Supporting documentation

Table 2: Sample audit and corrective action worksheet

Element #:	
Audit type:	
Auditor's name:	
Period being audited:	
Audit date(s).	
Summary of findings:	
Nonconformances (if any) and cause:	
Recommended additional corrective actions (if any):	
Person(s) responsible for implementing corrective action(s):	
Changes in policies, programs, plans, operational control and monitoring/measurements needed to prevent reoccurrence (if any):	
Estimated completion date:	
Required Resources:	
Tracking:	

Element 11: Management Review	
	4/12/12

Background

The City of Wyoming will conduct on-going management review of its biosolids management program to address the possible need for changes to policy, the goals and objectives, the biosolids management program and other EMS elements based on internal EMS audit results, third party verification audit results, changing circumstances, and the City's commitment to continual improvement. Both formal and informal review will take place on all levels from the City Manager down to the staff level and at various frequencies ranging from weekly to annual to ad hoc.

Procedures

1. The EMS Coordinator and the Clean Water Plant Superintendent will formally review EMS and related biosolids management activities on an annual basis. This review will be coordinated by the EMS Coordinator. The review will be conducted by July 15th of each year and will cover activities conducted during the previous year. The review will include:
    a. A preliminary review of the annual Biosolids Program Performance Report
    b. Conformance with policy commitments, and any possible need for changes to the policy
    c. Nonconformance incidents
    d. A review of progress toward achieving current Biosolids goals and objectives, and any new goals and objectives
    e. Review internal audit results, if applicable
    f. Review external thirds party audit results, if applicable
    g. Changing circumstances such as major process changes which may require updates to the biosolids EMS critical control points and other elements of the system
    h. Documented commitment that opportunities for continuous improvement and other system improvements are being investigated and implemented.

2. Informal, on-going review of biosolids program related activities also occurs at the following events and frequencies:

Meeting or Event	Participants	Purpose
Monday A.M. Superintendent's meeting; weekly	CWP supervisors and Superintendent	Look back over weekend; plan for upcoming week.
Wednesday A.M. CWP staff meeting; weekly	PW Director; Utility billing/City Treasurer; Meter shop; Water Plant; CWP work group supervisors	Coordination of overall utility effort.
City Manager Monthly Utilities Meeting	PW Director; CWP and WTP Superintendents; City Mgr; Deputy City Mgr;	Upper level management review.
City Manager's Monthly Staff Meeting	All City department heads and key supervisors	Upper level management review.
GVRBA Tech Team meeting, monthly	Tech Team members from GR, Wyoming	Discussion of technical issues pertaining to GVRBA.
GVRBA Operations Team meeting, monthly	Ops Team members from GR, Wyoming	Discussion of operational issues pertaining to GVRBA.
GVRBA Board meeting, monthly	GVRBA Board members	Conducting of the business of the GVRBA.
CWP work group meetings; weekly or monthly	Staff of each work group meeting with its supervisor and the CWP superintendent	Work group direction, coordinated with overall plant management.
All-utility meeting; annual	All utility department staff	Annual review of all utility programs.
Wholesale customer meeting; annual	Utility department heads; utility supervisors; wholesale customer reps	Annual review of all utility programs as they pertain to wholesale customer service.

3. The EMS Coordinator will develop a schedule and action plan to address recommendations from the management review functions using the action plan template included in Element 4.

4. Progress on any action items identified from the management review will be tracked and documented using the Annual Management Review of Performance Record of Progress Sheet (attached to this element).

References

EMS Guidance Manual (January 2005 Revision)
City of Wyoming EMS Manual, Element 4: Goals and Objectives, Template 4.1: Action Plan and Tracking Template
City of Wyoming EMS Manual, Element 1: Biosolids Management Policy
Table 11.1: Annual Management Review of Performance Report

Responsibility

Clean Water Plant Superintendent
EMS Coordinator

Table 11.1: Annual Management Review of Performance Report

Review preliminary periodic Biosolids program Performance report:	Suggested Actions:	Responsible person(s):	Changes to policies, plans, procedures, etc.:
Review progress on goals and objectives:	Suggested Actions:	Responsible person(s):	Changes to policies, plans, procedures, etc.:
Review internal audit results and conformance with policy commitments:	Suggested Actions:	Responsible person(s):	Changes to policies, plans, procedures, etc.:
Review any nonconformance incidents (if applicable) and corrective action:	Suggested Actions:	Responsible person(s):	Changes to policies, plans, procedures, etc.:
Review external audit results, if applicable:	Suggested Actions:	Responsible person(s):	Changes to policies, plans, procedures, etc.:
Review process changes and any possible needs for changes to the policy:	Suggested Actions:	Responsible person(s):	Changes to policies, plans, procedures, etc.:
Review commitment to continuous improvement and actions taken:	Suggested Actions:	Responsible person(s):	Changes to policies, plans, procedures, etc.:

Date Completed: _____ Completed By: _____

Annual Management Review Record of Progress Sheet

Biosolids program Performance report-Suggested Actions:	Progress:	Additional Action(s):
Review progress on goals and objectives-Suggested Actions:	Progress:	Additional Action(s):
Review internal audit results and conformance with policy commitments-Suggested Actions:	Progress:	Additional Action(s):
Review any nonconformance incidents (if applicable) and corrective action-Suggested Actions:	Progress	Additional Action(s):
Review external audit results, if applicable-Suggested Actions:	Progress:	Additional Action(s):
Review process changes and any possible needs for changes to the policy-Suggested Actions:	Progress:	Additional Action(s):
Review commitment to continuous improvement and actions taken-Suggested Actions:	Progress:	Additional Action(s):

Date Completed: _____ Completed By: _____