



Example NBP
Biosolids Management Program Manual
City of Mountain

EXAMPLE

Element 1: City of Mountain BMP Manual

Date approved	03/25/2011	By: Jim Jacobs, Wastewater Manager
Date Issued	04/15/2011	

Introduction

The City of Mountain provides biosolids treatment to a community of approximately 75,000 people. Biosolids treatment meets state secondary treatment requirements. Two valuable end products result from these treatment processes: highly treated effluent and biosolids. Effluent is discharged to Hana River, a tributary of Adams River. Biosolids are recycled through land application at farms in Adams County.

The City's treatment plant has been in operation for over 30 years and for this period has continually land applied Class B biosolids on farmland. The land application program has grown successfully from an operation of 3,000 dry tons per year to the current rate of just over 5,000 dry tons per year.

Biosolids transportation and land application are accomplished by a contractor to the City. The contractor is responsible for hauling biosolids from the treatment plant to application sites and for land application. The Biosolids Manager is responsible for working with the farmers to select the fields and schedule land application. The Biosolids Manager is also responsible for preparation of land application reports required by the state regulatory organization. The Biosolids Manager is supervised by the Wastewater Manager.

The City's biosolids program has undergone few changes over its lifetime. The City modifies its biosolids program as needed in response to factors such as new state regulations.

The City is committed to proactively addressing the challenges that will be encountered with respect to biosolids management in the future, especially growth and development from the neighboring Large City. We are committed to continually improving all aspects of our biosolids program. On May 1, 2011, the City's Public Works Director signed a Letter of Understanding with the National Biosolids Partnership (NBP) in which the City agreed to become an NBP participant with the intent to improve its existing biosolids program to achieve national recognition. The City specifically committed to meet the national requirements for an excellent biosolids program; committed to implement an NBP Biosolids Management Program (BMP); and committed to the NBP National Code of Good Practice on July 1, 2011.

This BMP Manual describes the City's NBP Biosolids Management Program.

Procedure

1. The BMP manual is intended to be a “living” document. Revisions are expected as new information is obtained, changes to the existing BMP occur, and as experience is gained in managing the biosolids program.
2. The Public Works Director will approve any significant revisions to the BMP.
3. The Wastewater Manager will recommend approval to the Public Works Director for any significant revisions to the BMP.
4. The Biosolids Manager will request approval by the Wastewater Manager of significant revisions to the BMP and will update the BMP Manual on an as needed basis.
5. The Biosolids Manager will provide notification of significant changes to the BMP to interested parties such as the state regulatory organization (State DEP).

EXAMPLE

Element 2: Biosolids Management Policy

Created/Approved: 11//15/2011	By: City Council
Date issued: 12/01/2011	By: Sam Smith, Public Works Director

Introduction

The City of Mountain formally adopted the following Biosolids Management Policy on November 15, 2011. The policy establishes guiding principles for the City's Biosolids Management Program.

Biosolids Management Policy Statement

The City of Mountain will pursue beneficial biosolids reuse options that protect human health and environmental quality, are cost effective, and provide flexibility with respect to end use.

The City will implement this policy by:

- Following the *Code of Good Practice* for biosolids developed by the National Biosolids Partnership;
- Periodically evaluating beneficial reuse options that provide potential for improved efficiencies or better meet the needs of the community; and
- Providing adequate training opportunities to personnel associated with the Biosolids Management Program.

The Code of Good Practice is included in the BMP Manual as Attachment 2.1.

Procedure

1. The Wastewater Manager is responsible for ensuring that the Biosolids Management Policy is implemented and communicated to all staff.
2. The Biosolids Manager is responsible for ensuring that the Biosolids Management Policy is implemented and communicated to the hauling and application contractor and other interested parties, using one or more of the communication tools listed under the Communication procedure.
3. Methods used to accomplish Procedure 1 include, but are not limited to the following:
 - a. meeting with the contractor to discuss how the policy affects activities conducted by the contractor;
 - b. revising the contract, upon agreement with the contractor or at the next renewal cycle, to reflect the provisions of Biosolids Management Policy;

- c. meeting with farmers to discuss how the policy guides actions of the City and the contractor; and
 - d. communications with interested parties are addressed in the Communications procedure.
- 4. If revisions to the current policy statement are needed because of changing conditions, the Wastewater Manager will recommend changes to the Public Works Director.
- 5. The Public Works Director will recommend any revisions to the Mayor for consideration by the City Council.
- 6. If revisions to the Biosolids Management Policy are approved by the City Council, the Wastewater Manager will communicate the revised policy as per Steps 1 and 2 above. The Biosolids Manager will also replace the revised policy in the BMP Manual.

Example

Element 3: Critical Control Points

Created/Approved: 09/01/2011 By: Jim Jacobs, Wastewater Manager
Date issued: 09/01/2011

Introduction

Critical Control Points (or *key processes*) are those biosolids management activities that are under the direct control or influence of the City that have the potential, if not managed effectively, to create significant changes to the quality of its biosolids and could create negative environmental impacts. Critical control points include activities that can affect the quality of biosolids, how biosolids are managed, or how the City's biosolids program is viewed by the general public and regulators.

Table 3.1 identifies the City's critical control points that need to be managed to avoid problems with the biosolids quality and potential environmental impacts. The critical control points were selected by the City's Biosolids Manager after reviewing information contained in the NBP *National Manual of Good Practice*.

The City manages its biosolids to:

- produce Class B product at 25% solids with anaerobic digestion and centrifuge dewatering;
- meet the regulatory requirements for metal concentrations for land application;
- meet the regulatory requirements for pathogen reduction for land application;
- achieve minimal content for plastics and debris in the biosolids; and
- generate product that does not create objectionable odors.

Table 3.1 also contains information on operational controls and monitoring/measurement activities.

Procedure

The following procedure will be used to review and update the selection of critical control points:

1. The City's Biosolids Manager will review information in Table 3.1 on an annual basis, when there are regulatory changes or whenever major operational changes occur. The annual review will be conducted by November 30th.
2. Revisions to Table 3.1 (if any) will be documented in writing by the City's Biosolids Manager, who will be responsible for ensuring that any necessary changes are made to Table 3.1 in the BMP Manual. At a minimum, documentation will occur through notation in the annual biosolids program report.
3. If revisions to the critical control points are made by the Biosolids Manager, information related to roles/responsibilities, operational controls, monitoring/measurement and any other relevant areas of the BMP (including potential environmental impacts listed in Table 3.1) will also be reviewed and modified as appropriate. Documentation will be consistent with the approach in Procedure 2 above.
4. Following an operational change that requires revisions to the critical control points or their associated environmental impacts, the Biosolids Manager will inform the NBP and the third-party verification auditor in writing of the changes.

Table 3.1: Critical Control Points, Operational Controls, SOPs, Monitoring/Measurements and Environmental Impacts

Biosolids Value Chain (Operational Area)	Critical Control Points (Key Processes)	Operational Controls (Control Points)	Roles and Responsibilities	Standard Operating Procedures (SOPs)	Monitoring & Measurements	Potential Environmental Impacts
Wastewater Collection and Pretreatment	None-no major industrial users in the City					
Wastewater Treatment and Solids Generation	Solids screening / grit collection	Screen cleaning and maintenance		Solids Processing SOP	Monitoring/Measurement 1. grit removed (lbs/month)	- Plastics in biosolids - Attraction of vectors (e.g. flies) - Odors
Solids Stabilization, Conditioning and Handling	Anaerobic Digestion	Loading rates		Digester SOP from O&M Manual	Monitoring/Measurement 1. Digester time and temperature 2. Percent solids Relevant reports and/or requirements 1. Digester volatile solids reduction 2. Digester operation	- Odors - Attraction of vectors - Incomplete destruction of pathogens
		Digester Mixing				
Biosolids Storage, Loading and Transportation	Loading site	Loading procedures		Emergency Response Manual SOPs	Monitoring/Measurement 1. Tons loaded	- Spills - Roadway accidents - Truck noise and dust - Odors
		Emergency response procedures				
	Truck cover	Truck tarping procedures		Hauling Manual SOPs	Relevant reports and/or requirements 1. Emergency response reports.	
	Routing requirements	Routing and hauling procedures				

Biosolids Value Chain (Operational Area)	Critical Control Points (Key Processes)	Operational Controls (Control Points)	Roles and Responsibilities	Standard Operating Procedures (SOPs)	Monitoring & Measurements	Potential Environmental Impacts
	Truck cleaning	Truck cleaning procedures			Hauling records.	
Biosolids End Use, Disposal or Beneficial Reuse	Land Application Site Selection	State Regulations		Land application SOP Contractor SOPs	Monitoring/Measurement 1. Biosolids application rates	- Negative impacts on groundwater or surface water resources - Odors
	Location of truck unloading	Truck loading/unloading procedures				
	Depth to Groundwater	Land application site selection procedures				
	Agronomic Rate	State Regulations				
	Perimeter of application site	State Regulations				
	Set back distance from surface water/neighbors	State Regulations				

NOTE: THAT ANY CRITICAL CONTROL POINTS OR OPERATIONAL CONTROLS IDENTIFIED IN APPENDIX F OF THE NBP'S NATIONAL MANUAL OF GOOD PRACTICE BUT NOT SHOWN IN TABLE 3.1 WERE CONSIDERED BUT DETERMINED, THROUGH EXAMINATION OF FACILITY OPERATIONS, TO NOT BE RELEVANT TO THE PROCESSES USED AT THIS FACILITY

Example

Element 4: Legal and Other Requirements

Created/Approved: 09/01/2011	By: Jim Jacobs, Wastewater Manager
Date issued: 09/01/2011	

Introduction

Identifying existing legal and other requirements that affect the various parts of the City of Mountain's biosolids program is extremely important. Most of the existing requirements for biosolids management are defined by state and federal regulations and most are reflected in the City's NPDES permit and the Federal Part 503 regulations. However, when new or revised regulations are proposed the City identifies tracks and assesses the potential effects on the Biosolids Management Program.

Procedure

The procedure used by the City to identify, track, and assess the potential effects of new or revised regulations that may affect the City's BMP is described below.

1. The following sources of information are used as appropriate to identify and track potential changes to regulations:
 - a. Check with state NPDES and biosolids coordinator at least annually
2. The Wastewater Manager is responsible for ensuring that the City is aware of potential changes to regulations. The Biosolids Manager will:
 - a. Identify potential changes to regulations through review of information from various sources identified in Procedure 1 above.
 - b. Evaluate potential effects on the City's BMP.
 - c. Determine the appropriate actions and schedule, including the need to involve other City staff.
3. The following procedure is used to ensure that new legal and other requirements are appropriately communicated and implemented:
 - a. The Wastewater Manager will follow Procedure 2 above
 - b. The Wastewater Manager will be responsible for communicating new requirements (for example, monitoring and reporting requirements) to wastewater staff, the contractor, and farmers on whose land biosolids are applied.
 - c. The Biosolids Manager will be responsible for communicating new requirements to contractors and farmers on whose land biosolids are applied

and will make any necessary changes to the BMP Manual and related documents.

Table 4.1 identifies legal and other requirements specific to the City's biosolids program. The City's NPDES permit contains very specific regulatory and legal requirements.

Table 4.1: Legal Requirements and Guidance Specific to The City's Biosolids Land Application Program

Regulation	Brief Description	Hard Copy (if available)
Federal Regulations		
(40 CFR Part 503)	Federal biosolids rule-Part 503	Wastewater Manager's Office
State Regulations		
ATCP 50, NR 151	DEP Biosolids Rule	Wastewater Manager's Office
NPDES Permit	The City's NPDES Discharge Permit	Wastewater Manager's Office
Local Regulations		
County Code Title 5 , Chapter 2: Sewage Disposal	Sanitation & Health	Wastewater Manager's Office

Example

Element 5: Goals and Objectives for Continual Improvement

Created/Approved: 12/01/2011	By: Jim Jacobs, Wastewater Manager
Date issued: 12/01/2011	

Introduction

The City of Mountain's Biosolids Management Policy states that it *"will pursue beneficial biosolids reuse options that protect human health and environmental quality, are cost effective, and provide flexibility with respect to end use"* by:

- Following the *Code of Good Practice* for biosolids developed by the National Biosolids Partnership
- Periodically evaluating beneficial reuse options that provide potential for improved efficiencies or better meet the needs of the community
- Providing adequate training opportunities to personnel associated with biosolids operations and the BMP.

The City will set or revise goals to support its policy on an annual basis using the following procedure.

Procedure

1. The City will set or revise goals and objectives for its BMP on an annual basis. The goals and strategies will be finalized no later than December 15th.
2. The Wastewater Manager will draft a set of goals and objectives considering:
 - a. The City's Biosolids Management Policy;
 - b. input (if any) received during the year from, regulators, elected officials, other interested parties and the public; and
 - c. input from the City's staff.

Each goal will include a short explanation of its purpose

3. Goals and objectives will be established using SMART criteria (Specific, Measurable, Achievable, Relevant and Time-bounded).
4. Goals and Objectives will be set considering each of the following outcome areas-- Environmental Performance, Regulatory Compliance, Quality Management Practices, and Relations with Interested Parties.

5. The Public Works Director will review and approve goals and objectives; drafts may be revised by the Public Works Director.
6. New or revised goals and objectives will be included in the Annual Biosolids Management Program Report.
7. Final goals and objectives will be posted on the wastewater treatment plant bulletin board.
8. The Wastewater Manager will prepare an action plan to support each goal, consistent with the template shown below, that contains schedules, milestones and necessary resources.
9. The Wastewater Manager will be responsible for tracking progress toward each goal on a regular basis.

Table 5.1 Goals and Objectives -- General Action Plan and Tracking Template

Goal/Objective	Target Date	Person Responsible	Resources Available	Interim Status	Date Completed
<i>Goal 1 – Relations with Interested Parties Work with local environmental organizations to gain and maintain support for the City’s biosolids management program</i>	<i>June 15 , 2016</i>	<i>Biosolids Manager</i>	<i>Policy and Time commitment from Public Works Director and Wastewater Manager to attend meetings and seriously consider any suggested changes in City’s Biosolids Policy and Wastewater/Biosolids operations.</i>	<i>Five key environmental organizations have been identified July 30, 2011</i>	
<i>Objective 1.1 Have a meeting with City’s public works director to define any policy constraints when working with the environmental organizations</i>	<i>August 15, 2011</i>	Wastewater Manager	Time made available for Public Works Director, Wastewater Manager and Biosolids Manager to prepare for and attend meetings.		
<i>Objective 1.2 Establish a workshop with Environmental organizations to learn about the City’s wastewater and biosolids management program</i>	<i>December 15, 2011</i>	Biosolids Manager	Time made available for Public Works Director and Biosolids Manager to prepare for and lead tour.		
<i>Objective 1.3 Environmental organizations provide comments to NBP auditor during the City’s NBP Biosolids Management Program verification audit</i>	<i>July 15, 2012</i>	Biosolids Manager	Mayor and City Council are willing to meet with environmental organizations if necessary		

Goal/Objective	Target Date	Person Responsible	Resources Available	Interim Status	Date Completed
Goal 2 – Quality Management Practices <i>Identify, contract and maintain new farms for land application to ensure flexibility, contingency options and long-term viability of beneficial reuse program to provide for 200% capacity.</i>	<i>January 1, 2020</i>	<i>Biosolids Manager</i>	<i>Time made available for Biosolids Manager to accomplish this goal.</i>	<i>July 15, 2011 – Biosolids Manager completed search of local farm records for potential farms</i>	
Objective 2.1 <i>Identify local farms that would be good candidates for land application.</i>	September 15, 2011	Biosolids Manager	Time made available for Biosolids Manager to accomplish this goal. \$2000 budget made available for the purchase of maps and soil analyses.		
Objective 2.2 <i>Obtain agreements from farmers to land apply on their fields.</i>	May 15, 2012	Biosolids Manager Public Works Director	Time made available by Public Works Director and Biosolids Manager to prepare letters and meet farmers at sites. The City has approved the budget for the City attorney to review agreements.		
Goal 3 – Environmental Performance <i>Increase digester detention time from 20 days to 25 days to</i>	November 30, 2016	Wastewater Manager	The Public Works Director has approved the time and budget for the Wastewater Division to accomplish this goal.	Wastewater Manager has prepared draft study plan for discussion with state regulator.	

Goal/Objective	Target Date	Person Responsible	Resources Available	Interim Status	Date Completed
<i>reduce odor potential from biosolids</i>				June 1, 2011	
Objective 3.1 <i>State Regulator approval of study plan</i>	<i>January 1, 2012</i>	Wastewater Manager			
Objective 3.2 <i>Complete bench top study of digester loading and mixing rates and develop action plan.</i>	<i>June 1, 2012</i>	Wastewater Manager	The Wastewater Manager has responsibility for this objective. \$50,000 has been budgeted for laboratory analyses associated with the bench top study.		
Objective 3.3 <i>Approval of Plan by State Regulator and City funding for action plan implementation</i>	<i>January 1, 2012</i>	Wastewater Manager			
Objective 3.4 <i>Implement changes to digester SOPs to increase digester detention time.</i>	<i>July 15, 2013</i>	Wastewater Manager	The Wastewater Manager has scheduled time to update SOPs. Training on new SOPs will be conducted for the Operator by November 15, 2012.		
Goal 4 – Regulatory Compliance <i>City's cadmium concentration in biosolids reduced by 50% below federal and state regulations, as requested by environmental organizations to protect biosolids agricultural</i>	<i>August 1, 2018</i>	Wastewater Manager	\$200,000 available for consultant study to develop action plan	2011 wastewater budget approved by the City Council includes \$200,000 for the study May 1, 2011	

Goal/Objective	Target Date	Person Responsible	Resources Available	Interim Status	Date Completed
<i>lands.</i>					
Objective 4.1 Hire Consultant to conduct analysis.	January 1, 2012	Wastewater Manager			
Objective 4.2 Consultant Report submitted.	July 31 ,2012	Wastewater Manager			
Objective 4.3 Consultant Report approved by City Council.	Jan 1, 2013	Wastewater Manager			
Objective 4.4 Council approved budget to support cadmium reduction plan.	.April 15, 2013	Wastewater Manager			
Objective 4.5. 20% measured cadmium reduction	April 15, 2014	Wastewater Manager			

Table 5.2 Work Plan for Goals and Objectives (Example for one Goal)

Goal 1 – Relations with Interested Parties: Work with local environmental organizations to gain and maintain support for the City's Biosolids Management Program by July 15, 2016

Objective	Target Date	Person Responsible	Tasks	Deadline	Task Completion date
<i>Objective 1.1 Have a meeting with City's public works director to define any policy constraints when working with the environmental organizations.</i>	August 15, 2011	Wastewater Manager	-Prepare for the meeting, dry run of presentation	August 1, 2011	
			-Develop Agenda for meeting	July 15, 2011	
			-Call Public Works Director and brief him/her the approach	July 15, 2011	
			-Ask Administrative Assistant to schedule meeting	July 15, 2011	
			-Review draft agenda with Biosolids Manager and have a meeting	July 18, 2011	
			-Develop list of possible policy constraints	July 18, 2011	

Objective	Target Date	Person Responsible	Tasks	Deadline	Task Completion date
Objective 1.2 Establish a workshop with environmental organizations to learn about the City's wastewater and biosolids programs	December 15, 2011	Biosolids Manager	-Develop draft workshop agenda to review with wastewater manager before meeting with Public Works Director	July 1, 2011	
		Biosolids Manager	-Identify the key environmental organizations in the County and adjacent Counties that could have land application projects	July 15, 2011	
		Biosolids Manager	-Work with Communications Division to develop plan for working with environmental organizations and workshop, identify roles and responsibilities for implementing plan	August 15, 2011	
		Biosolids Manager – communications person does the actual contacting	-Call each of the environmental presidents and consult with them regarding the idea of a workshop and what might be helpful to include in workshop	September 15, 2011	
		Biosolids Manager	-Develop proposed final agenda and review with Wastewater Manager	October 1, 2011	
		Biosolids Manager	-Identify facilitator for workshop and contract as appropriate following City procedures	October 1, 2011	
		Biosolids Manager	-Review workshop agenda with environmental organizations	October 1, 2011	
		Biosolids Manager	- Establish final agenda for workshop and receive approval from Wastewater Manager	October 1, 2011	
		Biosolids Manager	--Conduct dry run of the workshop with Wastewater Manager and facilitator	October 15, 2011	
		Biosolids Manager	-Prepare summary o f workshop	Nov 15, 2011	
		Biosolids Manager	-Distribute summary to all participants	Dec 5, 2011	

Objective	Target Date	Person Responsible	Tasks	Deadline	Task Completion date
<i>Objective 1.3 Environmental organizations provide comments to NBP auditor during the City's NBP Biosolids Management Program verification audit</i>	July 15, 2012	Biosolids Manager	-Review results of workshop and any feedback from workshop summary and develop detailed Action Plan to address any issues	February 15, 2012	
		Biosolids Manager	-Review action plan with Wastewater Manager, other departments and Public Works Director and receive approval	March 1, 2012	
		Biosolids Manager	-Call each environmental organizations and share Action Plan and receive comments	March 15-April 15, 2012	
		Biosolids Manager	-Develop final detailed Action Plan and Schedule and begin implementation	April 15, 2012	
		Biosolids Manager	-Ask environmental organizations to provide comment and participate in third party audit of City Biosolids Management Program	July 1, 2012	

Example

Element 6: Public Participation in Planning

Created/Approved: 09/30/2011	By: Jim Jacobs, Wastewater Manager
Date issued: 09/30/2011	

Introduction

The City of Mountain has a well-managed biosolids program that has been in operation for over 30 years. Presently and historically, there has been very little interest in the City's biosolids program. The program has had few issues to draw public attention and the majority of the public is unaware of the program. The farmers who participate in the land application program have an excellent opinion of the program.

Public confidence appears to be good and public interest in participating in the planning processes is relatively low. The City's proactive approach to providing the public with meaningful opportunities to provide input in the planning processes is consistent with legal requirements, the degree of current public interest, historical levels of public involvement and related local circumstances.

Procedure

1. The City will use a combination of both formal and informal mechanisms to provide opportunities for the public to participate in the planning process.
2. 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 Biosolids Manager.
3. Opportunities are available for the public to provide input through informal avenues.
4. Formal and informal participation mechanisms used by the organization are listed in Table 6.1.
5. Information on the third party verification process will be shared with interested parties using any of the formal or informal participation mechanisms identified in Table 6.1, as deemed appropriate by the Biosolids Manager.
6. The Biosolids Manager will record and respond to significant input received from interested parties. An inquiry/complaint form will be used to record, when possible, the names, addresses, phone numbers and e-mail addresses of interested parties.

Table 6.1 The City's Public Participation Mechanisms

Formal Participation Mechanisms	Description
Public informational meetings	The public will be invited to City Council meetings when any biosolids issues are being discussed and the City will provide the opportunity for public input during the discussion. Public meetings are held on selected projects as a means of soliciting input.
Farmer meetings	A meeting is held each fall with the farmers and any neighbors who might be interested to discuss the land application project. The purpose of the meeting is to review the previous year's performance, solicit input from the farmers and neighbors and to make preparations for the upcoming year.
Informal Participation Mechanisms	Description
Informational flyers, website	The City, as inserts into mailings of its utility billing, will include a discussion of the City's Biosolids Management Program and will ask the public for comments. An annual brochure will be sent to interested parties.
Plant tours and presentations to school/community groups	The City provides general plant tours to school and community groups upon request.

Example

Element 7: Roles and Responsibilities

Created/Approved: 10/01/2011	By: Jim Jacobs, Wastewater Manager
Date issued: 10/01/2011	

Introduction

Clearly identifying roles and responsibilities is important to the success of the Biosolids Management Program. Without a clear definition of roles and responsibilities, the likelihood of failing to comply with operational and regulatory requirements significantly increases.

Procedure

1. Roles and responsibilities for individuals (including the contractor) that are specific to the BMP are assigned by the Biosolids Manager. They are reviewed and updated as necessary on an annual basis (by December 15th of each year).
2. The Biosolids Manager will also review existing roles/responsibilities whenever significant operation changes are made to ensure that roles/responsibilities are appropriately defined. Revisions to the roles and responsibilities tables are made by the Biosolids Manager.
3. General descriptions of the roles/responsibilities for various positions are provided below.

Public Works Director

The Public Works Director is responsible for the overall operation of the City's municipal services and the allocation of resources to the Wastewater Division.

Wastewater Manager

The Wastewater Manager reports to the Public Works Director and has overall management responsibility for the wastewater treatment program, including the biosolids program. The Wastewater Manager is responsible for implementing the City's biosolids policy and coordinating activities within the wastewater treatment operation, for establishing overall direction, determining priorities, and ensuring that all aspects of the operation and maintenance of the treatment facility are conducted in an efficient, cost effective manner and are compliant with existing rules and regulations. The Wastewater Manager is generally responsible for ensuring that the Biosolids Management Program implements the City's Biosolids Policy. The Wastewater Manager supervises the Biosolids Manager.

Biosolids Manager

The Biosolids Manager is responsible for the day to day operating of biosolids operations and ensuring that the truck hauling and land application contractor performs tasks in accordance with City Policy and the terms of the contract and any other operation agreements.

Contractor

The City uses a contractor to haul and land-apply biosolids. Approximately 1400 truck loads are hauled and land applied to the farmers' fields each year. The contractor supplies trucks, equipment and drivers for the hauling and spreading of the biosolids. The contractor is responsible for ensuring that operations are conducted in a safe and environmentally sound manner consistent with applicable SOPs. The contractor is responsible for completing trip tickets that are one of the primary sources of information for load tracking and regulatory reporting. Additional responsibilities are identified in the contract document and applicable SOPs. Contracts between the City and contractors are written so that the City, in coordination and consultation with the farmers, retains responsibility for field selection, application at agronomic rates and identification of interested parties. The City retains responsibility for monitoring/sampling and regulatory reporting.

Example

Element 8: Training

Created/Approved: 01/15/2012	By: Jim Jacobs, Wastewater Manager
Date issued: 01/15/2012	

Introduction

Training is important for ensuring good job performance. The City of Mountain demonstrates the importance it places on training through the following statement:

“THE CITY OF MOUNTAIN WILL PROMOTE EMPLOYEE SAFETY, PERSONAL ACHIEVEMENT AND PROFESSIONAL DEVELOPMENT”

Training occurs through a variety of mechanisms, including (but not limited to):

- On the job training
- Review of external publications
- Safety and emergency response training sessions

Procedure

1. Training for all wastewater staff is generally based on performance needs as determined by the Wastewater Manager.
2. Formal training hours are documented in the Wastewater Manager's personnel files.
3. The following process will be used to ensure that the contractor has a general awareness of the biosolids value chain, the BMP, and how they relate to their areas of responsibility. The Biosolids Manager is responsible for implementing these steps:
 - a. At least one meeting addressing the BMP will be held with the contractor.
 - b. Contractor participation in training activities is required per contract language.
4. The Biosolids Manager will identify relevant training opportunities for the contractors providing biosolids services to the City. This will include general BMP awareness training.

Example

Element 9: Communication

Created/Approved: 09/30/2011	By: Jim Jacobs, Wastewater Manager
Date issued: 09/30/2011	

Introduction

The City of Mountain is committed to proactively communicating information on the City's biosolids operations and BMP both internally and to interested external individuals and agencies. Public confidence in the City's biosolids operations is good due in part to the City's long history of excellent biosolids management. The City's communication efforts are consistent with legal requirements, the degree of current public interest, historical levels of public involvement and related local circumstances. Given the structure of the City's service contract, contractors do not play a formal role in the City's communications effort.

Procedure

Identification of interested individuals/organizations

1. A list (or lists) of individuals interested in the City's biosolids operations and BMP has been developed and is maintained by the Biosolids Manager.
Current "interested individuals" include:
 - Farmers who own land where biosolids are land applied.
 - Residents next to land application fields.
 - Neighbors of the treatment plant.
 - State Biosolids Regulator
 - City Council
 - State Rural Water Association
2. Contact information for interested individuals is currently contained in a spreadsheet that is maintained and updated by the Biosolids Manager. Individuals are added to this list, if they provide contact details, when they contact the City's Biosolids Manager.

Communication approach

1. The Biosolids Manager will have primary responsibility for ensuring effective communications on the part of the City as it relates to the BMP.
2. Information to be made available upon request to interested parties will include:
 - a. The City's Biosolids Management Policy.
 - b. Information about legal and other requirements.
 - c. The City's BMP goals and objectives for continual improvement.
 - d. Biosolids Management Performance Reports.
 - e. Information related to independent, third party BMP verification audit reports, if applicable.
3. Specific approaches used to facilitate communication, and the frequency of their use, are left to the discretion of the Biosolids Manager. Examples of communication include meetings, website, emails, letters, reports, tours, presentations, newspaper articles and radio programs.
4. The City recognizes that communication initiated by interested parties and other individuals may take a wide variety of forms including telephone calls, letters, email, meeting participation, internet contact or other forms. The City will give equal weight to all forms of communication.
5. An effort will be made to initially respond to all inquiries or requests for information within 24 hours of receipt of the inquiry or request. Complex inquiries/requests may require additional response time.
 - a. Simple inquiries or requests for information will not be documented. These may include phone calls related to routine questions, and other similar inquiries/requests. The Biosolids Manager responding to an inquiry/request will use their best professional judgment to determine if inquiries/requests fall into this category.
 - b. Significant or detailed requests for information, inquiries or complaints will be documented. These may include detailed requests for information by interested parties, including homeowners, regulators and elected officials. Acceptable documentation methods include letters, memorandums, email records, telephone logs, written meeting summaries, notes to files, or other similar methods.

Example

Element 10: Operational Controls

Created/Approved: 12/31/2011	By: Jim Jacobs, Wastewater Manager
Date issued: 12/31/2011	

Introduction

Operational controls include standard operating procedures, work practices, or other activities that are required to ensure that critical control points are effectively managed.

Elements 3 and 10 are closely linked. Table 3.1 in Element 3 contains detailed documentation of critical control points, related operational controls, standard operating procedures, monitoring and measurements and potential environmental impacts.

Procedures

1. Operational controls have been identified by the City's Wastewater Manager, based on consideration of information contained in the NBP *National Manual of Good Practice*, legal and other requirements, and state best practices; as well as personal experience of the City's staff. Operational controls and related procedures include preventative maintenance procedures, work management systems and any relevant contracted procedures. Current operational controls are found in Table 3.1 of the BMP Manual.
2. Operational controls will be reviewed by the Wastewater Manager on an annual basis (by November 30th) or whenever significant changes in plant processes and/or operations occur. Revisions (if any) to Table 3.1 and associated SOPs and monitoring/measurements will be made by the Biosolids Manager following these reviews.
3. Changes will be documented in writing and will be noted in the annual BMP report.

NOTE: THAT ANY CRITICAL CONTROL POINTS OR OPERATIONAL CONTROLS IDENTIFIED IN APPENDIX F OF THE NBP'S NATIONAL MANUAL OF GOOD PRACTICE BUT NOT SHOWN HERE WERE CONSIDERED BUT DETERMINED, THROUGH EXAMINATION OF FACILITY OPERATIONS, TO NOT BE RELEVANT TO THE PROCESSES USED AT THIS FACILITY

Example

Element 11: Emergency Preparedness & Response

Created/Approved: 01/15/2012	By: Jim Jacobs, Wastewater Manager
Date issued: 01/15/2012	

Introduction

Having well-defined Emergency Preparedness and Response procedures are an important aspect of biosolids management activities. These procedures help to minimize the risk associated with unusual or emergency situations that can potentially impact human health or environmental quality.

Procedure

1. The City's Biosolids Treatment Plant has an Emergency Response Manual which is formally reviewed and updated a minimum of once every three years. Interim revisions to specific sections of the Emergency Response Manual are made on an "as needed" basis.
2. The Emergency Response Manual establishes clear protocol for how a wide variety of situations should be handled. Copies of the Emergency Response Manual are kept in the Wastewater Manager's office. Important emergency contact information is kept in all vehicles used in the City's biosolids program, including contractor vehicles.
3. Testing and training with respect to safety and emergency response procedures is conducted on a periodic basis as determined by the Wastewater Manager.
4. The hauling and application of biosolids is performed by a contractor to the City. Relevant portions of the City's Emergency Response Manual are applicable to these contracted activities. The contractor is required to follow relevant sections of the City's Emergency Response Manual. In addition, the contractor that handles hauling and application of biosolids is required to develop their own Emergency Response and Preparedness Plan and provide it to the organization for review.

Example

Element 12: Documentation, Document Control & Recordkeeping

Created/Approved: 02/15/2012	By: Jim Jacobs, Wastewater Manager
Date issued: 02/15/2012	

Introduction

The City has established and maintains documentation for the BMP, including the 17 elements. Procedures have been established to ensure that BMP documentation is reasonably available, has been created following established document creation protocol, is kept up to date through periodic reviews and revision (if applicable), and is properly documented with version information, effective dates and references to replaced or superseded versions. Record retention periods are also established.

Procedure

1. The following documents related to the City's BMP or relevant biosolids management activities are considered "controlled" documents:
 - a. Biosolids Management Policy statement
 - b. The BMP Manual
 - c. Communication Plan
 - d. Critical Control Processes
 - e. Organizational Roles and Responsibilities
 - f. Standard Operating Procedures (SOPs)
2. A master document is the controlled document and will be maintained as a hard copy in the Wastewater Manager's office. The master version of a document will contain a header or a footer stating that it is the master version.
3. Standard operating procedures and the BMP manual will contain the following document control information:

Date Approved	By:
Date issued:	By:

4. All BMP documents, including policy statements, process control SOPs, equipment maintenance SOPs and all other relevant SOPs and the BMP Manual will be maintained in the Wastewater Manager's office.
5. Version and revision history will be maintained for all controlled documents.

6. Record retention periods will be consistent with the City's records retention policy. When documents have reached the retention date, the document will be reviewed by the Wastewater Manager to determine whether the retention period needs to be extended.
7. Data resulting from monitoring and measurement activities is retained in as hard copy files in a designated cabinet in the Wastewater Manager's office. This information is retained for 10 years and then discarded.
8. The Wastewater Manager has sole responsibility for updating/revising the BMP manual to reflect current practices. Minor grammatical edits, links to new or revised documents, etc. are not considered significant changes. Updates/revisions will generally be made in response to one or more of the following:
 - a. Internal audits
 - b. External audits
 - c. Operational changes
 - d. Annual reviews of Critical Control Points, Operational Controls and biosolids program goals and objectives
 - e. Annual Biosolids Management Program Performance Report

Example

Element 13 – Monitoring and Measurement

Created/Approved: 02/15/2012	By: Jim Jacobs, Wastewater Manager
Date issued: 02/15/2012	

Introduction

Monitoring and measurement activities conducted by The City of Mountain generally fall into one of the following three categories:

- Activities conducted to demonstrate compliance with legal/regulatory requirements.
- Activities conducted to document performance at critical control and operational control points.
- Activities conducted to track progress toward achieving BMP goals and objectives.

The City's NPDES permit identifies monitoring, measurement and reporting requirements for solids and biosolids by the State DEP and/or EPA, and addressed here as essential to the overall quality of treatment plant operations. The City also conducts additional monitoring to measure performance at critical control points. Table 3.1 contains a comprehensive listing of monitoring and measurements.

The City stores all of its monitoring data as hard copy paper files. The files are stored in a filing cabinet in the Wastewater Manager's office. Data collected to comply with legal requirements is stored for the length of time required by regulation. All other data is stored for 10 years and then discarded.

Procedure

1. Monitoring and measurement activities will be reviewed by the Wastewater Manager on an annual basis (by December 15th) or whenever significant changes in plant processes and/or operations occur. Revisions (if any) to Tables 3.1 and associated SOP's and monitoring/measurement documents will be made by the Wastewater Manager.
2. Analytical or instrumentation data is stored as hard copy files in a designated cabinet in the Wastewater Manager's office. Data collected to comply with legal requirements is stored for the length of time required by regulation. All other data is stored for 10 years and then discarded.

3. Progress towards meeting goals and objectives will be tracked at intervals deemed appropriate by the Wastewater Manager. Progress will be noted on the Goals and Objectives Action Plan Template.
4. The Wastewater Manager is responsible for evaluating the need for monitoring and measurement activities (if any) on the part of the contractor and incorporating necessary language into the service agreement(s). The Wastewater Manager will be responsible for making any necessary changes to the BMP Manual and supporting material to reflect monitoring and measurement responsibilities required on the part of the contractor.

Example

Element 14: Nonconformances – Preventive & Corrective Action

Created/Approved: 03/01/2012	By: Jim Jacobs, Wastewater Manager
Date issued: 03/01/2012	

Introduction

The purpose of this element is to establish, document and maintain procedures for investigating noncompliance with BMP protocols, legal/regulatory and other requirements, including conformance issues that may arise from monitoring/measurement activities, or nonconformances noted as a result of internal or external BMP audits.

Procedure

1) NPDES Related Legal/Regulatory Nonconformances

Legal/Regulatory Requirements are either specifically identified in the City's NPDES Discharge Permit, Biosolids permit, or are incorporated by reference. The permit(s) contains procedures for investigating nonconformances of legal/regulatory requirements identified in the permit.

2) BMP Nonconformances Identified During Internal Audits

- a. Internal audits will be conducted in accordance with procedures developed under Element 16.
- b. An audit worksheet will be completed for each element audited. The worksheet will contain the following information:
 - i. Element #
 - ii. Audit type (for example, internal or external audit)
 - iii. Auditor's name
 - iv. Time period being audited
 - v. Audit date(s)
 - vi. Summary of findings
 - vii. Nonconformances (if any) and cause
 - viii. Corrective actions already taken (if any)
 - ix. Recommended additional corrective actions (if any)
 - x. Person(s) responsible for implementing corrective action(s)

- xi. Changes in policies, programs, plans, operational controls and monitoring/measurements needed to prevent reoccurrence (if any)
 - xii. Estimated completion date
 - xiii. Required resources
 - xiv. Tracking
- c. The auditor will complete (i) through (v) above, as well as all specific questions contained in the worksheets. A current copy of the NBP Third Party Auditor's Guidance document will be available as a resource to the internal audit team.
 - d. Completed audit worksheets will then be submitted to the Wastewater Manager. The Wastewater Manager will complete (vi) through (xiv) on the worksheet. This may be done by completing the appropriate sections directly on the worksheet or addressing them through a separate written report.
 - e. The Wastewater Manager is responsible for tracking progress. Progress will be tracked using methods that the Wastewater Manager deems appropriate. For minor nonconformances, progress will be tracked every 4 weeks. For major nonconformances, progress will be checked every 2 weeks. Tracking will be documented by completing the tracking sheet which is included as part of the audit worksheet.
 - f. The Wastewater Manager will prepare and submit a written report to the Public Works Director by November 1st of each year, 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 may be a stand alone document or may be included as part of other prepared reports (e.g. the Biosolids Management Performance Report). The audit report will be provided to interested parties upon request.

3) BMP Nonconformances Identified During 3rd Party Audits

- a. 3rd party audits will be conducted in accordance with the procedures identified by the National Biosolids Partnership.
- b. Audit reports will be submitted to the City's Wastewater Manager.
- c. If the auditor identifies nonconformances, the Wastewater Manager will follow the steps listed under Step #2b (ii-vi) above.
- d. Minor nonconformances will be corrected within a 90 day period and major nonconformances will be corrected within a 30 day period, unless the auditor and the City agree that these timeframes need to be extended.

Sample audit and corrective action worksheet

- i. **Element #**
- ii. **Audit type:**

- iii. Auditor's name:
- iv. Period being audited:
- v. Audit date(s):
- vi. Summary of findings:
- vii. Nonconformances (if any) and cause:
- viii. Corrective actions already taken (if any):
- ix. Recommended additional corrective actions (if any):
- x. Person(s) responsible for implementing corrective action(s):
- xi. Changes in policies, programs, plans, operational controls and monitoring/measurements needed to prevent reoccurrence (if any):
- xii. Estimated completion date:
- xiii. Required resources:
- xiv. Tracking:

Corrective action worksheet

Date	Status of corrective action	Supporting documentation

Example

Element 15: Biosolids Management Program Report

Created/Approved: 05/01/2012	By: Jim Jacobs, Wastewater Manager
Date issued: 05/01/2012	

Introduction

The City will periodically prepare a performance report that provides summary information on activities associated with biosolids treatment operations and the BMP.

Procedure

- 1) The Biosolids Manager will prepare a written report on an annual basis that summarizes the performance of the Biosolids Management Program. The performance report will be completed by February 28 of each year and will address performance during the previous calendar year. At a minimum, the report will contain the following information:
 - a. Summaries of monitoring data and other measurements that demonstrate the performance of the City's BMP relative to established goals, objectives and legal requirements.
 - b. Summary of relevant contractor activities.
 - c. Summaries of actions that have been taken on a voluntary basis.
 - d. Progress towards achieving BMP goals and objectives.
 - e. A summary of internal audits.
 - f. A summary of independent third party audits (if applicable).

The performance report will be available to interested parties.

Example

Element 16: Internal BMP Audit

Created/Approved: 03/30/2012	By: Jim Jacobs, Wastewater Manager
Date issued: 03/30/2012	

Introduction

The City will conduct periodic internal audits of the BMP in order to determine its effectiveness in producing desired outcomes and to ensure the program is kept current.

Procedure

- 1) The City will conduct internal audits of the BMP program on an annual basis..
- 2) Internal audits will be completed by January 20 of each year and will address program activities completed during the previous operating period as well as progress toward goals and objectives, response to non-conformances, management review, public participation, and communications. Specific BMP Elements may be evaluated as a part of this review, at the discretion of the Wastewater Manager.
- 3) The audit will be conducted by the City's BMP Internal Audit Team under the direction of the Biosolids Manager. The BMP Internal Audit Team will consist of the environmental compliance staff person and a Biosolids manager from another organization.
- 4) All documents and records related to internal audits will be maintained in the Wastewater Manager's office.
- 5) The NBP Guidance Manual and other appropriate documents will be made available as a resource to the audit team. The objective methods listed in the Guidance Manual are as follows:
 - i. Document and records review
 - ii. Interviews
 - iii. Direct observation
- 6) Nonconformances will be addressed using the procedure identified in Element 14.
- 7) The Wastewater Manager will prepare and submit a written report to the Public Works Director by February 15 of each year, 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 may be a stand alone document or may be included as part of other prepared reports (e.g. the Biosolids Management Performance Report). The audit report will be available electronically on the City's website and hard copies provided to interested parties upon request.

- 8) The Wastewater Manager will periodically evaluate the need to provide training or guidance to the internal auditors. The Biosolids Manager will be responsible for coordinating any subsequent activities related to training or guidance.

Sample audit and corrective action worksheet

- i. **Element #**
- ii. **Audit type:**
- iii. **Auditor's name:**
- iv. **Period being audited:**
- v. **Audit date(s):**
- vi. **Summary of findings:**
- vii. **Nonconformances (if any) and cause:**
- viii. **Corrective actions already taken (if any):**
- ix. **Recommended additional corrective actions (if any):**
- x. **Person(s) responsible for implementing corrective action(s):**
- xi. **Changes in policies, programs, plans, operational controls and monitoring/measurements needed to prevent reoccurrence (if any):**
- xii. **Estimated completion date:**
- xiii. **Required resources:**
- xiv. **Tracking:**

Tracking Worksheet

Date	Status of corrective action	Supporting documentation

Example

Element 17: Management Review

Created/Approved: 12/01/2011	By: Jim Jacobs, Wastewater Manager	Date
issued: 12/01/2011		

Introduction

The City of Mountain will conduct a management review of its BMP on an annual basis. The purpose of this review will be to address the possible need for changes to policy, goals and objectives, and other BMP elements based on internal BMP audit results, third party verification audit results, changing circumstances, and/or the City's commitment to continual improvement.

Procedures

- 1) The Wastewater Manager will review BMP and related activities every six months.
- 2) The review will be conducted by March 31 of each year and will cover activities conducted during the previous year.
- 3) The scope will include:
 - a. Review monitoring data and other measurements that demonstrate the performance of the City's biosolids program relative to established goals, objectives and legal requirements.
 - b. Review progress towards achieving biosolids goals and objectives.
 - c. Review internal audit results.
 - d. Review of performance relative to each of the 17 elements of the BMP.
 - e. Review 3rd party audit results.
 - f. Review the need for changes in existing policy or the adoption of new policy to support the BMP.
- 4) To facilitate the review, the Wastewater Manager will prepare a written report that addresses each of the above areas. The report will include recommendations (if any) for changes that should be considered by the Public Works Director.
- 5) The report and management review will be carried out in close coordination with the Biosolids Management Program Performance Report and the internal BMP audit. To the extent practicable, an effort will be made to develop a single report on an annual basis.
- 6) The Wastewater Manager will have a meeting with the Public Works Director to discuss the report.
- 7) Any changes to policies, goals/objectives, plans, procedures, work practices and other BMP elements deemed necessary as part of the management review will be documented in writing by the Wastewater Manager.
- 8) The Wastewater Manager will develop a schedule and action plan to address recommendations from the management review.