



NBP Biosolids Management Program Manual Instructions and Examples

Developed May 2006
Last Updated June 2011

Welcome to the NBP's Biosolids Management Program (BMP) program. As a participant in the NBP's program, you understand the benefits the NBP BMP can provide, but getting started on creating your NBP BMP may seem challenging. The NBP has created a package of documents to provide organizations with a simple and straightforward approach to building a BMP that will meet your needs as well as the NBP's requirements. Documents include:

BMP Manual Instructions and Examples (this document) – The instructions provide a brief description of how to create a *BMP Manual* for your organization. Also included are examples of how a typical organization might fill out the *Revisable BMP Manual Template*, providing you with an idea of the level of detail and type of information you need.

BMP Manual Revisable Template– This is an MS Word document that, when completed, can be your NBP BMP Manual. This manual is a tool for your use – you should tailor it to be specific to your organization's processes.

BMP Manual Example (City of Mountain) – This is an example of a completed BMP Manual, based on the revisable template above. The template has been filled in with information about the biosolids operations and BMP of a fictitious organization participating in the NBP program.

Remember, a BMP requires that you “say what you do” – and this BMP Manual will help you do that – and that you also “do what you say”. You will probably need to take other actions, such as writing standard operating procedures (SOPs) or preparing emergency response plans, so that you actually do what your BMP says you do. The NBP has many resources available to help you find examples or answer your questions.

How do I know if the BMP Manual is right for my organization?

This *BMP Manual* is intended for any organizations participating in the NBP BMP program.

If you use a contractor for some of your operations, the *BMP Manual* includes language to cover the roles of contractors in biosolids management and the BMP. If your organization does not use a contractor, the *BMP Manual Instructions* will identify what text to delete.

The BMP Manual Revisable Template

The revisable template meets the NBP's requirements for an organization creating its own BMP Manual, with blank sections for you to insert information about your organization and operations. As you work with the *BMP Manual Revisable Template* we suggest that you complete the Elements in the order shown in Table 1 below. We have selected these groupings so that you will be working on similar, or linked, topics at the same time, and to balance the level of effort so you can make steady progress.

As you are completing sections of the *BMP Manual Revisable Template*, do not worry about formatting, page numbering, or similar details. Just get the information down and the NBP will work with you to get the formatting correct in the end.

Table 1 – Suggested Order for Completing BMP Elements

Elements	Topics Addressed
Element 3 – Critical Control Points Element 10 – Operational Controls	Quality Management Practices
Element 1 – BMP Manual Element 2 – Biosolids Management Policy Element 17 – Management Review	Management Support
Element 5 – Goals and Objectives for Continual Improvement Element 13 – Monitoring and Measurement	Continual Improvement
Element 6 – Public Participation in Planning Element 9 – Communication	Relations with Interested Parties
Element 4 – Legal and Other Requirements Element 7 – Roles and Responsibilities Element 8 – Training Element 11 – Emergency Preparedness	Roles, Responsibilities and Competencies
Element 12 – Documentation, Document Control and Recordkeeping Element 15 – Performance Reporting	Documentation and Reporting
Element 14 – Nonconformances and Preventive and Corrective Action Element 16 – Internal Management Program Audit	Continual Improvement

The BMP Manual Instructions and Examples

As stated above, these are short and straightforward instructions on how to fill out the *BMP Manual Revisable Template*. The instructions will tell you the minimum conformance requirements for each element as well as how to fill out the required information for each the Introduction and Procedure section of each element. These instructions are intended to complement, but not replace, the NBP's *Biosolids Management Program Guidance Manual* (available at <http://www.wef.org/Biosolids/>).

The examples illustrate how a typical organization might fill out the *BMP Manual Revisable Template* to create its own BMP Manual, consistent with the requirements of Element 1. The examples should help you understand the level of detail and type of information needed to fill out each element, but don't expect the examples to match your organization's operations exactly. You will need to make your organization's BMP Manual reflect what you do and how you do it.

Reminders

1. Don't forget to call the NBP staff - they are there to help you.
2. Check the NBP's website for resources, instructions and examples: <http://www.wef.org/biosolids>.
3. Call other organizations to learn from their experiences; most will be happy to share lessons learned, examples and advice.
4. Set aside time to work on the BMP - for example, consider working through a group of BMP elements shown in Table 1 every month.
5. Remember why you are doing this: to protect and enhance the environment and the good name of your organization by demonstrating that you consistently use and improve best management practices in managing your solids and biosolids
6. Have fun!

NBP BMP Manual Instructions

Introduction

As you begin developing your BMP, think about your biosolids product and program. What are you trying to achieve? What needs to be done right, consistently, to ensure success? What is the quality of the biosolids that you need to consistently produce to protect the environment and meeting the regulatory and your end user's needs? What do you need to do in the treatment plant to manage solids to consistently produce this product? This "beginning with the end in mind" approach will help you identify and avoid potential regulatory or public acceptance problems and routinely use best practices.

This guidance is intended to provide a brief summary for using the *BMP Manual Revisable Template* to develop your own BMP Manual. More detailed guidance for developing a BMP consistent with the NBP *BMP Elements* can be found in the NBP's *Biosolids Management Program Guidance Manual* at: <http://www.wef.org/Biosolids/>

Instructions

Element 1 – BMP Manual

Purpose and Requirements

The BMP Manual will contain or cross-reference the policies, programs, plans, procedures, and management practices of your BMP. Element 1 in your manual will orient the reader to the other elements of your BMP.

Your BMP Manual should:

1. tell the reader all the positives about your Biosolids Management Program (remember that this will be the first thing the NBP auditors will read when evaluating your BMP so use it to familiarize them with your program and your biosolids operations);
2. state your commitment to quality biosolids management; and
3. contain the procedure you will use to keep your BMP Manual current and available to your staff and interested parties.

Keep this element to a maximum of 1 to 1 ½ pages as shown in the *BMP Manual Example*. The text that is already in place is a suggestion of how to present this information, but you should edit it in order to present the information you believe is important and relevant to your organization. The Manual is a summary of your BMP that the director of the organization should be able to understand and use. Detailed support documents such as Standard Operating Procedures and regulations should be referenced and not included in the Manual. The Manual should be roughly 25-30 pages in length.

Instructions

Introduction Section

Fill in the required information in Element 1.

Procedure Section

Fill in the required information in Element 1 with your organization's information, including who will be responsible for activities called out in the procedure.

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).

Instructions

Element 2 – Biosolids Management Policy

Purpose and Requirements

Element 2 will serve as the guiding principles for your Biosolids Management Program.

To fulfill the requirements for Element 2, your organization must:

1. contain in the BMP Manual the Policy Statement that defines your organization's policy for the management of biosolids and the commitment to following the principles of conduct set forth in the *NBP Code of Good Practice*;
2. communicate the policy to employees, contractors and interested parties; and
3. incorporate the policy into your biosolids programs, procedures and practices.

Instructions

Introduction Section

Fill in the required information in Element 2.

The BMP Policy Statement that is included in Element 2 is an example of a policy statement that meets the NBP's requirements. You may use this policy statement or you may edit it to fit your organization's needs as long as it still meets the requirements listed above.

Procedure Section

Fill in the required information in Element 2.

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.

Instructions

Element 3 – Critical Control Points

Consider your desired biosolids quality and determine which plant processes can affect this outcome. These processes are “critical control points”. Also consider how biosolids are managed after they leave your plant, and how these practices can affect the success of your program. These processes are also critical control points. For example, if your biosolids must be more than 20% solids delivered to the farmer because anything less would result in a product that could not be used in a manure spreader, biosolids drying/dewatering would be a critical point for control to ensure consistently good quality.

Write down the quality of the biosolids that must be consistently produced to meet end use or disposal markets. Quality should include percent solids, metals, pathogen level, nutrients, odor, aesthetics, such as plastics and color, and synthetic organics.

Consider the potential environmental impacts that could result from the management of the solids in the treatment plant, transportation from the treatment plant and around your biosolids end use/disposal sites.

Critical control points, in addition to management of biosolids quality, must include points that could result in significant environmental impacts. Typically, critical control points for product quality and environmental impacts are the same.

Remember to only identify the “critical” control points. Throughout your biosolids value chain (or biosolids operations from pre-treatment to final use or disposal), there are many control points, but for a successful NBP BMP, only the critical control points must be identified.

Once you have identified your critical control points, consider the procedures you use to manage these plant or end use/disposal processes. These are your operational controls. For example, regulations control many of your processes, so you manage your processes to meet regulatory limits.

This guidance will help you fill out Elements 3 and 10 of the *BMP Manual Revisable Template*.

The NBP has also created a *National Manual of Good Practice for Biosolids*, which contains more information about, and examples of, critical control points and operational controls. The critical control points in your BMP should be consistent with those found in the *National Manual of Good Practice for Biosolids*.

Purpose and Requirements

Element 3 will describe how you identify, review and update your critical control points. The purpose of identifying these critical control points is to know **what** in your biosolids program and operations needs to be managed to ensure consistent biosolids quality and environmental protection.

Your BMP should:

1. identify and document the critical control points in your biosolids management activities consistent with those identified in Appendix F of the *National Manual of Good Practice*;
 2. identify the quality of the biosolids for the end use site and critical control points that need to be managed to achieve that desired quality;
 3. identify potential or actual environmental impacts and critical control points associated with them;
 4. keep current information on your critical control points;
 5. maintain records that link each critical control point with the corresponding operational controls;
- and

6. provide notification to the NBP (and your third-party auditor) when changes are made to critical control points.

Instructions

Introduction Section

Fill in the required information in Element 3.

Procedure Section

Fill in the required information in Element 3.

Table 3.1

- A. Select the critical control points listed in Table 3.1 that apply to your operations. These critical control points include those listed in Appendix F of the *National Manual of Good Practice*. **Delete those that do not apply or are not “critical” to your organization. Document the reason why they do not apply.** Review your selections with the NBP to ensure they meet NBP requirements. Make sure you include at footnote in your table that states that the critical control points you did not use do not apply to your operation (as shown in Table 3.1)

Keep in mind that the critical control points in Table 3.1 are just examples. It is not expected that all of the critical control points will apply to every organization.

Contact the NBP if you have any questions as you are working on Table 3.1.

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)	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> 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

Instructions

Element 4 – Legal and Other Requirements

Purpose and Requirements

Element 4 will describe how you identify, track and determine the impact of regulatory, legal and legislative initiatives that may impact your biosolids program and related parts of its operation.

Your BMP should:

1. identify existing legal and other requirements that impact the various aspects of your biosolids management and operations;
2. select approaches and/or tools that are used to identify and track new regulatory, legal and legislative initiatives; and
3. assign a responsible person for the overall coordination of the tracking functions, who will communicate and implement the changes.

While you are probably familiar with federal and state legal requirements, don't forget to consider "other" requirements. Other requirements could include local agreements, such as an agreement with the county to avoid driving trucks on unpaved roads during winter months. Detailed legal requirements should be referenced in Element 4 but not contained in your manual.

Instructions

Introduction Section

Fill in the required information in Element 4.

Procedure Section

Fill in the required information in Element 4.

Table 4.1

- A. Identify the legal and other requirements specific to your biosolids land application program in Table 4.1 (or revise to accommodate other methods of biosolids use or disposal relevant to your organization). These regulations include federal and state regulations and/or guidance.

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

Instructions

Element 5 – Goals and Objectives

Purpose and Requirements

Element 5 in your BMP Manual will contain the procedure you will use to set your goals and objectives and to track your progress towards achieving your goals and objectives. The purpose of the goals and objectives is to help you to continually make improvements to your BMP and biosolids operations.

Goals should have longer term planning horizon of five to ten years, while objectives are typically one to three years.

Your BMP should:

1. establish and periodically review measurable biosolids program goals and objectives
2. reflect, in program goals and objectives, identified priorities for improving performance of biosolids management activities based on critical control points, identified or potential environmental impacts, legal and other requirements, and applicable best management practices
3. set measurable goals and objectives for each of the four NBP outcome areas: environmental performance, regulatory compliance, relations with interested parties, and quality biosolids management practices
4. consider, in developing program goals and objectives, input from interested parties developed through proactive public participation
5. integrate goals and objectives with other elements of the BMP and biosolids management activities
6. develop program goals and objectives using SMART criteria (i.e., be Specific, Measurable, Achievable, Relevant, and Time-bounded)
7. update program goals and objectives on a regular basis
8. establish a general action plan that describes the improvement activities you are pursuing to achieve biosolids program goals and objectives. Designate, in the plan, schedules, milestones, resources, and responsibilities for achieving biosolids program goals and objectives.
9. establish a work plan for establishing meeting these objectives. Include tasks, deadlines, and persons responsible.

Instructions

Introduction Section

Fill in the required information in Element 5.

Procedure Section

Fill in the required information in Element 5.

General Action Plan Template

Fill in the general Action Plan Template with your goals, objectives, target dates, and persons responsible. You will fill out the information for interim status, and date completed as you make progress towards achieving your goals. You should review your goals and objectives with NBP to ensure that they meet the SMART criteria (i.e., be Specific, Measurable, Achievable, Relevant, and Time-bounded).

Work Plan Template

Fill in the work plan template with your goals and objectives. Describe the overall deadline for meeting the objective, the tasks needed to meet the objective, the person(s) responsible, any interim deadlines for tasks, and the resources available.

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
Goal 1 – Relations with Interested Parties <i>Work with local environmental organizations to gain and maintain support for the City's biosolids management program</i>	June 15, 2016	Biosolids Manager	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.	Five key environmental organizations have been identified July 30, 2011	
<i>Objective 1.1</i> <i>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	Time made available for Public Works Director, Wastewater Manager and Biosolids Manager to prepare for and attend meetings.		
<i>Objective 1.2</i> <i>Establish a workshop with Environmental organizations to learn about the City's wastewater and biosolids management program</i>	December 15, 2011	Biosolids Manager	Time made available for Public Works Director and Biosolids Manager to prepare for and lead tour.		
<i>Objective 1.3</i> <i>Environmental organizations provide comments to NBP auditor during the City's NBP Biosolids Management Program verification audit</i>	July 15, 2012	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>	January 1, 2020	Biosolids Manager	Time made available for Biosolids Manager to accomplish this goal.	July 15, 2011 – Biosolids Manager completed search of local farm records for potential farms	
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 reduce odor potential from biosolids</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. June 1, 2011	

Goal/Objective	Target Date	Person Responsible	Resources Available	Interim Status	Date Completed
Objective 3.1 <i>State Regulator approval of study plan</i>	January 1, 2012	Wastewater Manager			
Objective 3.2 <i>Complete bench top study of digester loading and mixing rates and develop action plan.</i>	June 1, 2012	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>	January 1, 2012	Wastewater Manager			
Objective 3.4 <i>Implement changes to digester SOPs to increase digester detention time.</i>	July 15, 2013	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 City’s cadmium concentration in biosolids reduced by 50% below federal and state regulations, as requested by environmental organizations to protect biosolids agricultural lands.	August 1, 2018	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>Objective 4.1 Hire Consultant to conduct analysis.</i>	January 1, 2012	Wastewater Manager			
<i>Objective 4.2 Consultant Report submitted.</i>	July 31 ,2012	Wastewater Manager			
<i>Objective 4.3 Consultant Report approved by City Council.</i>	Jan 1, 2013	Wastewater Manager			
<i>Objective 4.4 Council approved budget to support cadmium reduction plan.</i>	.April 15, 2013	Wastewater Manager			
<i>Objective 4.5. 20% measured cadmium reduction</i>	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
<p><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></p>	<p>August 15, 2011</p>	<p>Wastewater Manager</p>	<ul style="list-style-type: none"> -Prepare for the meeting, dry run of presentation -Develop Agenda for meeting -Call Public Works Director and brief him/her the approach -Ask Administrative Assistant to schedule meeting -Review draft agenda with Biosolids Manager and have a meeting -Develop list of possible policy constraints 	<ul style="list-style-type: none"> August 1, 2011 July 15, 2011 July 15, 2011 July 15, 2011 July 18, 2011 July 18, 2011 	

Objective	Target Date	Person Responsible	Tasks	Deadline	Task Completion date
<p><i>Objective 1.2</i> <i>Establish a workshop with environmental organizations to learn about the City's wastewater and biosolids programs</i></p>	<p>December 15, 2011</p>	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 of workshop	Nov 15, 2011	
		Biosolids Manager	--Distribute summary to all participants	Dec 5, 2011	

Objective	Target Date	Person Responsible	Tasks	Deadline	Task Completion date
<p><i>Objective 1.3 Environmental organizations provide comments to NBP auditor during the City's NBP Biosolids Management Program verification audit</i></p>	<p>July 15, 2012</p>	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	

Instructions

Element 6 – Public Participation in Planning

Purpose and Requirements

Element 6 will describe how you consider public input in your planning activities such as goal and objective setting.

Your BMP should:

1. select and implement a proactive public participation approach to involve interested parties in its biosolids program and BMP planning process
2. reflect, in the selected approach, the organization's commitments to the ten principles in the *Code of Good Practice*, including a plan for independent third-party verification of conformance with the *BMP Elements*
3. select an approach that is consistent with the degree of current public interest, history of public involvement, method of biosolids management, and related local circumstances
4. provide interested parties with meaningful opportunities to express views and perspectives relative to biosolids management activities
5. consider input from interested parties in initially developing program goals and objectives during BMP implementation and in updating them as part of periodic review of biosolids management program performance.

Instructions

Introduction Section

Fill in the required information in Element 6.

Procedure Section

Fill in the required information in Element 6.

Formal and Informal Participation Opportunities

The “participation opportunities” shown are provided only as examples of formal and informal participation opportunities to help you get started with identifying the participation opportunities your organization provides.

- A. Review the example formal participation opportunities in Element 6. Keep and edit the opportunities that are applicable to your organization, delete those that are not applicable to your organization. Add any other formal participation opportunities that your organization offers.

B. Review the example informal participation opportunities in Element 6. Keep and edit the opportunities that are applicable to your organization, delete those that are not applicable to your organization. Add any other informal participation opportunities that your organization offers.

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.

Instructions

Element 7 – Roles and Responsibilities

Purpose and Requirements

Element 7 will clearly identify the roles and responsibilities of various individuals that are specific to the BMP and your biosolids operations, including those of contractors. The purpose of well-defined roles and responsibilities is to ensure the success of both the biosolids operations and the BMP.

Your BMP should:

1. identify, review and update roles and responsibilities for various individuals that are specific to the BMP and biosolids operations; and
2. review and revise existing roles and responsibilities on an annual basis and whenever significant operational changes are made.

Instructions

Introduction Section

Fill in the required information in Element 7.

Procedure Section

Fill in the required information in Element 7.

The Element 7 section of the *BMP Manual Revisable Template* includes examples of common responsibilities at any wastewater system. Edit these descriptions to fit the responsibilities and positions at your organization. Add as many responsibility titles as necessary to capture who is responsible for the management of your biosolids.

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.

Instructions

Element 8 – Training

Purpose and Requirements

Element 8 will demonstrate the importance your organization places on training and will describe the training mechanisms that are used by your organization.

Your BMP should:

1. identify the training needs for various employees based on roles/responsibilities and performance needs;
2. designate a responsible person to coordinate training activities and document employee participation;
3. identify types of training mechanisms to ensure that both employees and contractors have a general awareness of the BMP, and how their jobs relate to the entire biosolids value chain; and
4. identify relevant training opportunities for contractors, including general BMP awareness training.

Instructions

Introduction Section

Fill in the required information in Element 8.

The Element 8 section of the BMP Manual includes an example organization statement demonstrating commitment to safety training. You may insert an existing statement your organization has about the importance of training.

The Element 8 section of the BMP Manual includes examples of common training activities. Keep those that are applicable to your organization, delete those that are not applicable, and add any others for your organization that are missing.

Procedure Section

Fill in the required information in Element 8.

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.

Instructions

Element 9 – Communication

Purpose and Requirements

Element 9 will describe how you communicate information about your biosolids program both within your organization and with interested parties outside your organization.

Your BMP should:

1. establish and maintain a proactive Communications Program that provides ongoing information about the biosolids management activities and BMP to interested parties and the public, consistent with local circumstances, the method of biosolids management, public communications history, and degree of current interest in its biosolids management activities
2. include a procedure for receiving inquiries and requests for information from interested parties about its biosolids management activities and BMP. The procedure shall define a process for assuring a timely and complete response to inquiries by interested parties
3. make the following information about the organization's biosolids management program and activities available to interested parties:
 - a. the Biosolids Management Policy
 - b. applicable legal and other requirements
 - c. biosolids program goals and objectives for continual improvement
 - d. the periodic Biosolids Management Program Performance Report
 - e. a detailed report of the independent, third-party BMP verification audit results.
4. Define roles and responsibilities of outside contractors in the Communications Program
5. Communicate relevant information about biosolids management activities and the Biosolids Management Policy, and all seventeen (17) elements of the BMP to employees and outside contractors, consistent with assigned roles and responsibilities.

Instructions

Introduction Section

Fill in the required information in Element 9.

Procedure Section

Fill in the required information in Element 9.

Internal and External Communication Tools and Approaches

Each of these lists is provided only as an example of internal and external communication tools and approaches to help you get started with identifying the communication tools your organization utilizes.

A. Review the example internal communication tools and approaches in Element 9. Keep and edit the approaches that are applicable to your organization and delete those that are not applicable to your organization. Add any other internal communication tools your organization utilizes.

B. Review the example external communication tools and approaches in Element 9. Keep and edit the approaches that are applicable to your organization and delete those that are not applicable to your organization. Add any other external communication tools that your organization utilizes.

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.

Instructions

Element 10 – Operational Controls

Purpose and Requirements

Element 10 will describe how you identify, review and update your operational controls. The purpose of identifying the operational controls is to define **how** you manage your biosolids critical control points to ensure biosolids quality, and to ensure proper management after the biosolids leave your plant.

Your BMP should:

1. ensure the development and implementation of standard operating procedures (SOPs) to effectively manage your biosolids quality and potential environmental impacts for all critical control points;
2. incorporate requirements of all regulations;
3. consider best management practices as defined in authoritative sources on biosolids management (such as the NBP's *National Manual of Good Practice*); and
4. include appropriate preventative maintenance procedures for process control systems associated with biosolids management activities.

Instructions

Introduction Section

No additional information is required.

Procedure Section

Fill in the required information in Element 10.

Table 3.1

Select the operational controls that align with the critical control points that you have already selected. **Delete those that do not apply. If you have other operational controls not listed here, include them.**

After you have listed operational controls in Table 3.1, go to the SOP column and list the SOPs that your organization has (or is developing) that correlate to each of the operational controls.

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

Instructions

Element 11 – Emergency Preparedness & Response

Purpose and Requirements

Element 11 will describe your emergency preparedness and response procedures associated with your biosolids program. The purpose of having well defined procedures is to minimize the risk associated with unusual or emergency situations involving biosolids that can potentially impact human health or environmental quality.

Your BMP should:

1. identify formal review and update frequency/schedule for your emergency response plans and assign a responsible person for coordinating the review process and revisions;
2. establish a clear protocol for how different situations are handled, and identify the locations where the emergency response manual should be kept;
3. identify how the testing and training frequency is determined with respect to safety and emergency response; and
4. require contractors to establish and maintain emergency preparedness and response plans and procedures to ensure effective response to accidents and emergency situations associated with the biosolids management activities for which they are responsible.

Instructions

Introduction Section

Fill in the required information in Element 11.

Procedure Section

Fill in the required information in Element 11.

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.

Instructions

Element 12 – Documentation, Document Control & Recordkeeping

Purpose and Requirements

Element 12 will describe the procedures involved to establish and maintain documentation for the BMP. The purpose is to ensure that the documentation is readily available, has been created following established document creation protocols, and is kept up to date through periodic reviews and revisions.

Your BMP should:

1. identify the “controlled” documents related to your BMP or relevant biosolids management activities;
2. identify how the master document will be maintained and the method of version control;
3. identify the document control information that will be use and specific storage locations for SOPs and the BMP Manual;
4. identify the document control information that will be used for policy statements;
5. specify record retention periods and the need for retention period extension;
6. identify the document control program that any contractor working with your biosolids program will follow;
7. identify method of storage for any data resulting from monitoring and measurement activities; and
8. identify responsible person(s) for updating/revising the BMP Manual to reflect current practices.

Instructions

Introduction Section

Fill in the required information in Element 12.

Procedure Section

Fill in the required information in Element 12.

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

Instructions

Element 13 – Monitoring and Measurement

Purpose and Requirements

Element 13 in your BMP Manual will contain the procedure you will use to measure progress towards goals and objectives, performance of your critical control points and the meeting of regulatory requirements.

Your BMP should:

1. establish and maintain regular monitoring and measurement procedures and practices for all biosolids management activities to assure compliance with applicable legal and other requirements, measure biosolids program performance at critical control points, and track progress toward achieving program goals and objectives;
2. record monitoring and measurement results and maintain records as established in the record keeping procedures under Element 12; and
3. require contractors to establish and maintain regular monitoring and measurement procedures and practices for all their assigned biosolids management activities, as defined in their service agreement.

Instructions

Introduction Section

The Element 13 example includes an explanation of how the monitoring data might be stored. Write a 2-3 sentence description of your data management system. This description should cover whether your data management system is electronic or on paper, the names of any types of electronic systems you use, and any other information that you think would help a reader or an auditor understand how you manage your data.

Procedure Section

Fill in the required information in Element 13.

Table 3.1

Select the monitoring and measurement activities that align with the critical control points that you have already selected. **Delete those that do not apply or are not “critical” to your organization.**

After you have listed monitoring and measurement activities in Table 3.1, go to the SOP column and list the SOPs that your organization has (or is developing) that correlate to each of the monitoring and measurement activities.

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.

Instructions

Element 14 – Nonconformances – Preventive & Corrective Action

Purpose and Requirements

Element 14 will establish, document and maintain your procedures for investigating noncompliance with legal/regulatory and other requirements. The conformance issues that may arise from monitoring/measurement activities, BMP protocols, or nonconformances noted as a result of internal and external BMP audits will be addressed in this Element.

Your BMP should:

1. identify procedures for investigating any noncompliance with legal/regulatory requirements;
2. establish, document and maintain procedures for investigating BMP nonconformances identified during internal audits; and
3. establish, document and maintain procedures for investigating BMP nonconformances identified during third party audits.

Instructions

Introduction Section

Fill in the required information in Element 14.

Procedure Section

Fill in the required information in Element 14.

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



Instructions

Element 15 – Biosolids Management Program Report

Purpose and Requirements

Element 15 will describe how you will prepare a performance report that summarizes information on activities associated with the BMP.

Your BMP should:

1. designate a responsible person who will prepare a written report on an annual basis;
2. identify the report completion date for each year;
3. establish the minimum information that will be included in the performance report; and
4. explain how the performance report will be made available (paper copies, website, etc.).

Instructions

Introduction Section

Fill in the required information in Element 15.

Procedure Section

Fill in the required information in Element 15.

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.

Instructions

Element 16 – Internal BMP Audit

Purpose and Requirements

Element 16 will describe the periodic internal audits of the BMP in order to maintain the elements of the system and to ensure necessary changes/updates are included.

Your BMP should:

1. identify the frequency and completion date of the internal BMP audits;
2. identify the members of the internal audit team;
3. identify the audit responsibilities of each internal audit team members;
4. establish the procedure, documents and records related to the internal audit;
5. identify the guidance documents that will be made available as a resource to the audit team;
6. identify how the nonconformances will be addressed; and
7. designate a responsible person who will prepare a written report summarizing the internal audit results and corrective actions necessary to address any nonconformances.

Instructions

Introduction Section

Fill in the required information in Element 16.

Procedure Section

Fill in the required information in Element 16.

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, except in those years when a formal third party audit is conducted.
- 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

Instructions

Element 17 – Management Review

Purpose and Requirements

The purpose of Element 17 is to ensure that your management is kept up-to-date on the progress made in biosolids management, is aware of audit findings and what has been done to address them and to ensure that they continue to provide the necessary resources to maintain the BMP.

Your BMP should:

1. identify a periodic management review of the BMP and its performance relative to policy commitments, goals, objectives and established performance measures to ensure its continuing stability, adequacy and effectiveness and to implement any needed changes. A review does not necessarily have to be a meeting.

It is more effective to consider management review as a process that may include different parts conducted at different times. Reviews can include short term (e.g. monthly) performance reviews and long term (semi-annual) high level reviews.

The concept of Management Review needs to include how well the system is working as well as biosolids program performance. Reviews should be focused on continual improvement, not just a discussion of results.

An effective way for management to review BMP effectiveness is to have data collected (summary, not detail) along with recommendations for improvement. The data can be reviewed ahead of time by management individuals and then they meet periodically to discuss ONLY the recommendations for improvement.

2. maintain the following:
 - a. schedule and scope for review
 - b. documentation of findings, evaluation, and follow-up actions
 - c. documentation of changes to policies, plans, procedures, practices and other BMP elements that occur as a result of the management review findings, evaluation, or follow-up actions.
3. assign a lead person or persons to be responsible for organizing and conducting the review.

Instructions

Introduction Section

Fill in the required information in Element 17.

Procedure Section

Fill in the required information in Element 17.

The Element 17 section of the BMP Manual establishes an annual interval for the management review. While the NBP allows organizations to establish any management review interval that is appropriate to their organization, most organizations have found the annual interval is best as it allows them to coordinate the BMP management review with annual budgeting to ensure that management provides the necessary resources for the maintenance of the BMP.

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.