

BIOSOLIDS EMS MANUAL

ELEMENT 1.0

DOCUMENTATION OF EMS FOR BIOSOLIDS



REVISION	ISSUE DATE	APPROVAL SIGNATURE
09	December 04, 2015	

PURPOSE

Element 1.0 provides a brief history and background information on the City of Fort Worth’s Environmental Management System (EMS) program for biosolids and an overview of the EMS Manual that describes the applicable policies, programs, plans, procedures, and management practices in the EMS. The EMS Program provides an action plan to integrate wastewater and biosolids activities by implementing program elements based on the Deming Quality Management Cycle to manage short and long-term activities, track performance, establish and track goals and objectives, and provide a framework for continual improvement.

SCOPE

The EMS Program encompasses all the activities within and associated with the biosolids value chain.

KEY WORDS

- Biosolids
- Biosolids Management Program
- Biosolids Value Chain
- Contractor
- Deming Quality Management Cycle
- EMS Blueprint
- Gap Analysis
- National Biosolids Partnership (NBP)

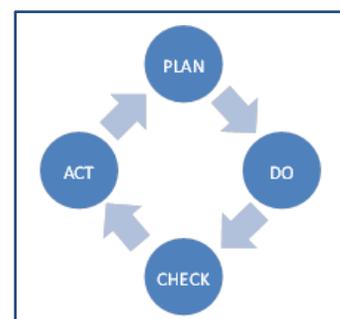


Figure 1.1 The Deming Quality Management Cycle

RESPONSIBILITY

The Assistant Director (Water Reclamation and Reuse Division), Biosolids EMS Manager, EMS Management Team, Contractors, and City Staff are responsible for the implementation and execution of the EMS program.

HISTORY & BACKGROUND

In August 2000, the City of Fort Worth signed a Letter of Understanding with the NBP to participate in a Demonstration Project to test the NBP’s EMS blueprint by implementing an EMS for its biosolids program and documented with an EMS manual. A copy of the Letter of Understanding is attached. As part of the implementation process, the City underwent a Gap Analysis in November 2000 to identify areas of their program that needed work to meet the EMS standards.

Upon development and completion of the EMS manual, the City notified the NBP account executive and NBP EMS manager that it planned to begin the six-month operating period of its EMS. The NBP reviewed a copy of the City’s EMS Status Review checklist and the City’s EMS manual to determine if the program complied with the NBP biosolids EMS standards. The NBP approved the manual and the City officially began the six-month initial operating period.

At the end of the initial operating period, the City performed an internal audit as described in Element 16.0 to verify that the EMS was operating properly. The City then addressed items found during the internal audit and applied for the third-party verification audit process. The City underwent a third-party verification audit by certified EMS auditors and addressed non-conformances and issues found and continued its EMS operation. The

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City of Fort Worth Biosolids Program obtained NBP EMS Certification on July 20, 2005. A 5-year reverification audit was performed on September 28th-October 1st, 2010.

EMS Manual

This EMS manual provides a general description of the applicable policies, programs, plans, procedures, and management practices that the City has established for each of the biosolids activities that it directly or indirectly controls at each critical control point within the biosolids value chain, including activities performed by contractors. The EMS Manual:

- Contains the City of Fort Worth’s Biosolids Management Policy (Element 2.0) and other required EMS procedures such as tracking changes in legal regulations (Element 4.0), establishing and tracking biosolids goals and objectives (Element 5.0), and addressing questions and complaints from interested parties (Element 9.0).
- Contains and/or cross-references public participation (Element 6.0), communications (Element 9.0), and emergency preparedness and response (Element 11.0) programs and plans.
- Covers all applicable, relevant, and selected critical control points for biosolids management activities throughout the biosolids value chain (Element 3.0).
- Cross-references all operational controls, procedures, processes, and other management methods used to achieve and maintain compliance with legal and other requirements (Elements 3.0 & 10.0).
- Describes the biosolids management activities assigned to and performed by contractors (Element 3.0).
- Includes a table with the elements directly or indirectly cross-referenced within each element (Cross-Reference Table).

EMS Organization

The EMS manual is organized into five sequential steps or categories required to effectively develop and implement an EMS. These five steps contain seventeen different elements, as shown in the following table, which make up the body of the EMS manual.

Table 1.1 The EMS Elements

EMS Elements		
Category	Element	Description
Policy	1.0	Documentation of Environmental Management System for Biosolids
	2.0	Biosolids Management Policy
Planning	3.0	Critical Control Points
	4.0	Legal and Other Requirements
	5.0	Goals and Objectives
	6.0	Public Participation in Planning
Implementation	7.0	Roles and Responsibilities
	8.0	Training
	9.0	Communication
	10.0	Operational Control of Critical Control Points
	11.0	Emergency Preparedness and Response
	12.0	EMS Documentation, document control, and recordkeeping
Measurement and Corrective Action	13.0	Monitoring and Measurement
	14.0	Nonconformance: Preventive and Corrective Action
	15.0	Biosolids Management Program Performance Report
	16.0	Internal EMS Audit
Management Review	17.0	Periodic Management Review of Performance

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EMS Manual Locations

There are six (6) Biosolids EMS Manuals. The locations of the manuals are shown below. The procedures for updating the manuals can be found in Element 12.0.

- City of Fort Worth – VCWRF Library
- City of Fort Worth – VCWRF Biosolids EMS Coordinator Office
- City of Fort Worth – Pre-Treatment Services Division
- City of Fort Worth – Water Department Central Laboratory
- City of Fort Worth – Water Department Website
- Contractor – Renda Environmental, Inc.

REFERENCES

- BMP Guidance Manual: <http://www.wef.org/Biosolids/page.aspx?id=7733>
- Code of Good Practice, (NBP): <http://www.wef.org/Biosolids/page.aspx?id=7733>
- Manual of Good Practice for Biosolids, (NBP): <http://www.wef.org/Biosolids/page.aspx?id=7733>

EMS Cross References

- Element 2.0 Biosolids Policy
- Element 3.0 Critical Control Points
- Element 4.0 Legal and Other Requirements
- Element 5.0 Biosolids Goals and Objectives
- Element 7.0 Roles and Responsibilities

ATTACHMENTS

- Letter of Understanding
- Code of Good Practice

REVISION HISTORY

Revision #	Date	Revision Description
09	12/04/2015	Merged element to new EMS format, added figure.
08	08/05/2013	Updated references and attachment list, added cross reference table to EMS manual content
07	07/29/2011	Update EMS manual locations
06	01/26/2011	Correct typographical error
05	11/16/2010	Update responsibilities & references. Moved approval & review criteria for the EMS Manual to Element 12.0
04	05/15/2008	Audit (YR2) 2007
03	06/29/2007	Audit (YR1) 2006
02	11/29/2004	2004 Issue
01.a	10/18/2004	Internal Audit Revisions
01	10/01/2004	Approval Draft
SR	01/30/2004	Issued for Status Review

**BIOSOLIDS EMS MANUAL
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August 30, 2000

Robert W. Hite
Chair
National Biosolids Partnership
601 Wythe Street
Alexandria, VA 22314

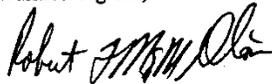
SUBJECT: National Biosolids Partnership – LETTER OF UNDERSTANDING

Dear Mr. Hite, *rw*

The City of Fort Worth, Texas (Village Creek Wastewater Treatment Plant) looks forward to the opportunity to participate as a "Demonstration Project" in the National Biosolids Partnership's program for establishing an Environmental Management System (EMS) covering wastewater solids and biosolids management.

Attached, is a signed copy of the "Letter of Understanding" describing the project objectives.

Warmest regards,



Robert T. McMillon
Assistant Water Director
Fort Worth Water Department

cc: Gary F. Rockers, Contract Services Administrator, VCWWTP
Project File 1.1 (NBP Letter of Understanding).doc

**Water Department / Pollution Control Division
Village Creek Wastewater Treatment Plant**
The City of Fort Worth • P.O. Box 870 • Fort Worth, Texas 76101-0870
(Shipping: 4500 Wilma Lane • Arlington, Texas 76012)
(817)277-7591 • FAX (817) 548-1344

**LETTER OF UNDERSTANDING
BETWEEN**

**City of Fort Worth, Texas and the National Biosolids Partnership for Establishing
an Environmental Management System Covering Wastewater Solids and Biosolids
Management**

Demonstration Project

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National Biosolids Partnership

Promoting sustainable beneficial biosolids use management practices

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August 21, 2000

Robert T. McMillon
Assistant Water Director
City of Ft. Worth/Water Department
P.O. Box 870
Fort Worth, TX 76101

Dear Mr. McMillon;

This Letter of Understanding is between the City of Fort Worth, Texas and the National Biosolids Partnership (NBP) located in Alexandria, Virginia.

The City of Fort Worth (The City) and the NBP agree to work together on a Demonstration Project to test the Environmental Management System (EMS) blueprint and biosolids management that is being prepared by the NBP. The Demonstration Program, which includes approximately twenty-five Charter Demonstration Projects, will take place from June 2000 to December 2001. The City is recognized as one of the Charter EMS Demonstration Projects.

Objectives of the Demonstration Program:

The objectives of the Demonstration Program are:

- 1) To assist organizations to establish EMS's based on the "blueprint" developed by the NBP
- 2) To evaluate the components of the blueprint; and
- 3) To gather information about EMS implementation by the Charter Demonstration Organizations that will allow the NBP to expand the EMS program to full-scale implementation in 2001.

Definition

Wastewater Solids and Biosolids Management: This includes wastewater pretreatment, treatment, and beneficial/disposal of biosolids

EMS Blueprint: The blueprint has four components:

- 1.) The Code of Good Practice;
- 2.) The National Manual of Good Practices;
- 3.) The Common Procedures for the establishment of an EMS; and
- 4.) The Third-Party Verification Program

please visit our website at: www.biosolids.org

biosolid n (1990): solid organic matter recovered from waste water treatment process and used, esp. as fertilizer - usually in pl.

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Commitment of the National Biosolids Partnership

- The NBP will assist the City in establishing an EMS
- The NBP will provide ongoing assistance to the City in preparing and implementing an EMS for the organization's wastewater solids and biosolids program. The National Biosolids Partnership will provide a consultant to conduct a Gap Analysis for the City.
- In addition, up to \$5,000 in consultant assistance will be made available during the Demonstration Project, which may be used like a line of credit. The City may use this line of credit for activities related to developing its EMS. For example, the City could use its line of credit to develop an action plan for developing an EMS based on the results of the Gap Analysis funded separately by the NBP, either through on-site consultant assistance or telephone consultation. In all cases, the activities should be directly related to developing an EMS that is consistent with the NBP's blueprint.
- The NBP will take appropriate steps to recognize the City's effort to develop an EMS at national biosolids conferences or through other suitable venues or means.
- The NBP will provide a certificate to the City documenting its "Charter" membership in the NBP Code of Good Practice Club.
- Travel money to attend three EMS workshops will be available on the basis of need.
- The NBP will publish a report on the experiences of the organizations that participate in the Charter Demonstration Program. The report, which will be completed in late 2001, will also contain recommendations for ways to strengthen the NBP's EMS Program based on these experiences.

Commitment From the City of Fort Worth

- The City commits to implementing the National Biosolids Partnership's "Code of Good Practice" (Attached)
- Following the results of the Gap Analysis, the City will implement an EMS that is consistent with the NBP's EMS blueprint and will establish this EMS by October 2001.
- The City will participate in three two-day training and information exchange workshops with the other Charter Demonstration Organizations. The workshops are tentatively scheduled for September 2000, February 2001, and July 2001

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- The City will develop an "Action Plan" to fill the gaps identified in their Gap Analysis by the first workshop in September 2000.
- The City will share its EMS experiences with other organizations and share related information at local, regional, or national conferences and meetings.
- The City will provide feedback to the NBP on the EMS blueprint and document costs and other relevant information through short quarterly progress reports and a final report.

National Biosolids Partnership

Mr. Robert Hite
Chair
National Biosolids Partnership
601 Wythe Street
Alexandria, VA 22314

City of Ft. Worth

Robert T. McMillon
Assistant Water Director
City of Ft. Worth/Water Department
P.O. Box 870
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Background

The National Biosolids Partnership's Environmental Management Initiative

The NBP will assist local municipalities in implementing their EMS programs by developing the following components or "tools" of the EMS blueprint for each facility to use when implementing an EMS:

- A Code of Good Practice that defines broad goals to guide biosolids management programs. The Code has been approved by the NBP.
- A National Manual of Good Practices, scheduled for availability in mid 2000, describing the full range of management practices including pretreatment, treatment, and beneficial use or disposal practices. Each facility selects practices appropriate to its situation. The Sear-Brown Group, Rochester, New York, is the consultant preparing the National Manual of Good Practices.
- A series of uniform steps or "Common Procedures," with accompanying guidance, for designing and implement an EMS. These steps and guidance, scheduled for completion in mid 2000, will be used as the basis for verifying the system's effectiveness by qualified independent third parties. Hagler Bailly Inc, Arlington, Virginia, is the consultant preparing the Common Procedures and Guidance Document
- An ongoing program of independent third-party verification and citizen input to ensure that the EMS is effectively implemented. All possible alternative approaches to the third-party verification program will be analyzed with a recommended approach scheduled for late 2000. Ross & Associates, Seattle Washington, is the consultant designing the third-party verification system.



**Biosolids Management Program
Code of Good Practice**

Code of Good Practice

The Code of Good Practice (the Code) is a broad framework of goals and commitments to guide the production, management, transportation, storage, and use or disposal of biosolids. Those who embrace the Code and participate in the National Biosolids Partnership (NBP) commit to "do the right thing." Specifically, code subscribers and NBP participants pledge to uphold the following principles of conduct:

Compliance: To commit to compliance with all applicable federal, state, and local requirements regarding production at the wastewater treatment facility, and management, transportation, storage, and use or disposal of biosolids away from the facility.

Product: To provide biosolids that meet the applicable standards for their intended use or disposal.

NBP Biosolids Management Program: To develop a Biosolids Management Program that includes a method of independent third-party verification to ensure effective ongoing biosolids management.

Quality Monitoring: To enhance the monitoring of biosolids production and management practices.

Quality Practices: To require good housekeeping practices for biosolids production, processing, transport, and storage, and during final biosolids use or disposal operations.

Contingency and Emergency Response Plans: To develop response plans for unanticipated events such as inclement weather, spills, and equipment malfunctions.

Sustainable Management Practices and Operations: To enhance the environment by committing to sustainable, environmentally acceptable biosolids management practices and operations through a Biosolids Management Program.

Preventive Maintenance: To prepare and implement a plan for preventive maintenance for equipment used to manage biosolids and wastewater solids.

Continual Improvement: To seek continual improvement in all aspects of biosolids management.

Communications: To provide methods of effective communication with gatekeepers, stakeholders, and interested citizens regarding the key elements of each Biosolids Management Program, including information relative to program performance.