



Littleton/Englewood Wastewater Treatment Plant

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2013 Final Audit Report from Dekra

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■ DESCRIPTION OF PROGRAM

The National Biosolids Partnership (NBP) advances environmentally sound biosolids management practices. The program is operated by the [Water Environment Federation \(WEF\)](#), in collaboration with the [National Association of Clean Water Agencies \(NACWA\)](#) and local and regional biosolids management organizations across the U.S. and Canada with support from the [U.S. Environmental Protection Agency \(EPA\)](#). The NBP serves as the information clearinghouse on effective biosolids practices and offers an EMS-based certification program that requires participating organizations to go beyond regulatory requirements.

The NBP Biosolids Management Program (BMP) is based on internationally recognized standards for an [Environmental Management System/International Organization of Standardization \(ISO 14001\)](#). With guidance from biosolids professionals, experts, and leading biosolids management organizations, the NBP has created a management program tailored to the priorities and needs of the wastewater profession. It serves as a model for continuous improvement in the areas of environmental performance, regulatory compliance, quality management practices, and relations with interested parties and other stakeholders.

Organizations that have chosen to become recognized or certified by the NBP collectively manage more than 10% of the biosolids in the United States. These organizations have documented significant benefits in using the program's tools to reduce operating costs and achieve greater efficiencies while protecting public health and managing wastewater residuals in an environmentally beneficial and cost-effective manner. NBP organizations focus on consistently producing a high-quality biosolids product for intended markets/end use options and promoting resource recovery while achieving and maintaining public and regulatory trust and acceptance.

The Littleton/Englewood Wastewater Treatment Plant values a sustainable, biosolids management program for the following reasons:

- *To improve an already established and nationally recognized environmental business practice while optimizing operating costs.*
- *To encourage and promote beneficial aspects of recycling domestic wastewater biosolids, while improving public/regulatory trust and acceptance.*

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Last Updated: November 06, 2013 by bdurkin

■ ELEMENT 1

Biosolids Management Program	Corresponding Requirements: NBP Element: 1
Prepared by: Jim Tallent, Treatment Division Manager	Revision #: 1.0 Revision Date: March/2012
Approved by: Jim Tallent, Treatment Division Manager Signature:  Date: September 17, 2012	Element Effective Date: March/2012

OVERVIEW

This manual implements the National Biosolids Partnership (NBP) Biosolids Management Program (BMP) for the Littleton/Englewood Wastewater Treatment Plant (L/E WWTP).

The L/E WWTP is a [nationally recognized](#), advanced level [wastewater treatment facility](#) providing services to the [Cities of Littleton, Englewood and 19 associated sanitation districts](#). Serving approximately 300,000 customers over a 108 square mile service area, two valuable products result from these treatment services are:

1. Cleaned wastewater (effluent): Discharged to the South Platte River; a source for drinking water and recreation in the Denver and the front-range community.
2. [Biosolids](#): A valuable product derived from the solids removed in the treatment process. The solids are recycled, as an organic soil amendment, through an agricultural land application program to dryland farms in eastern Colorado.

Biosolids are nutrient-rich, organic materials produced during the treatment of domestic wastewater. These materials, when treated and processed properly, are environmentally safe and recycled as an organic soil amendment (or fertilizer) to improve farm soils and stimulate plant growth. Since 1982, the L/E WWTP has exclusively produced Class "B" Biosolids which are used in an agricultural land application program (approximately 3,400 dry tons per year). This program was initiated in response to the increased cost and liability for landfill disposal of wastewater biosolids. In developing this program, standard farming equipment was chosen for two reasons:

1. Capital expenditures are reduced by using standard farming equipment.
2. The program would "blend in" with the farming community, contributing to public acceptance.

Biosolids transportation and application services are provided by plant staff, dedicated to operating a violation-free biosolids management program. L/E WWTP maintains 100% control of the application program, from permitting application sites, calculating application rates of Biosolids, transportation and application of biosolids and all associated analysis/recordkeeping/required reporting activities. L/E WWTP also modifies its biosolids program, as needed, in response to factors, such as new regulations or other environmental concerns. We actively participate in the [Rocky Mountain Water Environment Association Biosolids Committee](#), whose goal is to provide technical information and assistance for member agencies in the development, program implementation and promotion of safe and beneficial uses of wastewater Biosolids. BMP activities are conducted in accordance with [CFR Part 503 Regulations](#) and [Colorado Biosolids Regulation No. 64](#).

The predominant crop grown on Biosolids applied farm land is dryland wheat. However, dryland corn and sunflowers and other grains are occasionally grown. Biosolids are applied to a fallow field, while in stubble, to minimize the potential for runoff. Biosolids may be incorporated into the soil, in accordance with the wishes of the farmer and his soil management practices. However, most farmers practice no-till farm management approaches to prevent soil erosion and loss of moisture.

Public access is controlled by siting biosolids application parcels in very low population density farming areas, with fenced sites to restrict public access.

Through **public participation, communication** and **emergency preparedness**, the L/E WWTP is committed to proactively address, and continually improve the challenges encountered with respect to Biosolids management now and in the future, especially with regulatory changes and transportation issues.

On July 7, 2011, Dennis Stowe, L/E WWTP Plant Manager, signed a [Letter of Understanding](#) with NBP in which L/E WWTP agreed to become a participant with the intent to improve its existing Biosolids program and obtain independent, 3rd party verification.

L/E WWTP is committed to meet the national requirements for an excellent biosolids program; to implement and maintain an NBP Biosolids Management Program (BMP); and to follow the NBP National [Code of Good Practice](#).

In addition to these requirements, this BMP will incorporate the [Mission Statement](#), [Management Objectives](#), and [Vision Statement](#) of the L/E WWTP:

Procedure for Revision:

1. The BMP Manual is intended to be a "dynamic" document. Revisions are expected as new information is obtained, changes to existing systems or programs occur and as experience is gained in managing the biosolids program.
2. The Treatment Division Manager is the primary person responsible for approving revisions to this BMP Manual.
3. The Treatment Division Manager will inform L/E WWTP staff, including the Supervisory Committee and Plant Manager, of significant revisions to the BMP.

The Treatment Division Manager will also provide notification of significant BMP changes to other interested parties, but not limited to: National Biosolids Partnership, US EPA Region 8, Colorado Department of Public Health and Environment and designated third-party auditor. The revised BMP will be posted on the L/E WWTP website for the public to view and provide input.

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Last Updated: June 10, 2014 by bdurkin

ELEMENT 2

Biosolids Management Policy	Corresponding Requirements: NBP Element: 2
Prepared by: Jim Tallent, Treatment Division Manager	Revision #: 2.1 Revision Date: June/2014
Approved by: Jim Tallent, Treatment Division Manager Signature:  Date: September 17, 2012	Element Effective Date: March/2012

On March 16, 2012, the L/E WWTP Supervisory Committee formally adopted the following Biosolids Management Policy Statement to establish guiding principles for the Biosolids Management Program:

Biosolids Management Policy Statement

By following the National Biosolids Partnership [Code of Good Practice](#) (Code) for biosolids and the biosolids management program goals established in [Element 5](#), it shall be the policy of the L/E WWTP to:

- Pursue sustainable and beneficial reuse options which protect worker health and safety, the environment and public health, through a cost-effective program.
- Be sensitive and responsive to public concerns, including those of odor control.
- Maintain 100% compliance with all applicable regulatory requirements.
- Strive for continual improvement in its Beneficial Use program while providing flexibility with respect to end use.

The Code is a broad framework of goals and commitments to guide the production, management, transportation, storage and use or disposal of biosolids. The L/E WWTP embraces this Code and pledges to uphold its principles of conduct. This Biosolids Management Policy and the Code is implemented and communicated (however are not limited) to all L/E WWTP employees, stakeholders, and other interested parties. This commitment will guide the production, management, transportation, storage and use or disposal of biosolids in the following ways:

- Periodically evaluating alternative beneficial use options which provide potential for improved efficiencies, cost optimization or better meet the needs of the community.
- Provide appropriate training opportunities to all personnel associated with the Biosolids Management Plan (BMP) in order to improve program performance.
- Maintain an industrial pretreatment program compliant with federal, state and local regulations.
- Develop, implement, and participate in source reduction programs.
- Implement a comprehensive electronic recordkeeping and reporting system to document biosolids distribution.
- Commit to maintain an environmental monitoring system that meets or exceeds regulatory requirements.
- Continue support in funding of long-term biosolids research programs to investigate beneficial use options being utilized.
- Keep public informed of the BMP program via L/E WWTP website or other means.

L/E WWTP will set and revise the BMP to support its management policy using the following procedure:

1. The Treatment Division Manager is responsible for ensuring that the BMP is implemented and communicated to L/E WWTP staff and other interested parties, using one or more of the communication tools listed under the communication procedure in [Element 9](#).
2. Email, web sites, meetings (as appropriate) or other forms of communication will be used to accomplish Step 1 above, however, are not limited to the following:
 - Communicating with staff, farmers, stakeholders and other interested parties to discuss how the policy guides actions of the L/E WWTP.
 - Communications with interested parties as addressed in [Element 9](#) communication procedure.
3. If revisions to the current policy statement are needed because of changing conditions, the Treatment Division Manager shall notify the Plant Manager and Supervisory Committee of the need for recommended changes.
4. The Treatment Division Manager will bring revisions to the BMP Advisory Team for review and recommendation. Recommended revisions to the policy may also be included in the annual BMP Management Review.
5. If revisions to the Biosolids Management Policy are approved by the Plant Manager and Supervisory Committee, the Treatment Division Manager will update the policy in the BMP Manual and communicate the revision as per Step 1 above.

References: [Biosolids Environmental Management System Guidance Manual](#) - Interim Draft for Use by NBP Demonstration Organizations, National Biosolids Partnership.

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Last Updated: June 10, 2014 by jtallent

ELEMENT 3

Critical Control Points	Corresponding Requirements: NBP Element: 3
Prepared by: Jim Tallent, Treatment Division Manager	Revision #: 3.1 Revision Date: Jan/2013 LEWWTP Doc #: BMP_ELE_003 Next Review Date: 6/15 Work Order #: 204169
Approved by: Jim Tallent, Treatment Division Manager Signature:  Date: 3/1/2012	Element Effective Date: March/2012



Critical Control Points (or *key processes*) are those biosolids management and biosolids value chain activities that are under the direct control or influence of L/E WWTP. Operation and Maintenance of the service area wastewater collection systems is **not** under the direct control of L/E WWTP. The L/E WWTP service area consists of 19 sanitation districts, including the Cities of Littleton and Englewood. Sanitation districts contract with respective city governments and all are directly responsible to manage and maintain their respective systems. Consequently, "collections" is removed from this manual.

The Pretreatment division has direct control of commercial and industrial contributors within the entire service area. If not managed effectively, the potential exists to create significant changes to the quality of L/E WWTP biosolids, potentially resulting in negative environmental impacts and how L/E WWTP biosolids program is viewed by the general public and regulators.

[Table 3.1](#) identifies L/E WWTP critical control points that shall to be managed to avoid problems with biosolids quality and potential environmental impacts. The critical control points were selected by L/E WWTP BMP Advisory Team after reviewing information contained in Appendix F of the [National Manual of Good Practice](#).

L/E WWTP manages its biosolids to meet or exceed all Class "B" criteria and aesthetic presentation by:

- Exceeding the regulatory requirements for Pollutant Concentration limits for Class "B" land application.
- Exceeding the vector and pathogen reduction regulatory requirements for Class "B" land application.
- Maintaining minimal content for plastics and debris in the biosolids.
- Generating a product that doesn't create objectionable odors.

[Table 3.1](#) also contains information on operational controls and monitoring/measurement activities.

L/E WWTP will set and revise the BMP to support its critical control points using the following procedure:

1. L/E WWTP BMP Advisory Team will review information in [Table 3.1](#) on an annual basis, when there are regulatory changes or whenever major operational changes occur.
2. Revisions to Table 3.1 (if any) will be documented in writing by L/E WWTP Treatment Division Manager, who will then 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, information related to roles/responsibilities ([Table 3.2](#)), 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 or modification that requires revisions to the critical control points or their associated environmental impacts, the Treatment Division Manager will inform the NBP and the third-party verification auditor in writing of the changes.

Note: 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

Table 3.1
Biosolids Value Chain Critical Control Points

Wastewater Collection and Pretreatment				
Critical Control Points (Key Processes)	Operational Controls (Control Points)	Standard Operating Procedures (SOPs)	Monitoring & Measurements	Potential Impacts
<ul style="list-style-type: none"> • Connector sanitation districts • Industrial dischargers 	<ul style="list-style-type: none"> • Sewer use ordinances • Pretreatment program 	<ul style="list-style-type: none"> • City of Littleton Municipal Code • City of Englewood Municipal Code 	<ul style="list-style-type: none"> • Annual inspection/report • Quarterly reporting From Industry 	Environmental <ul style="list-style-type: none"> • Groundwater contamination • Surface water

<ul style="list-style-type: none"> Commercial dischargers Septic dischargers Atypical waste dischargers 	<ul style="list-style-type: none"> Procedure documents 	<ul style="list-style-type: none"> Colorado Discharge Permit Systems (CDPS) Permit #CO-0032999 SIU permit management procedure 40 CFR parts 403-471 Silver policy Petroleum oil, grease and sand policy Septage sector control program policy 	<ul style="list-style-type: none"> Sampling (6x/year) Random sampling Surveillance cameras 	<ul style="list-style-type: none"> contamination Soil contamination <p>Quality</p> <ul style="list-style-type: none"> Biosolids classification <p>Perception</p> <ul style="list-style-type: none"> Potential "dumping" <p>Management</p> <ul style="list-style-type: none"> Reporting requirements
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Wastewater Treatment and Solids Generation

Critical Control Points (Key Processes)	Operational Controls (Control Points)	Standard Operating Procedures (SOPs)	Monitoring & Measurements	Potential Impacts
Preliminary Treatment	<ul style="list-style-type: none"> Solids screenings Grit collection 	"Preliminary Treatment Process Objectives"	<ul style="list-style-type: none"> Volume removed 	<p>Environmental</p> <ul style="list-style-type: none"> Odor <p>Quality</p> <ul style="list-style-type: none"> Nuisance debris <p>Perception</p> <ul style="list-style-type: none"> Visual aesthetics Odor <p>Management</p> <ul style="list-style-type: none"> Wear, damage to downstream equipment Process objectives not met
Primary Treatment	<ul style="list-style-type: none"> Sludge Blanket Flow 	"Primary Clarifier Process Objectives"	<ul style="list-style-type: none"> Sampling Sludge blanket measurement Summary reports SCADA Odor observation 	<p>Environmental</p> <ul style="list-style-type: none"> Odor <p>Quality</p> <p>Perception</p> <ul style="list-style-type: none"> Odor Nuisance debris <p>Management</p> <ul style="list-style-type: none"> Process objectives not met
TF/SC Process	<ul style="list-style-type: none"> TF loading rate Dissolved oxygen Wasting rate Solids return rate 	"TF Process Objectives" "SCT/RA Process Objective" "Secondary Clarifier Process Objectives"	<ul style="list-style-type: none"> Sampling Summary reports SCADA Odor observation 	<p>Environmental</p> <ul style="list-style-type: none"> Wasted Electricity <p>Quality</p> <ul style="list-style-type: none"> Solids wash-out <p>Perception</p> <ul style="list-style-type: none"> Odor <p>Management</p> <ul style="list-style-type: none"> Process objectives not met
DAFT	<ul style="list-style-type: none"> DAFT operating level Collector speed Subnatant suspended solids setpoint Air system 	"DAFT Process Objectives"	<ul style="list-style-type: none"> Sampling Summary reports SCADA Blanket depth Odor observation 	<p>Environmental</p> <ul style="list-style-type: none"> Vector attraction <p>Quality</p> <ul style="list-style-type: none"> Float consistency <p>Perception</p> <ul style="list-style-type: none"> Odor <p>Management</p> <ul style="list-style-type: none"> Process objectives not met
	<ul style="list-style-type: none"> Mixing 		<ul style="list-style-type: none"> Sampling 	<p>Environmental</p> <ul style="list-style-type: none"> Vector attraction <p>Quality</p> <ul style="list-style-type: none"> Biosolids quality Diaester gas quality

Anaerobic Digesters	<ul style="list-style-type: none"> Detention time Temperature Feed rate 	"Digester Process Objectives"	<ul style="list-style-type: none"> Monitor Summary reports SCADA Odor observation 	<p>Perception</p> <ul style="list-style-type: none"> Odor <p>Management</p> <ul style="list-style-type: none"> Process objectives not met Permit compliance
Dewatering	<ul style="list-style-type: none"> Centrifuge maintenance Centrifuge operation Polymer mixing Polymer delivery Pump maintenance Scale maintenance Polymer inventory Cake transfer system Truck scales Truck scale maintenance Onsite storage of biosolids 	"Dewatering Process Objectives"	<ul style="list-style-type: none"> Sampling Capillary Suction Testing Summary reports SCADA Odor observation 	<p>Environmental</p> <ul style="list-style-type: none"> Increased spill potential during transport (loose load) Increased exhaust emissions <p>Quality</p> <ul style="list-style-type: none"> Cake Concentration Centrate quality <p>Perception</p> <ul style="list-style-type: none"> Increased spill potential during Transport (loose load) <p>Management</p> <ul style="list-style-type: none"> Process objectives not met Weight accuracy Cost to dewater
Biosolids Storage, Loading and Transportation				
Critical Control Points (Key Processes)	Operational Controls (Control Points)	Standard Operating Procedures (SOPs)	Monitoring & Measurements	Potential Impacts
<ul style="list-style-type: none"> Solids storage (local and remote) Loading site Transportation Loading of spreaders 	<ul style="list-style-type: none"> Site location Distance to neighbors Loading procedures Emergency response procedures Route requirements Truck cleaning Equipment safety 	<ul style="list-style-type: none"> CDOT Regulations SOPs 	<ul style="list-style-type: none"> Daily log books Weight receipts Complaints/response Moving violations Personnel safety Odor Observation 	<p>Environmental</p> <ul style="list-style-type: none"> Spills Roadway accidents Truck noise and dust <p>Quality Perception</p> <ul style="list-style-type: none"> Spills Truck noise and dust Odor <p>Management</p> <ul style="list-style-type: none"> Legal requirements
Biosolids End Use, Disposal or Beneficial Reuse				
Critical Control Points (Key Processes)	Operational Controls (Control Points)	Standard Operating Procedures (SOPs)	Monitoring & Measurements	Potential Impacts
<ul style="list-style-type: none"> Site Selection Transfer staging site Agronomic rate Topography limitations 	<ul style="list-style-type: none"> State Regulations Management of interim storage/staging area Truck loading/unloading procedures USEPA Region 8 biosolids management Land application site selection procedures 	<ul style="list-style-type: none"> Best Application guide Calculation Worksheet (PAN) Soil Sampling 	<ul style="list-style-type: none"> Daily/weekly/monthly log books Yearly reports 	<p>Environmental</p> <ul style="list-style-type: none"> Surface water contamination Vector attraction <p>Quality Perception</p> <ul style="list-style-type: none"> Odors <p>Management</p>

Note - The Critical Control Points listed above are consistent with those listed in Appendix F of the NBP's National Manual of Good Practice.

Table 3.2
Biosolids Value Chain Roles & Responsibilities Matrix (By Workgroup)

Workgroup	Pretreatment	Solids Processing	Stabilization	Thickening	Biosolids Storage, Loading and Transportation	Beneficial Reuse
Treatment Division		L	L	L	L	L
Engineering/Maintenance		X	X	X		

Environmental Compliance	L				X	X
Business Services	X	X	X	X	X	X
Laboratory Services	X	X	X	X		X

Note: Lead responsibility denoted as bold "L"
 Additional workgroup involvement denoted as "X"

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Last Updated: August 07, 2014 by bdurkin

■ ELEMENT 4

LEGAL AND OTHER REQUIREMENTS	Corresponding Requirements: NBP Element: 4
Prepared by: Jim Tallent, Treatment Division Manager	Revision #: 4.1 Revision Date: Sept/2013
Approved by: Jim Tallent, Treatment Division Manager Signature:  Date: September 17, 2012	Element Effective Date: March/2012

Identifying existing legal and other requirements which impact the various aspects of the L/E WWTP biosolids program is extremely important. Existing requirements are defined by local, state and federal regulations and are reflected in L/E WWTP [biosolids application permit](#), [Federal Part 503 regulations](#) and other listed regulatory resources. However, when new or revised regulations are proposed and/or promulgated, the L/E WWTP identifies, assesses and tracks the potential effects on the BMP and implements revisions appropriately.

L/E WWTP will set and revise the Biosolids Management Program (BMP) to support legal requirements using the following procedures:

1. The following sources of information are used, as appropriate, to identify and assess potential changes to regulations and regulatory requirements:
 - Colorado Department of Public Health Environment ([CDPHE](#)), which includes storm water management, air quality, and biosolids divisions.
 - United States Environmental Protection Agency ([USEPA](#)), Region 8 biosolids coordinator
 - Personal contacts with other key individuals at local, state, and federal agencies
 - National Association for Clean Water Agencies ([NACWA Issues Updates Water Environment Federation Biosolids Knowledge Center](#)) and related Biosolids Technical Bulletins
 - [Water Environment Federation Biosolids Knowledge Center](#) and related Biosolids Technical Bulletins
 - [National Biosolids Partnership \(NBP\) Biosolids Updates](#)
 - Workshop, seminar and technical conference attendance (RMWEA) Biosolids Workshops, [WEFTEC](#) and [NACWA](#)
 - [Rocky Mountain Water Environment Association Biosolids Committee](#)
 - [Water Environmental Research Foundation \(WERF\)](#) publications
 - [Colorado Department of Transportation](#)

2. The Beneficial Use Supervisor is responsible for ensuring that L/E WWTP is aware of potential changes to biosolids regulations through [Rocky Mountain Water Environment Association Biosolids Committee](#) and other biosolids related involvement. The Beneficial Use Supervisor will:
 - a. Identify potential changes to regulations through review of information from various sources identified in Procedure 1 above.
 - b. Assist in evaluating potential effects on the L/E WWTP biosolids program.
 - c. Assist in the recommendation and documentation of appropriate response actions and response schedule, including the need to involve other L/E WWTP staff.

3. The following procedure is used to ensure that new legal and other requirements are appropriately communicated and implemented:
 - a. The Beneficial Use Supervisor will follow Procedure 2, above.
 - b. As applicable, the Treatment Division Manager is responsible for communicating new requirements (for example, monitoring and reporting requirements or new regulations) to L/E WWTP staff, any applicable contractors (defined as a company or organization hired to perform a specific task related to the biosolids value chain) and farmers who provide farm management services.
 - c. The Treatment Division Manager will make any necessary changes to the BMP Manual and related documents as noted under procedure for revision ([Element 1](#)).

[Table 4.1](#) identifies current legal requirements specific to the L/E WWTP BMP. L/E WWTP [biosolids application permit](#) and [CPDS](#) permit contains very specific regulatory and legal requirements.

Other Requirements

Currently there are no other requirements related to this biosolids management program. Other requirements may not be specifically defined or immediately identified through existing local, state, and federal regulations (for example, a guideline may exist which does not require regulatory compliance). As these other requirements are identified and verified for documentation, regardless of source, notes will be made on the affected InfoNet web page for incorporation in the official document, either as a revision change or correction. Other requirements may impact daily operation of the BMP, as well as Standard Operation Procedures (SOP) or facility and City specific policies.

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■ ELEMENT 5

GOALS AND OBJECTIVE FOR CONTINUAL IMPROVEMENT	Corresponding Requirements: NBP Element: 5
Prepared by: Jim Tallent, Treatment Division Manager	Revision #: 5.1 LEWWTP Doc #: BMP_ELE_005 Work Order #: 204173
Approved by: Jim Tallent, Treatment Division Manager Signature:  Date: September 27, 2012	Element Effective Date: 3/12 Revision Date: 12/12 Next Review Date: 9/14

Goal: the end point toward which objectives are directed: 5 year duration
Objective: effort directed to achieve a goal: ±1 year duration

L/E WWTP's Biosolids Management Policy states that it will "pursue sustainable and beneficial reuse options which protect worker health and safety, the environment and public health, through a cost effective program . . . while providing flexibility with respect to end use" by:

- Following the [Code of Good Practice](#) for biosolids developed by the National Biosolids Partnership;
- Evaluating beneficial use options that provide potential for improved efficiencies or better meet the needs of the community; and
- Providing adequate training opportunities to plant staff associated with biosolids value chain and the Biosolids Management Program (BMP).

L/E WWTP will set and revise the BMP to support goals and objectives using the following procedure:

1. L/E WWTP will set or revise goals and objectives for its BMP on an annual basis. They will be finalized no later than **May 15** of each year, corresponding with budget submittal documentation. Goals and objectives will reflect activities based on critical control points, identified or potential environmental impacts, legal, and other requirements and applicable best management practices. Each goal will include a short statement identifying its purpose and the benefit to overall biosolids management activities.
2. The Treatment Division Manager and/or Beneficial Use Supervisor will draft Goals and Objectives considering:
 - a. L/E WWTP Biosolids Management Policy
 - b. Input received (via e-mail, phone or discussion) from the plant staff, the general public, regulators, elected officials, Supervisory Committee and other interested parties
 - c. Budgetary considerations
3. Goals will be established using SMART criteria (**S**pecific, **M**easurable, **A**chievable, **R**elevant and **T**ime-bounded).
4. Goals and Objectives will be set considering each of the following
 - a. Environmental Performance
 - b. Regulatory Compliance
 - c. Quality Management Practices
 - d. Relations with Interested Parties
 - e. Input from other BMP elements, as applicable
5. New or revised goals and objectives will be included in the annual BMP management review.
6. Final goals and objectives will be posted into the BMP manual, accessible through InfoNet (facility intranet) and the L/E WWTP web site.
7. The Beneficial Use Supervisor and/or Treatment Division Manager will prepare an action plan to support each goal, consistent with the [Goals and Objectives Master Table](#), which includes schedules, milestones and necessary resources.
8. The Treatment Division Manager and/or Beneficial Use Supervisor is responsible for tracking progress toward each Goal and/or Objective on a regular basis. Progress will be included in the internal audit and management review.

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■ GOALS



2013	2014
Goal 1 - Continually improve relationship with interested parties and the public	Goal 1-2014 - Continually improve relationship with interested parties and the public
Goal 2 - Improve Environmental Performance	Goal 2 - 2014- Improve Environmental Performance
Goal 3 -Regulatory Compliance	Goal 3 -2014 - Regulatory Compliance
Goal 4 -Quality Management Practices	Goal 4 -2014 - Quality Management Practices

2015	2016
Goal 1 - 2015 - Continually improve relationship with interested parties and the public	
Goal 2 - 2015- Improve Environmental Performance	
Goal 3 -2015 - Regulatory Compliance	
Goal 4 -2015 - Quality Management Practices	

■ GOAL 1 - 2013 - CONTINUALLY IMPROVE RELATIONSHIP WITH INTERESTED PARTIES AND THE PUBLIC

Objective 1	Develop three new ways to communicate proactively with interested parties and provide a means for input
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Update L/E WWTP Website	<ul style="list-style-type: none"> Review current website Develop plan for remodeling information to include availability for comment Publish website availability in local papers with phone numbers where personnel can be reached. 	Applications Support Administrator, Treatment Division Manager, Beneficial Use Supervisor, Process Control Specialist	Staffing, Budget Resources	September 2013 <ul style="list-style-type: none"> Reviewed 3/13 - C (new Website launched 3/13 - all information being restructured 	May 2013
Create Brochure	<ul style="list-style-type: none"> Research text and obtain photos Create document 	Beneficial Use Supervisor, Treatment Division Manager, Pretreatment Specialist	Staffing, Budget Resources	May 2013 <ul style="list-style-type: none"> Information/photos gathered 2/13 - C Draft brochure completed for review 5/13 	December 2013
Publish Articles	<ul style="list-style-type: none"> Develop biosolids article for March <i>Rumbles</i> publication Publish articles in community papers, Council newsletters and facility newsletters 	Treatment Division Manager	Staffing, Budget Resources	March 2013 <ul style="list-style-type: none"> Article submitted 12/12 - C Distribution of article and BMP information to City Councils 4/13 - C 	April 2013
Tour Feedback	<ul style="list-style-type: none"> Develop a way for plant tours to provide feedback 	Applications Support Administrator, Treatment Division Manager, Beneficial Use Supervisor, BMP Advisory Team	Web site, Survey Monkey	May 2013 <ul style="list-style-type: none"> Survey content complete and implemented 	June 2013

Objective 2	Investigate and evaluate preservation of potentially historical structure on City-owned biosolids application property.
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Evaluate homestead farmhouse preservation requirements / end use	<ul style="list-style-type: none"> Contact appropriate preservation organization Review structure and establish preservation requirements Investigate funding alternatives Recommend preservation direction 	Treatment Division Manager, Beneficial Use Supervisor	Staffing, Budget Resources	September 2013 <ul style="list-style-type: none"> Letter send 9/19/13 No response - will initiate demolition planning 	December 2013

Objective 3	Plan and complete recognition celebrations
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Plan and conduct Gold Level	<ul style="list-style-type: none"> Invite Staff, Council members, Supervisors, Committee, and 	Treatment Division	Staffing, Budget	June 2013 Celebration	July 2013

Recognition celebration	Supervisory Committee, and interested parties	Manager, Plant staff	Budget Resources	• Celebration held 7/13	July 2013
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Objective 4	Develop and/or link to existing biosolids fact sheets and FAQ documents for InfoNet and Website
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Research information resources	<ul style="list-style-type: none"> • Research available documents • Review existing documents and update 	Treatment Division Manager, Beneficial Use Supervisor	Web, Staffing, Budget Resources	December 2013	December 2013

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■ GOAL 2 - 2013 - IMPROVE ENVIRONMENTAL PERFORMANCE

Objective 1	Reduce diesel fuel requirements for biosolids transportation and disposal by 8%
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Research and evaluate options to reduce diesel fuel use.	<ul style="list-style-type: none"> • Gather potential options list. • Obtain monthly fuel consumption reports to evaluate progress • Develop and implement action plan following option review. 	Beneficial Use Supervisor, Treatment Division Manager	Budged Resources, ServiCenter	June 2014 <ul style="list-style-type: none"> • Options listed developed July/13 - C • Fuel report developed Aug/13 - C • Progress for 2013 - 3.9% reduction 	

***Bold** type indicates primary responsible person

Objective 2	Reduce electric energy requirements for wastewater treatment by 2%
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Research and evaluate options to reduce electric energy use.	<ul style="list-style-type: none"> • Gather potential options list. • Develop electric consumption spreadsheet to evaluate progress • Develop and implement action plan following option review. 	Process Control Specialist, Applications Support Administrator, Engineering	XCEL Energy, SCADA internet, Budget Resources	December 2014 <ul style="list-style-type: none"> • Options listed developed • Developed spreadsheet to monitor • Action plan • Progress - 0.46 % for 2013 	

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■ GOAL 3 -2013 - REGULATORY COMPLIANCE

Objective 1	Comply with all existing federal, state and local <i>biosolids regulations</i>, and demonstrate performance at least 10% below permit requirements
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Review of test data and field inspections – corrective response if needed	Review <ul style="list-style-type: none"> Review performance testing results QA/QC data input 	Applications Support Administrator , Treatment Division Manager, Treatment Division Supervisors, Process Control Specialist	Colorado Biosolids Reg 64, USEPA Region 8 General Biosolids Permit, Hach WIMS	February 2013 <ul style="list-style-type: none"> Data reviewed Jan/13 - C Data QA/QC Jan/13 - C 	January 2013
Review of test data and field inspections – corrective response if needed	Monthly Review <ul style="list-style-type: none"> Review performance testing results QA/QC data input 	Applications Support Administrator , Treatment Division Manager, Treatment Division Supervisors, Process Control Specialist	Colorado Biosolids Reg 64, USEPA Region 8 General Biosolids Permit, Hach WIMS	February 2013	February 2013

***Bold** type indicates primary responsible person

Objective 2	Comply with all existing federal, state and local <i>discharge regulations</i>, and demonstrate performance at least 10% below permit requirements
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Review of process test data – corrective response if needed	Review: <ul style="list-style-type: none"> Performance testing results QA/QC data input 	Applications Support Administrator , Treatment Division Manager, Treatment Division Supervisors, Process Control Specialist	CDPS discharge permit, Hach WIMS	January 2013 <ul style="list-style-type: none"> Data reviewed Jan/13 - C QA/QC Data Jan/13 - C 	January 2013
Review of process test data – corrective response if needed	Monthly Review: <ul style="list-style-type: none"> Performance testing results QA/QC data input 	Applications Support Administrator , Treatment Division Manager, Treatment Division Supervisors, Process Control Specialist	CDPS discharge permit, Hach WIMS	January 2014 <ul style="list-style-type: none"> Data reviewed Jan/14 - C QA/QC Data Jan/14 - C 	January 2014

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■ GOAL 4 -2013 - QUALITY MANAGEMENT PRACTICES

Objective 1	Maintain 100% distribution of Biosolids to Agricultural Use programs
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Schedule beneficial use application sites	<ul style="list-style-type: none"> Coordinate with farmer Soil sampling Notify interested parties 	Beneficial Use Supervisor	Biosolids application report, CDPHE inspections	December 2012 <ul style="list-style-type: none"> Schedule by site - C Sampling completed by site - C Parties notified by site move - C 	December 2012
Schedule beneficial use application sites	<ul style="list-style-type: none"> Coordinate with farmer Soil sampling Notify interested parties 	Beneficial Use Supervisor	Biosolids application report, CDPHE inspections	December 2013 <ul style="list-style-type: none"> Schedule by site Sampling completed by site Parties notified by site move 	December 2013

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Objective 2	Implement a biosolids knowledge management program and complete eight (8) Standard Operating Procedure (SOP) documents to provide a sustainable biosolids program
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Identify, assign and develop SOP topics.	<ul style="list-style-type: none"> Identify Beneficial Use Operations related topics Identify Beneficial Use Administrative related topics Assign SOP development tasks and accompanying work orders. Complete, review and document SOP into InfoNet 	Beneficial Use Supervisor , Treatment Division Manager	Beneficial Use staff, KMT team, Budget Resources	December 2013 <ul style="list-style-type: none"> OPS topics identified 11/12 - C ADM topics identified 11/12 - C Topics assigned 12/12 - C 5 SOPs Completed 12/13 	

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Objective 3	Obtain 100% biosolids staff certification status with Colorado voluntary biosolids certification program.
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Train and schedule biosolids operators for certification exams	<ul style="list-style-type: none"> Schedule training opportunities Schedule exams 	Beneficial Use Supervisor	Budget Resources, Operator training schools	April 2013 <ul style="list-style-type: none"> Training done 3/13 - C Exam passed 4/13 - C 	April 2013

***Bold** type indicates primary responsible person

Objective 4	Reduce biosolids program operation cost by 5% (based on previous 5-year average)
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Investigate and implement options to reduce program costs.	<ul style="list-style-type: none"> Develop potential cost reduction option spreadsheet to evaluate progress. Develop and implement action plan following option review. 	Beneficial Use Supervisor , Treatment Division Manager	Budget Resources	December 2014 <ul style="list-style-type: none"> Spreadsheet designed 7/13 - C Progress - 13% reduction 	January 2014

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Objective 5	Complete 95% of equipment preventive maintenance (PM) tasks on time as established in Equipment Asset Management (EAM) program
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Implement a documented PM program.	<ul style="list-style-type: none"> Identify equipment PMs to schedule Assign PMs to Beneficial Use Operators. Develop reporting documentation in EAM program. 	Beneficial Use Supervisor , Treatment Division Manager, Data Analyst, Beneficial Use Operator	Budget Resources, EAM manual	December 2013 <ul style="list-style-type: none"> Identify PM 11/12 - C Assign PM 12/12 - C Reporting implemented 2/13 - C 	February 2013

***Bold** type indicates primary responsible person

Objective 6	Reduce wastewater treatment operation cost by 2% (based on previous 5-year average)
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Investigate and implement options to reduce operation costs	<ul style="list-style-type: none"> Develop potential cost reduction option spreadsheet to evaluate progress. Develop and implement action plan following option review. 	Treatment Division Manager , Process Control Specialist, Applications Support Administrator	Budget Resources, process performance reports, expenditure reports	December 2014 <ul style="list-style-type: none"> Initial options listed completed 8/13 - C Action plan developed Progress - 12.6% 	January 2014

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Objective 7	Approve and complete continued annual biosolids research project with Colorado State University
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Contract with CSU to conduct dry land biosolids research	<ul style="list-style-type: none"> Identify research plan objectives Obtain Supervisor Committee approval for expenditure 	Treatment Division Manager	Budget Resources	December 2013 <ul style="list-style-type: none"> Objectives identified 6/13 - C Approved 7/13 - C 	July 2013

Contract with CSU to conduct dry land biosolids research	<ul style="list-style-type: none"> Identify research plan objectives Obtain Supervisor Committee approval for expenditure 	Treatment Division Manager	Budget Resources	December 2014 <ul style="list-style-type: none"> Approved 7/13 - C 	July 2014
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***Bold** type indicates primary responsible person

Objective 8	Research alternative end users for biosolids
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Identify and evaluate potential alternate end uses for biosolids.	<ul style="list-style-type: none"> Develop alternatives options for consideration. Research practicality and financial burden for alternatives. 	Treatment Division Manager, Beneficial Use Supervisor	Budget Resources	December 2014 <ul style="list-style-type: none"> Alternative options 12/12 - C Research alternatives 	

***Bold** type indicates primary responsible person

Objective 9	Document an Excellent In Management Program recognition through NACWA
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Develop and submit an Excellent in Management recognition application to NACWA- Based on Ten Attributes of an Effectively Managed Utility	<ul style="list-style-type: none"> Select level of recognition. Develop and submit documentation for NACWA review 	Treatment Division Manager, Plant staff	Budget Resources	July 2013 <ul style="list-style-type: none"> Submit application 3/13 - C Recognition received 6/13 - C 	July 2013

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■ GOAL 1-2014 - CONTINUALLY IMPROVE RELATIONSHIP WITH INTERESTED PARTIES AND THE PUBLIC

Objective 1	Develop three new ways to communicate proactively with interested parties and provide a means for input
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Update L/E WWTP Website	<ul style="list-style-type: none"> Review current website design Develop plan for remodeling information to include availability for comment Publish website availability in local papers with telephone numbers where appropriate personnel can be reached. 	Applications Support Administrator, Treatment Division Manager, Beneficial Use Supervisor, Process Control Specialist	Staffing, Budget Resources	September 2013 <ul style="list-style-type: none"> Reviewed 3/13 - C (new Website launched 3/13 - all information being restructured 	
Create Brochure	<ul style="list-style-type: none"> Research text and obtain photos Create document 	Beneficial Use Supervisor, Treatment Division Manager, Pretreatment Specialist	Staffing, Budget Resources	May 2013 <ul style="list-style-type: none"> Information/photos gathered 2/13 - C Draft brochure completed for review 5/13 	

Objective 2	Investigate and evaluate preservation of potentially historical structure on City-owned biosolids application property.
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Evaluate homestead farmhouse preservation requirements / end use	<ul style="list-style-type: none"> Contact appropriate preservation organization Review structure and establish preservation requirements Investigate funding alternatives Recommend preservation direction 	Treatment Division Manager, Beneficial Use Supervisor	Staffing, Budget Resources	September 2013 <ul style="list-style-type: none"> Letter send 9/19/13 	

Objective 3	Plan and complete recognition celebrations
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Plan and conduct Gold Level Recognition celebration	<ul style="list-style-type: none"> Invite Staff, Council members, Supervisory Committee, and interested parties 	Treatment Division Manager, Plant staff	Staffing, Budget Resources	June 2013 <ul style="list-style-type: none"> Celebration held 7/13 	July 2013

Objective 4	Develop and/or link to existing biosolids fact sheets and FAQ documents for InfoNet and Website
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Research information resources	<ul style="list-style-type: none"> • Research available documents • Review existing documents and update 	Treatment Division Manager, Beneficial Use Supervisor	Web, Staffing, Budget Resources	December 2013	

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■ GOAL 2 - 2014- IMPROVE ENVIRONMENTAL PERFORMANCE

Objective 1	Reduce diesel fuel requirements for biosolids transportation and disposal by 8%
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Research and evaluate options to reduce diesel fuel use.	<ul style="list-style-type: none"> • Gather potential options list. • Obtain monthly fuel consumption reports to evaluate progress • Develop and implement action plan following option review. 	Beneficial Use Supervisor, Treatment Division Manager	Budged Resources, ServiCenter	June 2014 <ul style="list-style-type: none"> • Options listed developed July/13 - C • Fuel report developed Aug/13 - C 	

***Bold** type indicates primary responsible person

Objective 2	Reduce electric energy requirements for wastewater treatment by 2%
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Research and evaluate options to reduce electric energy use.	<ul style="list-style-type: none"> • Gather potential options list. • Develop electric consumption spreadsheet to evaluate progress • Develop and implement action plan following option review. 	Process Control Specialist, Applications Support Administrator, Engineering	XCEL Energy, SCADA internet, Budget Resources	December 2014 <ul style="list-style-type: none"> • Options listed developed • Developed spreadsheet to monitor • Action plan 	

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■ GOAL 3 -2014 - REGULATORY COMPLIANCE

Objective 1	Comply with all existing federal, state and local biosolids regulations, and demonstrate performance at least 10% below permit requirements
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Review of test data and field inspections – corrective response if needed	Review <ul style="list-style-type: none"> Review performance testing results QA/QC data input 	Applications Support Administrator, Treatment Division Manager, Treatment Division Supervisors, Process Control Specialist	Colorado Biosolids Reg 64, USEPA Region 8 General Biosolids Permit, Hach WIMS	February 2013 <ul style="list-style-type: none"> Data reviewed Jan/13 - C Data QA/QC Jan/13 - C 	January 2013
Review of test data and field inspections – corrective response if needed	Monthly Review <ul style="list-style-type: none"> Review performance testing results QA/QC data input 	Applications Support Administrator, Treatment Division Manager, Treatment Division Supervisors, Process Control Specialist	Colorado Biosolids Reg 64, USEPA Region 8 General Biosolids Permit, Hach WIMS	February 2013	

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Objective 2	Comply with all existing federal, state and local discharge regulations, and demonstrate performance at least 10% below permit requirements
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Review of process test data – corrective response if needed	Review: <ul style="list-style-type: none"> Performance testing results QA/QC data input 	Applications Support Administrator, Treatment Division Manager, Treatment Division Supervisors, Process Control Specialist	CDPS discharge permit, Hach WIMS	January 2013 <ul style="list-style-type: none"> Data reviewed Jan/13 - C QA/QC Data Jan/13 - C 	January 2013
Review of process test data – corrective response if needed	Monthly Review: <ul style="list-style-type: none"> Performance testing results QA/QC data input 	Applications Support Administrator, Treatment Division Manager, Treatment Division Supervisors, Process Control Specialist	CDPS discharge permit, Hach WIMS	January 2014	

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■ GOAL 4 -2014 - QUALITY MANAGEMENT PRACTICES

Objective 1	Maintain 100% distribution of Biosolids to Agricultural Use programs
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Schedule beneficial use application sites	<ul style="list-style-type: none"> Coordinate with farmer Soil sampling Notify interested parties 	Beneficial Use Supervisor	Biosolids application report, CDPHE inspections	December 2012 <ul style="list-style-type: none"> Schedule by site - C Sampling completed by site - C Parties notified by site move - C 	December 2012
Schedule beneficial use application sites	<ul style="list-style-type: none"> Coordinate with farmer Soil sampling Notify interested parties 	Beneficial Use Supervisor	Biosolids application report, CDPHE inspections	December 2013 <ul style="list-style-type: none"> Schedule by site Sampling completed by site Parties notified by site move 	

***Bold** type indicates primary responsible person

Objective 2	Implement a biosolids knowledge management program and complete eight (8) Standard Operating Procedure (SOP) documents to provide a sustainable biosolids program
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Identify, assign and develop SOP topics.	<ul style="list-style-type: none"> Identify Beneficial Use Operations related topics Identify Beneficial Use Administrative related topics Assign SOP development tasks and accompanying work orders. Complete, review and document SOP into InfoNet 	Beneficial Use Supervisor , Treatment Division Manager	Beneficial Use staff, KMT team, Budget Resources	December 2013 <ul style="list-style-type: none"> OPS topics identified 11/12 - C ADM topics identified 11/12 - C Topics assigned 12/12 - C SOP Completed 	

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Objective 3	Obtain 100% biosolids staff certification status with Colorado voluntary biosolids certification program.
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Train and schedule biosolids operators for certification exams	<ul style="list-style-type: none"> Schedule training opportunities Schedule exams 	Beneficial Use Supervisor	Budget Resources, Operator training schools	April 2013 <ul style="list-style-type: none"> Training done 3/13 - C Exam passed 4/13 - C 	April 2013

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Objective 4	Reduce biosolids program operation cost by 5% (based on previous 5-year average)
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				Target Completion	Actual
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Completion Date
Investigate and implement options to reduce program costs.	<ul style="list-style-type: none"> Develop potential cost reduction option spreadsheet to evaluate progress. Develop and implement action plan following option review. 	Beneficial Use Supervisor , Treatment Division Manager	Budget Resources	December 2014 <ul style="list-style-type: none"> Spreadsheet designed 7/13 - C 	

***Bold** type indicates primary responsible person

Objective 5	Complete 95% of equipment preventive maintenance (PM) tasks on time as established in Equipment Asset Management (EAM) program
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Implement a documented PM program.	<ul style="list-style-type: none"> Identify equipment PMs to schedule Assign PMs to Beneficial Use Operators. Develop reporting documentation in EAM program. 	Beneficial Use Supervisor , Treatment Division Manager, Data Analyst, Beneficial Use Operator	Budget Resources, EAM manual	December 2013 <ul style="list-style-type: none"> Identify PM 11/12 - C Assign PM 12/12 - C Reporting implemented 2/13 - C 	February 2013

***Bold** type indicates primary responsible person

Objective 6	Reduce wastewater treatment operation cost by 2% (based on previous 5-year average)
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Investigate and implement options to reduce operation costs	<ul style="list-style-type: none"> Develop potential cost reduction option spreadsheet to evaluate progress. Develop and implement action plan following option review. 	Treatment Division Manager , Process Control Specialist, Applications Support Administrator	Budget Resources, process performance reports, expenditure reports	December 2014 <ul style="list-style-type: none"> Initial options listed completed 8/13 - C Action plan developed 	

***Bold** type indicates primary responsible person

Objective 7	Approve and complete continued annual biosolids research project with Colorado State University
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Contract with CSU to conduct dry land biosolids research	<ul style="list-style-type: none"> Identify research plan objectives Obtain Supervisor Committee approval for expenditure 	Treatment Division Manager	Budget Resources	December 2013 <ul style="list-style-type: none"> Objectives identified 6/13 - C Approved 7/13 - C 	July 2013
	<ul style="list-style-type: none"> Identify research plan 				

Contract with CSU to conduct dry land biosolids research	<ul style="list-style-type: none"> objectives Obtain Supervisor Committee approval for expenditure 	Treatment Division Manager	Budget Resources	December 2014	
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Objective 8	Research alternative end users for biosolids
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Identify and evaluate potential alternate end uses for biosolids.	<ul style="list-style-type: none"> Develop alternatives options for consideration. Research practicality and financial burden for alternatives. 	Treatment Division Manager, Beneficial Use Supervisor	Budget Resources	December 2014 <ul style="list-style-type: none"> Alternative options 12/12 - C Research alternatives 	

***Bold** type indicates primary responsible person

Objective 9	Document an Excellent In Management Program recognition through NACWA
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Develop and submit an Excellent in Management recognition application to NACWA- Based on Ten Attributes of an Effectively Managed Utility	<ul style="list-style-type: none"> Select level of recognition. Develop and submit documentation for NACWA review 	Treatment Division Manager, Plant staff	Budget Resources	July 2013 <ul style="list-style-type: none"> Submit application 3/13 - C Recognition received 6/13 - C 	July 2013

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■ GOAL 1-2015 - CONTINUALLY IMPROVE RELATIONSHIP WITH INTERESTED PARTIES AND THE PUBLIC

Objective 1	Develop three new ways to communicate proactively with interested parties and provide a means for input
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Update L/E WWTP Website	<ul style="list-style-type: none"> Review current website design Develop plan for remodeling information to include availability for comment Publish website availability in local papers with telephone numbers where appropriate personnel can be reached. 	Applications Support Administrator, Treatment Division Manager, Beneficial Use Supervisor, Process Control Specialist	Staffing, Budget Resources	September 2013 <ul style="list-style-type: none"> Reviewed 3/13 - C (new Website launched 3/13 - all information being restructured 	
Create Brochure	<ul style="list-style-type: none"> Research text and obtain photos Create document 	Beneficial Use Supervisor, Treatment Division Manager, Pretreatment Specialist	Staffing, Budget Resources	May 2013 <ul style="list-style-type: none"> Information/photos gathered 2/13 - C Draft brochure completed for review 5/13 	

Objective 2	Investigate and evaluate preservation of potentially historical structure on City-owned biosolids application property.
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Evaluate homestead farmhouse preservation requirements / end use	<ul style="list-style-type: none"> Contact appropriate preservation organization Review structure and establish preservation requirements Investigate funding alternatives Recommend preservation direction 	Treatment Division Manager, Beneficial Use Supervisor	Staffing, Budget Resources	September 2013 <ul style="list-style-type: none"> Letter send 9/19/13 	

Objective 3	Plan and complete recognition celebrations
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Plan and conduct Gold Level Recognition celebration	<ul style="list-style-type: none"> Invite Staff, Council members, Supervisory Committee, and interested parties 	Treatment Division Manager, Plant staff	Staffing, Budget Resources	June 2013 <ul style="list-style-type: none"> Celebration held 7/13 	July 2013

Objective 4	Develop and/or link to existing biosolids fact sheets and FAQ documents for InfoNet and Website
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Research information resources	<ul style="list-style-type: none"> • Research available documents • Review existing documents and update 	Treatment Division Manager, Beneficial Use Supervisor	Web, Staffing, Budget Resources	December 2013	

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■ GOAL 2 - 2015- IMPROVE ENVIRONMENTAL PERFORMANCE

Objective 1	Reduce diesel fuel requirements for biosolids transportation and disposal by 8%
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Research and evaluate options to reduce diesel fuel use.	<ul style="list-style-type: none"> • Gather potential options list. • Obtain monthly fuel consumption reports to evaluate progress • Develop and implement action plan following option review. 	Beneficial Use Supervisor, Treatment Division Manager	Budged Resources, ServiCenter	June 2014 <ul style="list-style-type: none"> • Options listed developed July/13 - C • Fuel report developed Aug/13 - C 	

***Bold** type indicates primary responsible person

Objective 2	Reduce electric energy requirements for wastewater treatment by 2%
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Research and evaluate options to reduce electric energy use.	<ul style="list-style-type: none"> • Gather potential options list. • Develop electric consumption spreadsheet to evaluate progress • Develop and implement action plan following option review. 	Process Control Specialist, Applications Support Administrator, Engineering	XCEL Energy, SCADA internet, Budget Resources	December 2014 <ul style="list-style-type: none"> • Options listed developed • Developed spreadsheet to monitor • Action plan 	

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■ GOAL 3 -2015 - REGULATORY COMPLIANCE

Objective 1	Comply with all existing federal, state and local biosolids regulations, and demonstrate performance at least 10% below permit requirements
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Review of test data and field inspections – corrective response if needed	Review <ul style="list-style-type: none"> Review performance testing results QA/QC data input 	Applications Support Administrator, Treatment Division Manager, Treatment Division Supervisors, Process Control Specialist	Colorado Biosolids Reg 64, USEPA Region 8 General Biosolids Permit, Hach WIMS	February 2013 <ul style="list-style-type: none"> Data reviewed Jan/13 - C Data QA/QC Jan/13 - C 	January 2013
Review of test data and field inspections – corrective response if needed	Monthly Review <ul style="list-style-type: none"> Review performance testing results QA/QC data input 	Applications Support Administrator, Treatment Division Manager, Treatment Division Supervisors, Process Control Specialist	Colorado Biosolids Reg 64, USEPA Region 8 General Biosolids Permit, Hach WIMS	February 2013	

***Bold** type indicates primary responsible person

Objective 2	Comply with all existing federal, state and local discharge regulations, and demonstrate performance at least 10% below permit requirements
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Review of process test data – corrective response if needed	Review: <ul style="list-style-type: none"> Performance testing results QA/QC data input 	Applications Support Administrator, Treatment Division Manager, Treatment Division Supervisors, Process Control Specialist	CDPS discharge permit, Hach WIMS	January 2013 <ul style="list-style-type: none"> Data reviewed Jan/13 - C QA/QC Data Jan/13 - C 	January 2013
Review of process test data – corrective response if needed	Monthly Review: <ul style="list-style-type: none"> Performance testing results QA/QC data input 	Applications Support Administrator, Treatment Division Manager, Treatment Division Supervisors, Process Control Specialist	CDPS discharge permit, Hach WIMS	January 2014	

***Bold** type indicates primary responsible person

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■ GOAL 4 -2015 - QUALITY MANAGEMENT PRACTICES

Objective 1	Maintain 100% distribution of Biosolids to Agricultural Use programs
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Schedule beneficial use application sites	<ul style="list-style-type: none"> Coordinate with farmer Soil sampling Notify interested parties 	Beneficial Use Supervisor	Biosolids application report, CDPHE inspections	December 2012 <ul style="list-style-type: none"> Schedule by site - C Sampling completed by site - C Parties notified by site move - C 	December 2012
Schedule beneficial use application sites	<ul style="list-style-type: none"> Coordinate with farmer Soil sampling Notify interested parties 	Beneficial Use Supervisor	Biosolids application report, CDPHE inspections	December 2013 <ul style="list-style-type: none"> Schedule by site Sampling completed by site Parties notified by site move 	

***Bold** type indicates primary responsible person

Objective 2	Implement a biosolids knowledge management program and complete eight (8) Standard Operating Procedure (SOP) documents to provide a sustainable biosolids program
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Identify, assign and develop SOP topics.	<ul style="list-style-type: none"> Identify Beneficial Use Operations related topics Identify Beneficial Use Administrative related topics Assign SOP development tasks and accompanying work orders. Complete, review and document SOP into InfoNet 	Beneficial Use Supervisor , Treatment Division Manager	Beneficial Use staff, KMT team, Budget Resources	December 2013 <ul style="list-style-type: none"> OPS topics identified 11/12 - C ADM topics identified 11/12 - C Topics assigned 12/12 - C SOP Completed 	

***Bold** type indicates primary responsible person

Objective 3	Obtain 100% biosolids staff certification status with Colorado voluntary biosolids certification program.
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Train and schedule biosolids operators for certification exams	<ul style="list-style-type: none"> Schedule training opportunities Schedule exams 	Beneficial Use Supervisor	Budget Resources, Operator training schools	April 2013 <ul style="list-style-type: none"> Training done 3/13 - C Exam passed 4/13 - C 	April 2013

***Bold** type indicates primary responsible person

Objective 4	Reduce biosolids program operation cost by 5% (based on previous 5-year average)
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				Target Completion	Actual
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Completion Date
Investigate and implement options to reduce program costs.	<ul style="list-style-type: none"> Develop potential cost reduction option spreadsheet to evaluate progress. Develop and implement action plan following option review. 	Beneficial Use Supervisor , Treatment Division Manager	Budget Resources	December 2014 <ul style="list-style-type: none"> Spreadsheet designed 7/13 - C 	

***Bold** type indicates primary responsible person

Objective 5	Complete 95% of equipment preventive maintenance (PM) tasks on time as established in Equipment Asset Management (EAM) program
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Implement a documented PM program.	<ul style="list-style-type: none"> Identify equipment PMs to schedule Assign PMs to Beneficial Use Operators. Develop reporting documentation in EAM program. 	Beneficial Use Supervisor , Treatment Division Manager, Data Analyst, Beneficial Use Operator	Budget Resources, EAM manual	December 2013 <ul style="list-style-type: none"> Identify PM 11/12 - C Assign PM 12/12 - C Reporting implemented 2/13 - C 	February 2013

***Bold** type indicates primary responsible person

Objective 6	Reduce wastewater treatment operation cost by 2%(based on previous 5-year average)
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Investigate and implement options to reduce operation costs	<ul style="list-style-type: none"> Develop potential cost reduction option spreadsheet to evaluate progress. Develop and implement action plan following option review. 	Treatment Division Manager , Process Control Specialist, Applications Support Administrator	Budget Resources, process performance reports, expenditure reports	December 2014 <ul style="list-style-type: none"> Initial options listed completed 8/13 - C Action plan developed 	

***Bold** type indicates primary responsible person

Objective 7	Approve and complete continued annual biosolids reserch project with Colorado State University
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Contract with CSU to conduct dry land biosolids research	<ul style="list-style-type: none"> Identify research plan objectives Obtain Supervisor Committee approval for expenditure 	Treatment Division Manager	Budget Resources	December 2013 <ul style="list-style-type: none"> Objectives identified 6/13 - C Approved 7/13 - C 	July 2013
	<ul style="list-style-type: none"> Identify research plan 				

Contract with CSU to conduct dry land biosolids research	<ul style="list-style-type: none"> objectives Obtain Supervisor Committee approval for expenditure 	Treatment Division Manager	Budget Resources	December 2014	
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***Bold** type indicates primary responsible person

Objective 8	Research alternative end users for biosolids
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Identify and evaluate potential alternate end uses for biosolids.	<ul style="list-style-type: none"> Develop alternatives options for consideration. Research practicality and financial burden for alternatives. 	Treatment Division Manager, Beneficial Use Supervisor	Budget Resources	December 2014 <ul style="list-style-type: none"> Alternative options 12/12 - C Research alternatives 	

***Bold** type indicates primary responsible person

Objective 9	Document an Excellent In Management Program recognition through NACWA
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Action Plan	Steps	Responsible Person(s)	Resources	Target Completion Date	Actual Completion Date
Develop and submit an Excellent in Management recognition application to NACWA- Based on Ten Attributes of an Effectively Managed Utility	<ul style="list-style-type: none"> Select level of recognition. Develop and submit documentation for NACWA review 	Treatment Division Manager, Plant staff	Budget Resources	July 2013 <ul style="list-style-type: none"> Submit application 3/13 - C Recognition received 6/13 - C 	July 2013

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Last Updated: October 14, 2014 by bdurkin

■ ELEMENT 6

Public Participation	Corresponding Requirements: NBP Element: 6
Prepared by: Jim Tallent, Treatment Division Manager	Revision #: 6.2 Revision Date: Sept/2014 LEWWTP DOC #: BMP_ELE_006 Next Review Date: 10/15 Work Order #: 204175
Approved by: Jim Tallent, Treatment Division Manager Signature:  Date: 3/1/2012	Element Effective Date: March/2012

Public participation will provide **interested parties** with meaningful opportunities to express their views and perspectives relative to L/E WWTP biosolids management activities. This includes: concerns about environmental impacts, biosolids program performance and the opportunity to provide general input, including developing goals and objectives for improvement.

Established as a formal, documented program in 2012, the L/E WWTP Biosolids Management Program (BMP) is an improved program, where development of a proactive public participation element is necessary. Public participation will include the general public and interested parties listed under Element 9, in our BMP activities. The L/E WWTP seeks public participation from interested parties through formal and informal methods as listed in Table 6.1. Methods of obtaining input may also be encouraged through the following:

- Open public meetings
- [City Council meetings](#)
- [Interactive web page](#)
- Workshops and conferences
- [Direct staff contact](#)
- [Tours](#)
- Program audits
- Other methods, as appropriate

Biosolids information is also available on the L/E WWTP biosolids web page.

History

The L/E WWTP operates a biosolids program, which has been in operation for over thirty (30) years. At the inception of the program, public response was negative. This was due to anticipated heavy truck traffic (concentrated into one area), odors and perceived material quality, to operate a proposed biosolids drying facility. Neighbors did not want this facility in their “back yard”. In response to this feedback, public meetings, held at proposed drying facility sites, did very little to resolve these issues.

Subsequent program direction was revised, leading to an agricultural application program involving a unique approach where biosolids were loaded directly into standard farm equipment without unloading product onto the ground from transport trucks. This allowed the program to “blend in” with local farming operations, leading to increased acceptance. In place since 1982, the biosolids application program involved planning activities, involving coordination with local, contracted lease farmers only.

Other local farmers are requesting biosolids, for which we have an inadequate supply to satisfy the demand. These requests illustrate the value of the product and the desire of local farmers to use biosolids in their farming operations.

While public interest in participation for L/E WWTP biosolids planning processes is relatively low, confidence in the biosolids program is supported, due in part to Rocky Mountain Water Environment Association (RMWEA), National Association of Clean Water Agencies (NACWA) and regional/national United States Environmental Protection Agency (USEPA) [award recognition](#). The L/E WWTP’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.

L/E WWTP will set and revise the Biosolids Management Program (BMP) to support public participation using the following procedure:

1. The L/E WWTP will use a combination of both formal and informal mechanisms (as described in [Table 6.1](#)) to provide opportunities for the public to provide input and 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 Treatment Division Manager.
3. National Biosolids Partnership requires a plan for third party verification to complete the certification process. This plan includes review of the BMP, by a third party auditor, to ensure conformance with BMP elements. Information regarding the third party verification process will be shared with interested parties using any of the formal or informal participation opportunities identified in Table 6.1, or as deemed appropriate by the Treatment Division Manager.
4. The L/E WWTP will record and respond timely (within 1 business day) to input received from interested parties. An [inquiry form](#) will be used to record, when possible, the names, addresses, phone numbers and e-mail addresses of interested parties.

Table 6.1
L/E WWTP Public Participation Mechanisms

Formal Participation Mechanisms	Description
Public Hearings	Where specifically indicated, regulations may require that municipalities hold public hearings for approval of new biosolids site applications.
City Council Meetings	Specific parts of the BMP require motion or ordinance approval by the City Councils for Littleton and Englewood to proceed. Whether motion or ordinance driven, the public is given the formal opportunity to provide input to the specific action at these public meetings.
Informal Participation Mechanisms	Description
Informational letters and/or E-mail	Letters and/or E-mail may be used to distribute or receive information to/from interested parties. Interested parties are also encouraged to call with questions or comments.
Facility Website	The L/E WWTP maintains a website that contains information on a variety of activities, including the L/E WWTP's biosolids operation and BMP. Included on the website is a comment form that interested parties may use to provide comments or ask specific questions regarding any aspect of the L/E WWTP process. The data administrator is responsible for maintaining the facility website.
Technical Resources	Technical Resources are made available to the L/E WWTP staff and are used as a form of communication. They are available electronically through the L/E WWTP InfoNet and internet site.
L/E WWTP Intranet (InfoNet)	InfoNet contains information about L/E WWTP biosolids activities, including BMP details, and is available to all plant staff.
Newspaper, radio and television	The L/E WWTP staff periodically works cooperatively with the media and is proactive in encouraging stories, articles, etc. City Public Information Officers may also receive and distribute facility related news and articles. Feedback (if any) from these stories/articles is useful in helping the L/E WWTP make adjustments to various aspects of its operations.
Plant presentations and tours to school/community groups	Annually, the L/E WWTP conducts a "Water Expo" in conjunction with World Water Monitoring Challenge activities. This Expo focuses on watershed related education. The L/E WWTP also provides plant tours to a wide variety of school/community groups, water professionals and other interested parties. In addition to the above listed activities, presentations (both general and issue specific) may be taken to classrooms or meetings, usually in response to invitations extended by these groups. Feedback received from these presentations may be useful to help the L/E WWTP make adjustments to various aspects of its operations or BMP.
Colorado State University research	For over 32 years, Colorado State University (CSU) shares biosolids research results with local farmers and interested parties during annual farming-related events. These event presentations include biosolids research, as well as soils and crop varieties research. CSU also maintains a web page on biosolids related research.

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Roles and Responsibilities	Corresponding Requirements: NBP Element: 7
Prepared by: Jim Tallent, Treatment Division Manager	Revision #: 7.1 LEWWTP Doc #: BMP_ELE_007 Work Order #: 204177
Approved by: Jim Tallent, Treatment Division Manager	Element Effective Date: 3/12 Revision Date: 12/14 New Review Date: 11/15
Signature:  Date: September 17, 2012	

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

L/E WWTP will set and revise the BMP to support roles and responsibilities using the following procedure:

The Treatment Division Manager has the overall responsibility of ensuring that the BMP is implemented and maintained. Roles and responsibilities for various individuals (including contractors), specific to the BMP, are assigned by the Treatment Division Manager, reviewed on an annual basis and revised as needed. The Treatment Division Manager will also review existing roles/responsibilities whenever significant operation changes are made to ensure that they are appropriately defined.

Through the Management Review process, the BMP Advisory Team ensures the success of the BMP program by defining the level of support and resources provided by the L/E WWTP. Financial and personnel resources are afforded through effective budgeting processes for continued training, technical and staffing.

General descriptions of the roles/responsibilities for various work groups on the L/E WWTP facility organizational chart positions are provided below:

Supervisory Committee

The Supervisory Committee (Committee) oversees facility operation and sets facility administrative direction/policy. The Committee is comprised of City Managers and Public Works Directors from the Cities of Littleton and Englewood.

Englewood Utilities Director

The Englewood Utilities Director provides City of Englewood administrative responsibility and direction for plant operation.

Plant Manager

The Plant Manager provides daily administrative responsibility and direction for plant operation.

Environmental Compliance Division

Environmental Compliance Division is responsible for regulatory related activity, plant/staff safety and pretreatment services.

Business Services Division

Business Services Division provides administrative support as it pertains to record keeping and retention, data management and information technology.

Engineering/Maintenance Division

Engineering/Maintenance Division provides on-site engineering services for L/E WWTP and process/facility preventive/corrective maintenance services.

Treatment Division

Treatment Division provides services necessary for compliant facility operation and beneficial use (biosolids) activity.

Laboratory Services Division

The Laboratory Services Division provides process analytical support for compliant plant operation.

Contractors

Business functions related to the biosolids value chain are performed by plant staff. This includes operations, maintenance, administrative, laboratory, and regulatory functions; however, contractors (defined as a company or organization hired to perform a specific task related to or impacting the biosolids value chain) are occasionally utilized for specific related activities (e.g. anaerobic digester cleaning). Contractors performing work related to biosolids activities will be informed of the BMP and coordinated with the contractor's emergency response plan for the duration of contracted work.

BMP Advisory Team

The BMP advisory team is responsible for conducting Management Review of the program. This includes: overseeing program training/progress, document reviews and continued public awareness. The team also reviews and proposes BMP recommendations for implementation. The team consists of the following:

1. Treatment Division Manager

The Treatment Division Manager is an Operator-in-Responsible-Charge and has overall management responsibility for daily wastewater treatment plant operations and the Beneficial Use (biosolids) program. The Treatment Division Manager also has overall responsibility for ensuring that the BMP is operated following established procedures.

2. Process Specialist

The Process Specialist directs the daily process control activities of the L/E WWTP wastewater treatment and solids processing systems. This is accomplished through evaluation of process operating reports, plant data review and laboratory tests.

3. Applications Support Administrator

The Application Support Administrator identifies data sources, develops, implements, and maintains databases for the wastewater treatment plant, provides data flow diagrams and documents performance of the treatment process using various databases. The Applications Support Administrator also documents and resolves data issues through coordination with end-users and ensures BMP related documents are input and retrievable from the InfoNet or other designated access portals (i.e. website).

4. Beneficial Use Supervisor

The Beneficial Use Supervisor oversees the daily functions of the Beneficial Use (biosolids) Division by managing the safe transportation and application of biosolids to farm fields. The Beneficial Use Supervisor is responsible for assuring that appropriate biosolids critical control points are effectively managed.

5. Industrial Pretreatment Specialist

The Industrial Pretreatment Specialist regulates process wastewater discharges from industrial and commercial users in the L/E WWTP service area and performs professional and technical work in the enforcement, documentation, and compliance of the Environmental Protection Agency's industrial pretreatment program.

6. Environmental Analyst

The Environmental Analyst manages the operations and administration of the L/E WWTP laboratory by establishing and implementing laboratory policies, quality control and administrative and operational standards and procedures.

BMP Internal Audit Team

The BMP Internal Audit team is responsible for conducting internal audits of the BMP and is independent of the BMP Advisory team. The BMP Internal Audit Team consists of the following:

1. Safety Coordinator

The Safety Coordinator develops, implements, and maintains the safety program for the L/E WWTP and has previous experience in conducting EMS audits.

2. Operations Supervisor

The Operations Supervisor is an Operator-in-Responsible-Charge and is an advanced level position assigned to direct supervision of Plant Operators in daily operation at the L/E WWTP.

L/E WWTP Organizational Structure and Organizational Functions

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■ ELEMENT 8

Training	Corresponding Requirements: NBP Element: 8
Prepared by: Jim Tallent, Treatment Division Manager	Revision #: 8.0 Revision Date: March/2012
Approved by: Jim Tallent, Treatment Division Manager Signature:  Date: September 21, 2012	Element Effective Date: March/2012

Training is necessary to ensure compliant, as well as, safe job performance. The L/E WWTP demonstrates the importance it places on training through the following statement:

"The L/E WWTP conducts a comprehensive training program to ensure that employees have the necessary knowledge and skills to perform their assigned duties at critical control points. Training includes documenting SOPs for operational controls, on-the-job training, professional development and any other type of training deemed necessary to maintain a successful treatment and biosolids program."

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

- Staff meetings
- On-the-job training
- Review of internal reports and publications
- Safety and emergency response training
- Required facility and City training
- Manufacturer or vendor training
- SOP development/review
- Local, regional and national workshops
- Operator webcasts

General Description of Training Program

The L/E WWTP [training program](#) encompasses all facility divisions, including current, new, and reassigned employees. It is particularly structured to address certification requirements for the [Treatment Plant Operator and Beneficial Use Operator](#) and the need for certification renewal and advancement, safety awareness, accident prevention, knowledge management and all policy training mandated by the City of Englewood.

L/E WWTP will set and revise the Biosolids Management Program (BMP) to support training using the following procedure:

1. Training is generally based on performance needs as determined by the Safety Coordinator, Treatment Division Manager, Operations Supervisors and/or the Beneficial Use Supervisor.
2. Formal training is documented in the Enterprise Asset Management (EAM) program and internal database. Training records shall be in accordance with [Element 12, Documentation and Record Keeping](#).
3. The Treatment Division Manager and/or Beneficial Use Supervisor will identify relevant training requirements for any contractors providing biosolids related services for the L/E WWTP. This will include general BMP awareness training. As necessary and appropriate, the following process will be used to ensure that any applicable contractors has a general awareness of the biosolids value chain, the BMP and how they relate to their areas of work:
 - a. At least one meeting addressing the BMP will be held with the contractor (where applicable).
 - b. Contractor participation in training activities may be required per contract language.
4. While training is valuable, demonstration of competency is achieved in various ways:
 1. Certification examination (and process to obtain training units to maintain "active" status)
 1. Treatment Plant Operator - **required** by State of Colorado
 2. Beneficial Use Operator - **voluntary** by State of Colorado and **required** by L/E WWTP
 2. Annual evaluation by Supervisor.
 3. Skills checklist to accompany annual evaluation.
 4. Preparation and annual review of Standard Operating Procedure (SOP) documents for Knowledge Management database.

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ELEMENT 9

Communication	Corresponding Requirements: NBP Element: 9
Prepared by: Jim Tallent, Treatment Division Manager	Revision #: 9.1 Revision Date: Sept/2013
Approved by: Jim Tallent, Treatment Division Manager Signature:  Date: September 24, 2012	Element Effective Date: March/2012

The L/E WWTP is committed to proactive communication for biosolids operations, including the BMP, both internally and to interested external individuals and agencies. Public confidence in the L/E WWTP biosolids program is high, due in part to Rocky Mountain Water Environment Association (RMWEA), National Association for Clean Water Agencies (NACWA) and regional/national United States Environmental Protection Agency (USEPA) [award recognition](#). The L/E WWTP communication efforts are consistent with legal requirements, the degree of current public interest, historical levels of public involvement and related local circumstances.

L/E WWTP will set and revise the BMP to support communication using the following procedure:

Identification of interested individuals/organizations

[A list of individuals and organizations](#) interested in the L/E WWTP biosolids program and/or BMP related activities is maintained by the Treatment Division Manager and/or Beneficial Use Supervisor. Contact information for interested individuals is available on InfoNet and on the L/E WWTP web site. Individuals interested in being added to this list, may contact the L/E WWTP at 303-762-2600 or via e-mail, letter or web).

Communication Approach

1. The Treatment Division Manager and/or Beneficial Use Supervisor will have primary responsibility for ensuring effective communications on the part of the L/E WWTP as it relates to the biosolids operations and the BMP. Plant staff, as well as interested parties, will receive communications regarding the BMP via e-mail, where notifications warrant immediate conveyance.
2. Internally, L/E WWTP newsletters, e-mail and/or an electronic bulletin board, will serve as the primary method of distribution to plant staff. However, staff meetings (scheduled or unscheduled) and training will also provide means of communication.
3. BMP Information is provided annually, or by request, to interested parties (via e-mail) and will include, however not be limited to:
 - a. Frequently Asked Question (FAQ) documents
 - b. Biosolids specific brochures
 - c. L/E WWTP Biosolids Management Policy
 - d. Information about legal and other requirements
 - e. L/E WWTP [BMP goals and objectives](#)
 - f. Biosolids Management Performance Reports
 - g. Information related to independent, third party BMP verification audit reports.
4. Specific approaches used to facilitate communication, and the frequency of their use, are left to the discretion of the Treatment Division Manager. Communication may be presented in the form of:
 - Meetings
 - E-mails
 - Letters
 - Reports
 - Tours
 - Presentations
 - Newspaper articles
 - Radio/television programs
 - Other means as appropriate
5. The L/E WWTP recognizes that communication initiated by interested parties and other individuals may take a wide variety of forms including telephone calls, letters, e-mail, meeting participation, internet contact or through other forms not listed. The L/E WWTP will give equal weight to all forms of communication.
6. Following established business practice at L/E WWTP, inquiries or requests for information will receive telephone or email response from L/E WWTP staff **within 1 business day** of receipt to verify the contact and confirm the content of requested information and expected response time. A [response form](#) is available to document inquiries/requests.
7. Simple inquiries or requests for information may not be documented. These may include phone calls related to routine questions and other similar inquiries/requests. The Treatment Division Manager and/or Beneficial Use Supervisor responding to an inquiry/request will use their best professional judgment to determine if inquiries/requests fall into this category.
8. Significant or detailed requests for data, biosolids information, or complaints will be documented. These may include detailed requests for information by interested parties, including homeowners, regulators and/or elected officials. Acceptable documentation methods may include letters, memorandums, e-mail records, telephone logs, written meeting summaries, notes to files or other similar methods.

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■ ELEMENT 10

Operational Controls	Corresponding Requirements: NBP Element: 10
Prepared by: Jim Tallent, Treatment Division Manager	Revision #: 10.1 Revision Date: Oct/2012
Approved by: Jim Tallent, Treatment Division Manager Signature:  Date: September 27, 2012	Element Effective Date: March/2012

Operational controls include SOPs, 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, SOPs, monitoring and measurements and potential environmental impacts.

L/E WWTP will set and revise the Biosolids Management Program (BMP) to support operational controls using the following procedure:

1. Operational controls have been identified by the L/E WWTP Treatment Division Manager and Process Specialist, based on consideration of information contained in the National Biosolids Partnership (NBP) [National Manual of Good Practice](#), legal and other requirements; as well as personal experience of the L/E WWTP 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 and/or related SOPs used by L/E WWTP staff shall have supervisor approval and shall be dated.
3. Operational controls and/or related SOPs are reviewed by the Subject Matter Expert (SME) (SOP author) on an annual basis or whenever significant changes in the SOP or plant processes and/or operations occur. Revisions (if any) to Table 3.1 and associated SOP's and monitoring/measurements will be made by the SME, followed by the Treatment Division Manager approval.
4. Contractors (defined as a company or organization hired to perform a specific task related to the biosolids value chain) shall demonstrate operational controls consistent with their roles and responsibilities regarding biosolids management activities. Standard language shall be incorporated into bid and/or contract documents to address this requirement. In the absence of this language, L/E WWTP BMP policies and procedure will be reviewed with the contractor with the expectation that they will follow and adhere to BMP requirements.
5. Changes will be documented in writing and will be noted in the annual biosolids program report.

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Last Updated: November 07, 2013 by bdurkin

■ ELEMENT 11

Emergency Preparedness and Response	Corresponding Requirements: NBP Element: 11
Prepared by: Jim Tallent, Treatment Division Manager	Revision #: 11.0 Revision Date: March/2012
Approved by: Jim Tallent, Treatment Division Manager Signature:  Date: September 21, 2012	Element Effective Date: March/2012

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

L/E WWTP will set and revise the Biosolids Management Program (BMP) to support emergency preparedness and response using the following procedure:

1. L/E WWTP has an [emergency preparedness and response plan](#), which includes a **Biosolids Emergency Response Plan**. This plan is reviewed annually and updated as needed. If required, revisions to specific sections of the emergency preparedness and response plan are made on an "as needed" basis.
2. The L/E WWTP establishes a clear protocol to address a wide variety of situations which may occur. The emergency preparedness and response plan is retained in InfoNet, as well as print copies in each vehicle involved with biosolids transportation and application.
3. Response testing and training, with respect to safety and emergency response procedures, is conducted on a scheduled basis, as determined by the Beneficial Use Supervisor and/or L/E WWTP Safety Coordinator.
4. Periodically, contractors (defined as a company or organization hired to perform a specific task related to the biosolids value chain) are utilized for specific biosolids related activities (e.g. anaerobic digester cleaning). Contractors performing work related to biosolids activities will be informed of the biosolids emergency preparedness and response plan and is coordinated with the contractor's emergency response plan for the duration of contracted work.

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Last Updated: November 12, 2013 by bdurkin

■ ELEMENT 11.1 - SPILL PREVENTION AND RESPONSE

Spill Prevention and Response	Corresponding Requirements: NBP Element: 11.1
Prepared by: Jim Tallent, Treatment Division Manager	Revision #: 11.0 Revision Date: Sept/2012
Approved by: Jim Tallent, Treatment Division Manager Signature:  Date: September 21, 2012	Element Effective Date: Sept/2012

Beneficial Use staff will apply the following to prevent spills from occurring:

- Beneficial Use Operators will receive instruction and training in the importance of observing weight limits, highway speed limits and defensive driving practices.
- Insure that trailer hatches and gates are closed and latched during transport.
- Inspect trailer seals daily and replace as needed.
- Insure trucks and trailers are clean of biosolids before leaving the plant or field.
- Insure loading and unloading operations are conducted properly, including pre-trip inspections to avoid potential dropping, runoff or tracking of biosolids onto public roadways.

Management of Cleanup

In the event of a biosolids spill (regardless of size), the Beneficial Use Operator will take immediate charge (if physically possible) to initiate and oversee on-site cleanup efforts. This includes, notifying Supervisor and authorities immediately and implementing traffic control measures to minimize further accidents. Additional labor and equipment will be secured, as needed, to clean up the spill as expeditiously as possible, with coordination of on-site response teams and supervisor as follows:

1. Halt the source or minimize spill as much as possible

Immediately cease using any leaking or damaged unit that is causing the spill, the unit will remain out of service until repaired.

2. Containment

Spilled biosolids are to be contained with dirt, straw bales or saw dust to form a barrier and/or absorbed to prevent contamination of waterways. The Beneficial Use Supervisor will communicate with the public at the scene to answer questions and inform them of the progress of the cleanup.

3. Cleanup

Use appropriate equipment to remove the biosolids from the spill area. Such equipment may include shovels, front-end loaders and/or dump trucks. A sufficient supply of shovels and brooms will also be provided to crew members cleaning up the spill. Biosolids removed from the spill area will be either spread on an approved application site or taken to a permitted disposal site.

4. Final Cleanup

Roadways will be swept as needed to clean the area, to the satisfaction of the State and/or County. If the spill is on a non-paved and tillable area, the final residue will be picked up and transported to an approved application site for incorporation into the soil. If it is on private property, final cleanup will be completed to the satisfaction of the property owner.

5. Reporting

All spills will be reported immediately to:

L/E WWTP Environmental Compliance Manager:	Mary Gardner	303.762.2605 Desk
L/E WWTP Treatment Division Manager:	Jim Tallent	303.762.2610 Desk
L/E WWTP Beneficial Use Supervisor:	Dug Graham	303.762.2618 Desk
Colorado State Patrol:	911 or	303.239.4500(headquarters)
CDPHE 24-hour Emergency Spill reporting:		1.877.518.5608

Within 24 hours, the Beneficial Use Supervisor will send a written report detailing how the spill occurred, quantities and remedial action taken to the Environmental Compliance Manager.

Fuel and Oil Spill Prevention and Response

Fuel and oil spills are dangerous to the health of people and to the environment. The hazards include fumes, ignitions, asphyxiation, burns, water, soil contamination and fire. In case of an fuel and oil spill, make sure you know what to do. Immediate measures can help the spill from spreading. Be sure to have the presence of mind and follow this easy and effective oil spill clean-up procedure.

Emergencies can be a confusing time. So to make it easier for you, just remember the **3 Cs** of handling any accidental spills. These are **Control**, **Contain**, and **Clean-up**. Controlling the situation is to stop the cause or source of spill or slowing down the rate of release. Containing the spill is minimizing the damage by preventing the spill from spreading to other areas. Clean up is the removal of the contaminants itself from the affected area. The proper disposal of the materials used in the removal of the contamination is the final step in any clean up.

Objective: To effectively deal with spill accidents in order to prevent the adverse effects on the environment and on the individuals cleaning-up the contents of the spill.

Materials included with spill response kit located in each truck:

- Stand-by fire extinguishers
- Safety goggles
- Safety suit
- Safety mask
- Closed footwear
- Oil spill containment booms or socks.
- Absorbent pads or rolls

Procedures are as follows:

I. Oil Spill Control

1. Immediately take control of the situation.
2. If possible, stop the source of the leakage by turning off a valve, plugging the hole or turning the container upright.
3. Search for causes of ignition. Put out any flames; turn off any machines that are working.
4. Wear proper safety gear. Fumes can be inhaled, so make sure that your whole body is well protected.
5. Inform management immediately. Ask for help.

II. Oil Spill Containment

1. If the oil or chemicals are near any type of drainage be sure to seal those first.
2. Surround the oil spill with oil spill booms or socks. Enclose the area of contamination.
3. Make sure that you have secured all exit points for the spillage.

III. Oil Spill Clean Up

1. Place the absorbent pads, pillows or rolls directly on the liquid.
2. Scatter the absorbent pads or rolls in the different areas to aid in the clean up.
3. Continue placing and replacing absorbent pads until the last drop of liquid is absorbed.
4. Place all the soiled absorbent pads inside plastic bags.
5. Re-bag soiled absorbents if needed to prevent leakage.
6. Then place the absorbent booms or socks inside plastic bags.
7. Place the bags inside a drum or a single container.
8. Label or tag the container.
9. Contact your approved waste handler for proper disposal.

IV. Reporting:

All spills will be reported immediately to:

L/E WWTP Environmental Compliance Manager:	Mary Gardner	303.762.2605 Desk
L/E WWTP Treatment Division Manager:	Jim Tallent	303.762.2610 Desk
L/E WWTP Beneficial Use Supervisor:	Dug Graham	303.762.2618 Desk
Colorado State Patrol:	911 or	303.239.4500(headquarters)
CDPHE 24-hour Emergency Spill reporting:		1.877.518.5608

Within 24 hours, the Beneficial Use Supervisor will send a written report detailing how the spill occurred, quantities and remedial action taken to the Environmental Compliance Manager.

Article Source for plan development: <http://EzineArticles.com/1799261>

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■ ELEMENT 12

Documentation and Recordkeeping	Corresponding Requirements: NBP Element: 12
Prepared by: Jim Tallent, Treatment Division Manager	Revision #: 12.0 Revision Date: March/2012
Approved by: Jim Tallent, Treatment Division Manager Signature:  Date: September 18, 2012	Element Effective Date: March/2012

The L/E WWTP has established and maintains a Records Management Program which provides a well-managed system to store, access and retrieve active and inactive informational records of all types. This includes record retention periods and the 17 elements of the L/E WWTP Biosolids Management Program (BMP). Procedures have been established to ensure that BMP documentation is:

- Reasonably available.
- Is created following established document creation protocol.
- Is kept up-to-date through scheduled, periodic reviews and/or revision.
- Is properly documented with version information, effective dates and references to replaced or superseded versions.

All records are assigned to an appropriate subject category utilizing the established L/E WWTP Master File Numbering Plan:

010 PLANT ADMINISTRATION	100 LABORATORY
020 BENEFICIAL USE	110 LEGAL
030 CITY OF ENGLEWOOD	115 LOWRY LANDFILL SHALLOWGROUNDWATER OPERABLE UNIT
040 CITY OF LITTLETON	118 THORNTON WATER CASE
050 CONSULTANTS - PREQUALIFIED	120 OPERATIONS
051 CONSULTANTS - GENERAL	130 SAFETY
060 CONTRACT PROJECTS	140 TRAINING
070 FINANCE	150 PERSONNEL
080 GOVERNMENT AGENCIES	
090 INDUSTRIAL PRETREATMENT	

L/E WWTP will set and revise the BMP to support documentation and recordkeeping using the following procedure:

1. All documents used in the BMP are generated and maintained electronically. They are also controlled and managed using established procedures.
2. The following documents related to the L/E WWTP BMP or relevant biosolids management activities are considered "controlled" documents and so noted in all printed copies:
 - a. Regulatory reports
 - b. Policy statements
 - c. [All elements of the BMP Manual](#)
 - d. [Standard Operating Procedures \(SOPs\)](#)
 - e. [Emergency response plans](#)
3. All master BMP documents, including policy statements, process control SOPs, equipment maintenance and all other relevant SOPs will be maintained through [InfoNet](#), following established Knowledge Management (KM) procedures. Master documents will include headers citing document control information by appropriate number (examples below):

Example InfoNet SOP Header

Document Number:	PWR_SOP_001	Revision Number:	01	WO	143248
Effective Date:	4/08	Last Revision Date:	4/08	Next Review Date:	5/13
Prepared by:	J. Tallent	S.M.E.	J. Tallent	Approved by:	J. Tallent

Example BMP Header

L/E WWTP Biosolids Management Program Manual: Documentation and Recordkeeping	Corresponding Requirements: NBP Element: 12
Prepared by: Jim Tallent, Treatment Division Manager	Revision #: 12.0 Revision Date: March/2012
Approved by: Jim Tallent, Treatment Division Manager	Element Effective Date: March/2012

Signature: _____ Date: _____

(Example Subsequent BMP pages)

L/E WWTP Biosolids Management Program Manual: Documentation and Recordkeeping Element 12	Corresponding Requirements: Revision #: 12.0 Revision Date: March/2012
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4. The L/E WWTP follows the [Colorado Municipal Records](#) retention schedule. Version and revision history will be maintained for all controlled documents and record retention periods will be consistent with the L/E WWTP records retention policy. No record may be destroyed under this retention schedule if it is pertinent to any current, pending or anticipated investigation, audit or legal proceeding. The **minimum** retention periods specified in this schedule apply to the information contained within the record copy, regardless of the physical format of the record copy (paper, microfilm, electronic, or any other format).

5. Biosolids application records retention is as follows:
 - a. **Permits and Supporting Documentation:**

Retention: 5 years after expiration, cancellation, revocation or denial.

 - b. **Preparation of Biosolids:**

All records relating to treatment, preparation, and transport of wastewater biosolids to approved sites, including certifications of concentration of pollutants, pathogen requirements and management practices.

Retention: 5 years [\[40 CFR 503.17\]](#)

 - c. **Application Site Placement:**

All records of wastewater biosolids applied to agricultural farm sites, including name and address of persons who prepare the biosolids, name and address of the landowner or lease holder and site-specific information.

Retention: By organization who prepares biosolids, for as long as wastewater biosolids remains on land [\[40 CFR 503.20\]](#)

6. The following types of administrative materials have no public record retention value and may be disposed of as soon as they have served their purpose at the discretion of the Treatment Division Manager or other appropriate manager:
 - **Catalogs, trade journals and other printed materials** received from other offices, commercial firms or private institutions, which require no action and are not needed for documentation purposes.
 - **Informational or extra copies** of correspondence, completed forms, bulletins, newsletters, etc., prepared for reference and information distribution.
 - **Letters of transmittal** that do not add any information to the transmitted materials.
 - **Miscellaneous memoranda or notices** that do not relate to the functional responsibility of the L/E WWTP, such as notices of community affairs, employee meetings, holidays, etc.
 - **Preliminary drafts** of letters, memoranda, reports, worksheets and informal notes that do not represent significant basic steps in the preparation of record documents.
 - **Routing slips, sheets, post-it notes or memos** used to direct the distribution of documents.
 - **Outdated or superseded stocks of publications** kept for supply and hand-out purposes.
 - **Telephone messages** that convey non-policy informational messages.
 - **Library or museum material** acquired for reference or exhibition purposes.
 - **Identical duplicate copies** of records.
 - **Notes, tapes or recordings** that have been transcribed.
 - **Temporary or transitory material** with little or no bearing on decision-making.
 - **Training material** from conferences, workshops or other types of external training opportunities.
 - **Unused blank forms** which are obsolete.

7. **Duplicate Copies:** Retain duplicate copies that are created for administrative purposes for up to (one) 1 year, and retain those created for convenience or reference purposes until no longer needed or for up to (one) 1 year, whichever comes first. **Duplicate copies will not be retained longer than the record copy.**

8. When BMP documents have reached the retention date, the document will be reviewed by the Treatment Division Manager to determine whether the retention period needs to be extended, approve document destruction or have the document permanently archived.

9. Data resulting from process monitoring and measurement activities is retained in Hach WMS database. This information is retained permanently.

10. Access to position (job) descriptions and training records is maintained through InfoNet. These records are maintained on the secure server and updated as necessary. Documents maintained externally from the L/E WWTP and InfoNet (e.g. Federal Register sections, NBP reference materials, etc.) are electronically linked through InfoNet to the document source. Electronic links contained within the BMP are verified annually. If non-functional links are

discovered outside the annual review process, they are corrected immediately.

11. Records pertaining to BMP related contractor activities are maintained following the existing record management system. Depending on the activity involved, contractor records may become part of regulatory required reporting documents.

12. The Treatment Division Manager has sole responsibility for approving significant revisions to the BMP manual. Minor grammatical corrections/edits, links to new or revised documents, etc. are not considered significant changes or revisions and may occur as necessary. BMP reviews and revisions are documented via a work order process, as a log of revisions. Completed work orders, documenting revisions, are retained electronically in the facility Enterprise Asset Management (EAM) program.
Updates/revisions may generally be made in response to one or more of the following:
 - Internal audits
 - External audits
 - Operational changes
 - Annual reviews of Critical Control Points, Operational Controls and BMP goals and objectives
 - Annual BMP Performance Report

13. As part of the disaster recovery program, all electronic data and records are backed up at three different locations. All IT systems are protected via firewalls, anti-virus software, etc. utilizing best industry practices. Documents, reports, contracts are stored as hard copy records and maintained and managed as part of the facility records management system. Critical records such as contracts, permits, etc. are duplicated at the City of Englewood City Clerk's office. Older documents are stored off-site at a secure facility, which is also part of the records retention program. Electronic documents are stored on shared servers, which are backed up on a regular basis. IT has programs and policies in place for regular technology migration.

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Last Updated: October 02, 2014 by jtallent

■ ELEMENT 13

Monitoring and Measurement	Corresponding Requirements: NBP Element: 13
Prepared by: Jim Tallent, Treatment Division Manager	Revision #: 13.1 LEWWTP DOC #: BMP_ELE_013 Work Order #: 204189
Approved by: Jim Tallent, Treatment Division Manager Signature:  Date: September 21, 2012	Element Effective Date: 3/12 Revision Date: 3/15 Next Review Date: 3/16

Monitoring and measurement activities conducted by L/E WWTP 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 points.
- Activities conducted to track progress toward achieving BMP program goals and objectives.

[CDPS Discharge Permit, 40 CFR Part 503 Biosolids Regulations](#) and [Adams County Biosolids Regulations](#) identify regulatory monitoring, measurement and reporting requirements by Colorado Department of Public Health and Environment, USEPA and Adams County. These documents are essential to the overall quality of treatment plant operations and environmentally responsible biosolids end use.

L/E WWTP also conducts regular monitoring and sampling to measure process performance at critical control points. Plant process is monitored, in real time, using a Supervisory Control And Data Acquisition (SCADA) system and in-field, Plant Operator monitoring of process components. Much of this electronically collected data is permanently archived for future reference. Process control and discharge permit required samples are collected using automatic samplers or by manual sampling, following an established [sample schedule](#) and [sample taking](#) protocol. All sampling incorporates chain-of-custody documentation of the “when, where, how much and who” of every sample collected from selected process control points. The L/E WWTP laboratory does not have the capability to perform certain testing procedures due to specialized equipment requirements or testing protocols. In this case, contract laboratories are used to perform this special testing. All laboratory testing results, whether internally or externally generated, are permanently stored electronically in the Hach WIMS database and laboratory test bench sheets, or contracted laboratory test reports, are retained in accordance with the L/E WWTP document retention program.

The data, whether generated from SCADA sources or laboratory testing of samples obtained from the treatment process, assist in the determination of how [Critical Control Points](#) are managed to maintain process objectives and meet discharge permit requirements. Related to biosolids, [Table 13.1](#) contains a comprehensive listing of historical biosolids monitoring and measurement results in meeting the objective of maintaining metals concentrations at least 10% lower than PC metals limitations.

L/E WWTP will set and revise the Biosolids Management Program (BMP) to support monitoring and measurement using the following procedure:

1. Monitoring and measurement data is reviewed and approved monthly by Operations Supervisors and/or the Beneficial Use Supervisor. Laboratory data is also reviewed and approved monthly by the Treatment Division Manager, Laboratory Supervisor and Data Analyst. Manual data review, for quality control verification, provides a level of assurance necessary for all reporting requirements.
2. Process analytical or instrumentation data is stored electronically on a dedicated server. Data records are retained indefinitely, following the L/E WWTP document retention program.
3. Progress towards meeting goals and objectives is tracked at intervals deemed appropriate by the Treatment Division Manager and will be noted on the [Goals and Objectives](#) Action Plan Template. By using the Enterprise Asset Management (EAM) system, work orders are used to track progress, staff time and expenses for selected Goals, Objectives and Knowledge Management related topics.

The Treatment Division Manager is responsible for evaluating the need for monitoring and measurement activities (if any) on the part of a contractor (a company or organization hired to perform a specific task related to the biosolids value chain) and incorporating necessary language into service agreements. The Treatment Division 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.

The following reports and/or documentation reflect biosolids analysis and end use:

1. [Annual biosolids reports](#)
2. [Dewatering performance reports](#)
3. [Anaerobic digester performance](#)
4. Field inspection reports/observations
5. [Historical Biosolids metals testing results \(Table 13.1\)](#)
6. Performance reporting (accidents, violations, etc.)
7. Data QA/QC

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Table 13.1
Littleton/Englewood Wastewater Treatment Plant
Historical Annual Average Metal Concentrations in Biosolids by Calendar Year
Pollutant Limits - Monthly Average
(Pollutant Concentration Limits for PC Biosolids (mg/kg)^a)

Reporting Year	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Molybdenum ^b	Nickel	Selenium	Zinc	Pathogen Requirement Achieved	Pathogen Reduction	Vector Attraction Reduction
Ceiling Limit	75	85	3,000	4,300	840	57	75	420	100	7,500		Alternative Used	
PC Limit	41	39	1,200	1,500	300	17	---	420	36	2,800			
Average	<1.83	<5.56	95.26	765.09	<146.7	<2.16	<30.43	53.41	18.90	1,057.66			
1983	na	18.7	392	987	462	na	na	99	---	1,500	Class B	PSRP	Option 1
1984	na	13.7	358	906	603	na	na	108	---	1,504	Class B	PSRP	Option 1
1985	na	15.0	342	938	311	na	na	118	---	1,575	Class B	PSRP	Option 1
1986	na	12.3	224	856	258	na	na	92	---	1,428	Class B	PSRP	Option 1
1987	nd	8.2	192	1,114	277	4.51	20.8	88	---	1,620	Class B	PSRP	Option 1
1988	2.5	7.1	190	870	165	4.3	37	119	---	1,384	Class B	PSRP	Option 1
1989	2.89	7.1	229	802	133	1.57	45.2	86	---	1,453	Class B	PSRP	Option 1
1990	4.1	7.01	125.2	732	265	3.64	37.8	105	---	1,326	Class B	PSRP	Option 1
1991	3.5	5.60	82	698	109	3.29	46.3	66	---	1,251	Class B	PSRP	Option 1
1992	2.4	5.3	75	701	98	3.3	34	104	---	1,452	Class B	PSRP	Option 1
1993	3.4	4.6	84	624	99	2	37	89	---	1,268	Class B	PSRP	Option 1
1994	2.5	2.7	145	657	81	3.5	36	125	---	1,307	Class B	PSRP	Option 1
1995	2.5	<2.5	58	628	<35.2	3.9	29	87	---	958	Class B	PSRP	Option 1
1996	1.78	<5.3	44.7	646	<24.3	3	<22.8	58.3	---	796	Class B	PSRP	Option 1
1997	<1.23	6	51.3	601	<21.2	3.28	18.5	49.2	---	646	Class B	PSRP	Option 1
1998	<2.3	5.3	39.6	539	<24.3	2.3	24.6	28.6	---	644	Class B	PSRP	Option 1
1999	2.7	5	36	610	<20.3	2.5	31	22	---	696	Class B	PSRP	Option 1
2000	3.01	4	33	642	<20.3	2.7	38	16	14	711	Class B	PSRP	Option 1
2001	3.24	4.75	26.3	668	<22.8	2.5	42.9	16.5	14.9	709	Class B	PSRP	Option 1
2002	<1.94	4.9	27	668	<21	2.4	44	16	19.1	680	Class B	PSRP	Option 1
2003	2.3	4.6	20	844	<20	<1.8	45	22.1	18.31	799	Class B	PSRP	Option 1
2004	3.2	3.3	30	826	<22	1.8	47.8	21.8	21.4	851	Class B	PSRP	Option 1
2005	2.9	3.2	28	845	<26	2	38	21	22.8	867	Class B	PSRP	Option 1
2006	1.5	3.8	31	821	29	1.21	38	19	20.58	912	Class B	PSRP	Option 1
2007	1.6	2	30	756	33	0.51	21	21	24.03	920	Class B	PSRP	Option 1
2008	1.8	2.4	22	821	31	0.48	24	16	20.19	963	Class B	PSRP	Option 1
2009	1.7	2.0	24	850	24	<0.40	19	18	19.6	938	Class B	PSRP	Option 1
2010	2.0	1.6	21	838	20	0.32	14	16	20.64	945	Class B	PSRP	Option 1
2011	2.0	1.6	21	838	20	0.32	14	16	20.64	945	Class B	PSRP	Option 1
2012	1.9	1.7	19.5	747	20.9	0.35	14.8	14.9	16.3	978	Class B	PSRP	Option 1
2013	1.9	1.7	22.0	701	19.3	0.25	13.4	14.5	14.5	861	Class B	PSRP	Option 1
2014	1.8	1.6	25.8	709	22.5	0.21	10.4	16.1	16.5	958	Class B	PSRP	Option 1
2015													
2016													
2017													

^a Dry-weight basis

^b As a result of the February 25, 1994, Amendment to the rule, the limits for molybdenum were deleted from the Part 503 rule pending EPA reconsideration.

na – not available

nd – not detected

PSRP – Process to Significantly Reduce Pathogens - Anaerobic digestion - Sewage sludge is treated in the absence of air for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature shall be between 15 days at 35 to 55 degrees Celsius and 60 days at 20 degrees Celsius.

Option 1 - The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38 percent

■ ELEMENT 14

Nonconformances: Preventive and Corrective Action	Corresponding Requirements: NBP Element: 14
Prepared by: Jim Tallent, Treatment Division Manager	Revision #: 14.1 Revision Date: 09/14 LEWWTP DOC #: BMP_ELE_014 Next Review Date: 09/15 Work Order #: 204191
Approved by: Jim Tallent, Treatment Division Manager	Element Effective Date: March/2012
Signature:  Date: September 21, 2012	

Nonconformances

The purpose of this element is to establish, document and maintain procedures for investigating and correcting the following:

- Noncompliance with L/E WWTP Biosolids Management Program (BMP) requirements.
- Noncompliance with legal and other requirements.
- Process issues that may arise from monitoring/measurement activities or internal or external BMP audits.

Definitions

Major Nonconformance: A serious omission from requirements and/or other departure that represents, or could cause, a systemic failure.

Minor Nonconformance: An isolated departure from requirements that does not represent a systemic failure.

Opportunities for Improvement (and/or BMP internal observations): Suggested improvements to the BMP based on auditor or staff observations. There is no obligation for action in response to these observations, however they are considered for merit and implementation potential.

CAPA Review: Developed for BMP and other internal use, Corrective and Preventive Action (CAPA review) is the process used to determine the root cause of an identified condition and any corrective measures taken to correct/prevent the deficiency recurrence. This means that policies, programs, plans, operational controls, monitoring/measurement procedures or any other identified condition of the BMP are reviewed to determine specific underlying causes of deficiencies in the system.

Corrective Active Plan: A plan developed by the agency to correct a nonconformance or other identified deficiency and prevent the event from reoccurring.

BMP Improvement

In addition to issues that may arise from monitoring/measurement activities or nonconformances noted as a result of internal or external BMP audits, there may be opportunities to improve the BMP program or associated documents/systems supporting the BMP. Identified as "Opportunities for Improvement", "BMP Internal Observations" or "Document Review Observations" (from 3rd party audit), these observations are reviewed for merit and recommendations are provided to either incorporate the change or not, following established nonconformance investigation procedures (i.e. CAPA review). These actions are typically preventive in nature with the goal to resolve or improve the system.

L/E WWTP will set and revise the BMP to support nonconformances using the following procedure:

1. L/E WWTP Permit Related Legal/Regulatory Nonconformances

Legal/regulatory requirements are either specifically identified in L/E WWTP [CDPS Discharge Permit](#), [Biosolids application permit](#) or are incorporated by reference. The permit(s) may contain procedures for investigating nonconformances of legal/regulatory requirements identified in the permit.

2. BMP Nonconformances and Opportunities for Improvement Identified During Internal Audits

Internal BMP audits are conducted in accordance with procedures developed under [Element 16](#). For each nonconformance or opportunity for improvement identified, an [opportunity for improvement investigation report](#) will be completed.

- NBP [Auditor's Guidance](#) documents are available as a resource to the BMP Internal Audit team.
- Completed investigation reports are submitted to the BMP Advisory Team for review and action.
- The Treatment Division Manager (or other assigned staff member) is responsible for tracking progress using the following:
 - o For minor nonconformances or CAPA review, progress is tracked every two (2) weeks.
 - o For major nonconformances, progress is checked every four (4) weeks.
 - o Progress tracking is documented by completing the action plan and action plan progress notes, included as part of the nonconformance.
- The Treatment Division Manager will submit an internal audit report to the Plant Manager annually, summarizing the internal audit results and corrective actions (if necessary) that have 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 Review Report).
- Minor nonconformances will be corrected within a thirty (30)-day period. Major

nonconformances and identified CAPA reviews will be corrected within a ninety (90)-day period, unless these timeframes need to be extended, as documented in the corrective action plan.

3. BMP Nonconformances and Opportunities for Improvement Identified During 3rd Party Audits

- a. 3rd party audits are conducted in accordance with the procedures identified by the NBP.
- b. Audit reports are submitted to L/E WWTP Treatment Division Manager.
- c. If the auditor identifies nonconformances, the Treatment Division Manager follows the steps listed under [Step #2b](#).
- d. Minor nonconformances will be corrected within a thirty (30)-day period and major nonconformances will be corrected within a ninety (90)-day period, unless the auditor and L/E WWTP agree that these timeframes need to be extended.

4. BMP Internal Observations and Opportunities for Improvement Identified by Plant Staff

- a. Through the course of BMP operation, opportunities for improvement may be identified, by staff members, which will enhance the program or provide more efficient operation. Whether discovered during a nonconformance investigation or through the activity of day-to-day operation, a proactive approach to program/system operation, helps to identify a situation and prevent it from becoming a hazardous or noncompliance issue.

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Last Updated: October 06, 2014 by bdurkin

■ ELEMENT 15

Biosolid Management Program Manual	Corresponding Requirements: NBP Element: 15
Prepared by: Jim Tallent, Treatment Division Manager	Revision #: 15.0 Revision Date: March/2012
Approved by: Jim Tallent, Treatment Division Manager Signature:  Date: September 22, 2012	Element Effective Date: March/2012

L/E WWTP will prepare an annual performance report (Management Review) that provides summary information on activities associated with the Biosolids Management Plant (BMP).

L/E WWTP will set and revise the BMP to support Management Review using the following procedure:

1. Treatment Division Manager will prepare a written Management Review that summarizes the performance of the BMP. The performance report will be completed by **April 30** 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 L/E WWTP biosolids program relative to established goals, objectives and legal requirements.
 - b. Summary of relevant contractor activities (as applicable).
 - c. Summaries of actions that have been taken on a voluntary basis.
 - d. Progress towards achieving biosolids program goals and objectives.
 - e. A summary of internal audits.
 - f. A summary of independent third party audits (as applicable).

The performance report will be available on the [L/E WWTP biosolids web site](#) and [InfoNet](#) in PDF format.

**The master document resides on the secure InfoNet server .
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Last Updated: November 12, 2013 by bdurkin

■ ELEMENT 16

Internal Biosolids Management Program Audit	Corresponding Requirements: NBP Element: 16
Prepared by: Jim Tallent, Treatment Division Manager	Revision #: 16.0 Revision Date: March/2012
Approved by: Jim Tallent, Treatment Division Manager Signature:  Date: September 20, 2012	Element Effective Date: March/2012

The L/E WWTP will conduct internal audits of the Biosolids Management Program (BMP) in order to determine and improve its effectiveness.

L/E WWTP will set and revise the BMP to support internal biosolids management program audit using the following procedure:

1. The BMP Advisory Team authorizes internal audits of the BMP to help assess performance of the program.
2. The audit will be conducted by assessors approved by the L/E WWTP BMP Advisory Team.
3. BMP Advisory Team determines purpose, scope, and reporting requirements for the audit. The assessors determine timing and methods used. EAM system used to track audit.
4. Audit reports to BMP Advisory team and supervisor of the area being audited, including conclusions based on purpose and recommendations for improvement, based on audit results. All documents and records related to internal audits will be maintained in InfoNet.
5. The audit will evaluate the effectiveness of the BMP, including progress toward goals and objectives, response to non-conformances, management review, public participation and communications. In addition, specific BMP Elements may be evaluated as a part of this review, at the discretion of the Plant Manager.
6. Internal audits will also evaluate whether Biosolids management policy, through the Biosolids value chain, is being effectively met by reviewing policy related performance measures (e.g. permit compliance, cost effectiveness, responsive to public concerns, worker health and safety, etc).
7. The National Biosolids Partnership [NBP BMP Guidance Manual](#) and other appropriate documents will be made available as a resource to the L/E WWTP BMP audit team. The objective methods listed in the Guidance Manual are as follows:
 - i. Document and records review
 - ii. Interviews
 - iii. Direct observation
8. Non-conformances and opportunities for improvement will be addressed using the procedure identified in [Element 14](#).

The Treatment Division Manager will review and submit the internal audit to Plant Manager summarizing the internal audit results and corrective actions (if necessary) that have already been taken or will be taken to address any non-conformances. The audit report may be a stand-alone document or may be included as part of other prepared reports (e.g. the [Management Review](#)). The audit report will be available on the [InfoNet](#). Treatment Division Manager will periodically evaluate the need to provide training or guidance to the internal auditors. Treatment Division Manager will be responsible for coordinating any subsequent activities related to training or guidance.

***The master document resides on the secure InfoNet server.
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Last Updated: November 12, 2013 by bdurkin

■ ELEMENT 17

Management Review	Corresponding Requirements: NBP Element: 17
Prepared by: Jim Tallent, Treatment Division Manager	Revision #: 17.1 Revision Date: Sept/13
Approved by: Jim Tallent, Treatment Division Manager Signature:  Date: September 20, 2012	Element Effective Date: March/2012

The Biosolids Management Program (BMP) will be reviewed in an on-going basis to ensure its continuing suitability, adequacy, and effectiveness. Reviews shall include assessing opportunities for improvement and the need for changes to the BMP, including the goals/objectives. Management Review records shall be kept in accordance with [Element 12, Documentation and Record Keeping](#).

L/E WWTP will set and revise the BMP to support management review using the following procedure:

1. BMP Advisory Team will review BMP and related Biosolids management activities and will summarize activities conducted during the previous 12 months:
 - Follow-up actions from previous management reviews.
 - Consistency with Biosolids policy commitments.
 - Biosolids program performance in the areas of product quality, environmental impact, legal compliance, and relations with interested parties.
 - The extent to which goals and objectives have been met.
 - Results of internal audits and evaluations of compliance with legal requirements and with other requirements to which the organization subscribes.
 - Status of corrective and preventive actions.
 - Changing circumstances impacting the Biosolids program related to its environmental aspects.
 - Recommendations for improvement.
2. The outputs from management review shall include any decisions and actions related to possible changes to environmental policy, objectives, targets, and other elements of the BMP, consistent with the commitment to continual improvement.
3. The management review will be carried out in close coordination with the BMP internal audit.
4. The Treatment Division Manager will meet with the Plant Manager to review the report and submit the findings to the plant staff and the Supervisory Committee.
5. Any changes to policies, goals and objectives, plans, procedures, work practices and other BMP elements deemed necessary as part of the management review will be documented in writing.
6. The BMP Advisory Team will develop a schedule and action plan to address recommendations from the management review.

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Last Updated: November 12, 2013 by bdurkin