



**EMS Guidance**

**Biosolids Environmental Management System Gap Analysis**

**AGENCY 7 - EPA REGION 10**

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EMS Element	Purpose of Element	Gap Analysis for	
		Current Situation <i>(per response to questionnaire)</i>	Gaps Protot
Environmental Policy	Organizational commitment to Biosolids Code of Practice	Informal policy exists as articulated in general City documents and in package prepared for EPA award that states commitment to: 100% beneficial reuse, sustainability, local reuse, Class A and other regulatory requirements, Exceptional Quality standards, diversity of markets, flexibility, and transportation cost minimization. Such commitments are reflected in other internal and public program documents. Formal commitment to biosolids quality (and quality of "inputs") in pretreatment ordinances. Also, Divisional employee business cards have City's mission statement printed on back addressing innovation, cost-effectiveness, quality, and continuous improvement.	Commit not form a policy. commitm not as ex communi internally externall could be.
Planning Environmental Aspects and Impacts	Process for identifying environmental aspects and impacts of biosolids management activities	Processes and procedures exist to identify critical control points in all aspects of operations from pretreatment through reuse. Includes metals and other influent loadings, process measures such as solids, temperature, flow, oxygenation, detention time, polymer, etc. Additionally, City takes soil, groundwater, and other baseline samples during	Process as forma could be. process measure be linked within a planning

		site selection process prior to any application to establish appropriateness of site and baseline for future. Also, county health department reviews new sites for appropriateness. Normal and abnormal circumstances covered.	
Planning Legal & Other Requirements	Process for tracking and evaluating applicable legal and other requirements	City proactively tracks and evaluates requirements—existing and being developed—at the local, state, regional, and federal level. Staff is active in the Northwest Biosolids Management Association, Coalition for Clean Water (WA state), AMSA, WEF, etc. Staff involvement at management/supervisor level in NBMA in particular is extensive (e.g., co-chairing committees, subcommittees)—recently have been inviting non-management level staff to selected NBMA events. Also, staff have submitted comments on important proposals in the past and are currently involved in advocating best practices and innovation at the state level.	Existing t activities formalize could be.
Planning Objectives & Targets	Establishing long- and short-term improvement goals for biosolids management	City has established Division-level short- and long-term objectives and targets for the biosolids program and is managing program to these targets. Division goals for 1999 relating to biosolids, which are included in City's strategic plan, include forming a Class A bagged biosolids performance team, evaluation of ballasted sedimentation, developing a solids unloading and storage facility plan, cleaning a digester, and increasing cross-training. The goals specify target completion dates, person/unit responsible, and status (updated quarterly).	Goals, o targets a formally articulate next leve the secti unit level such goa but are n down. O not form incorpor personal performa measure
Planning Biosolids Management Program	Program to achieve biosolids management objectives and targets, incl. compliance and best practices	Comprehensive biosolids management program designed to achieve compliance with regulatory requirements—specifically for Section 503, state requirements, and Class A biosolids standards.	As with o and targ program formally articulate section/u or formal personal

		<p>Program manages by objective at Divisional level explicitly, at lower levels informally. Program covers entire biosolids value chain. Schedules, resources, responsibilities, and tracking measures established for specific actions and initiatives. Program has incorporated several innovative technologies and best management practices, including sequenced, dual stage digestion and UNOX processes. Progress toward objectives and targets formally reviewed quarterly and annually.</p>	<p>performa objective section/u manager</p>
<p>Implementation Structure &amp; Responsibility</p>	<p>Defining organizational roles and responsibilities for biosolids management</p>	<p>Management responsibility for biosolids management identified at Division and section/unit level. Environmental responsibilities, including beyond compliance, public relations, sustainability, advocacy, and assistance to other communities defined with varying degrees of formality. Management responsibilities communicated through organization.</p>	<p>Section/ roles an responsi as forma defined be, for sections/ section/u</p>
<p>Implementation Training</p>	<p>Training program to provide necessary awareness, skills, and knowledge for biosolids mgt., incl. best practices</p>	<p>Division has draft training plan that will establish overall curriculum and individual modules for assistants, operators, and machinists. Operations modules cover digesters, DAF, oxygen generation, methane gas/boiler, and belt filter presses. Pre-testing and post-training written tests are planned. Current training program includes extensive on-the-job training for operators and machinists that covers most biosolids operations except for bagged Class A biosolids and land application activities. Operators participate in state certification program.</p>	<p>Draft trai does not include covering bagged mix prod land appl operatio also doe include r or contin compon</p>
<p>Implementation Communication</p>	<p>Formal process for internal and external communication on biosolids management</p>	<p>Division has extensive and by all evidence successful external communication program including: demonstration plots at agricultural and forest sites, utility bill inserts promoting TAGRO and the biosolids program</p>	<p>Internal communi not as fo could be.</p>

		<p>generally, plant tours, group presentations, participation in shows and fairs, development of a school curriculum element, use of biosolids by plant and other city staff, city cable spots, and NBMA activities. The Biosolids Operations Supervisor attained Master Gardener standing to enhance Division's and his personal outreach and communication capabilities. At plant, staff have planted "mirror" gardens of annuals, perennial, fruit, and vegetables showing growth with and without biosolids (i.e., Class A bagged biosolids). Informal but aggressive process to respond to and address complaints. Internal communication program involves formal and informal meetings, newsletters, e-mail, and web-based media.</p>	
<p>Implementation Documentation &amp; Document Control</p>	<p>Formal process for creation, storage, use, modification, and disposal of EMS documents</p>	<p>The Division has implemented some elements of a comprehensive documentation and document control program but it does not link various biosolids program elements together.</p> <p>Records retention and archiving program has received formal state approval and is in the process of being implemented.</p>	<p>There is standard docume and doc control p with an i set of pol procedur what) an (how to) various k elements solids/bi activities</p> <p>There is procedur for the cr modificat retention archiving various p procedur and reco although such as retention process impleme</p>
<p>Implementation Operational Control</p>	<p>Detailed procedures addressing environmental aspects of biosolids</p>	<p>There are SOPs/operations checklists for many of the solids processing activities, including DAF units, dual thermophilic/mesophilic</p>	<p>There ar currently gaps in t for vario solids/bi activities</p>

	management. (best practices procedures)	aerobic/anaerobic digesters, solids dewatering and Class A biosolids liquid, cake and mix operations.	There is formalize approach of SOPs operatio training.
Implementation Emergency Preparedness & Response	Procedures to prepare and respond to emergency conditions, including emergency communication	The Division has formalized emergency response and contingency plans for the full spectrum of abnormal and emergency situations. These include transportation-related spills/releases of biosolids, weather-related natural disasters such as flooding and earthquakes, power outages, chlorine releases, PSA O <sub>2</sub> unit upsets, confined space, employee accidents and Y2K mission critical internal and external supply contingencies.	There ar formalize training/s drills to t emergen readines respons
Checking Monitoring & Measurement	Procedures for routine compliance monitoring and measuring progress on objectives/targets	<p>Division conducts formalized monitoring and measurement of its WWTP operations, including effluent quality, and biosolids/Class A quality as well as critical WWTP unit treatment process control parameters. These monitoring and measurement programs meet or exceed all federal and state regulatory and permit requirements. The WWTP has a high degree of automation and SCADA control of all unit processes. Day-to-day operational checklists are also used by operators to augment WWTP instrumentation/process controls for both plant and solids/biosolids activities.</p> <p>Process Control and Water Quality laboratories have comprehensive, specific QA/QC monitoring as part of formalized laboratory accreditation/certification program and DOE.</p> <p>The Division also completes a quarterly review of the status of divisional TQ Strategy goals, which include biosolids/Class A bagged biosolids-specific elements.</p>	The curr objective targets d extend t individua organiza units wit Division compreh basis.

Checking Nonconformance, Corrective & Preventive Action	Procedure for identifying and addressing nonconformances to internal EMS requirements	The Division routinely reviews apparent non-conformances, trend inconsistencies, monitoring anomalies, etc., and initiates formal investigations/reviews to identify root causes and implement the necessary corrective action. These reviews are institutionalized elements of daily operations management but not part of a formalized internal operations audit program.	The curr program include fi from for internal program.
Checking Records	Procedure for maintenance and disposal of biosolids management records	<p>The Division has formalized record-keeping for various biosolids program activities, including aspects/impacts, monitoring data, legislative/regulatory/permit requirement &amp; reports, emergency response procedures, etc.</p> <p>The Division has recently received approval of a detailed, comprehensive records retention schedule. Under state law, public agency records retention must be approved by the State Attorney General, Auditor and Archivist.</p>	The Divi the proc impleme detailed retention schedule specified recently retention & proced docume
Checking Internal Audit	Procedure for periodic internal auditing of EMS	<p>The Source Control Program conducts formally scheduled inspections and monitoring of permitted significant industrial users (SIUs).</p> <p>The pretreatment program is formally audited annually by the Washington State Department of Ecology (DOE). Every 3 years DOE and EPA Region 10 conduct a combined compliance audit of the pretreatment program.</p> <p>The Division management team routinely conducts informal reviews of the overall WWTP operation and the biosolids/Class A-specific activities.</p>	There is formalize manage system i audit pro within th "Internal is done a daily ope manage activities as a for structure program, some sp checking occur.
Management Review	Process for review by senior management of the effectiveness of the EMS and improvement	Agency conducts quarterly performance measures/status evaluations. It also completes a formal annual review of progress toward	The curr objective targets a formalize section/s organiza

	progress	<p>its divisional/departmental strategic goals under the City's Total Quality Strategy program as an integral part of the annual budgeting process.</p> <p>The Division is currently developing a formalized 10 year strategic business plan. The plan will define specific strategies goals, objectives and targets for the Division overall and specifically for biosolids/TAGRO and progress will be reviewed annually along with goals for the City-wide TQ Strategy.</p>	<p>units in beyond biosolids specific the form City-wide Strategy goals.</p>
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This gap analyses was conducted using a Prototype EMS and screening level questionnaire developed by the National Biosolids Partnership for information gathering and demonstration purposes. It should be understood that the gap analysis results summarized above are based primarily on on-site interviews of the management team responsible for pretreatment, wastewater treatment, and biosolids management activities at the participating utilities. The findings reflect the interview team's interpretation of the degree to which a formal biosolids management system is in place and functioning effectively.

The findings are, however, based primarily on self-declared representations of the current situation and limited document reviews, which is no substitute for a more rigorous, in-depth verification audit process involving on-site staff interviews, and detailed work place observations. A formal EMS verification audit would be based on a common set of biosolids management procedures/practices that are under development. Finally, the audit would examine in much greater detail the *linkages* among various biosolids activities in order to determine whether an actual management *system* was in place and functioning effectively. The gap analyses presented in this report, by necessity, focused more on the existence of certain activities, not their linkages.

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