



**EMS Guidance**

**Biosolids Environmental Management System Gap Analysis**

**AGENCY 4 - EPA REGION 7**

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EMS Element	Purpose of Element	Gap Analysis for Age	
		Current Situation <i>(per response to questionnaire)</i>	Gaps vis-à-vis Prototype EMS
Environmental Policy	Organizational commitment to Biosolids Code of Practice	<p>General city mission city statement with commitment to environmental protection, etc. POTW's commitment to good management practices and systems is largely by example, and implicit in a number of separate documents. Covers compliance, cost-effectiveness and good community relations, among other items.</p> <p>Contractor has a mission statement that covers all relevant areas, including protection of human health, environment, regulatory compliance, to excellence in client service, best management</p>	POTW has no biosolids-specific policy document, although all key elements that would make up a policy appear to be present.

		practices, employee development, and state of the art technology. Policies based on corporate statement of principals that signed by all employees. Policies are applied to contractors subcontractor.	
Planning Environmental Aspects	Process for identifying environmental aspects and impacts of biosolids management activities	<p>Process is well developed across program areas. Pretreatment program identifies and tracks users and incoming pollutants that may potentially affect biosolids quality. Operational staff have identified and are managing all important aspects within plant processes. Operators use SCADA to run/monitor operations and export data to other applications (e.g., Access, Excel) to further evaluate and track trends, etc. Residuals Coordinator plays initial and ongoing key role in selecting and evaluating sites.</p> <p>Contractor responsible for detailed site evaluations, mapping, soil testing, calculating appropriate nutrient loadings, and all ongoing analyses. All occur under formalized and documented procedures,</p>	Site maps are somewhat difficult to read and of plat-level/aerial photography level detail.

		including checklists.	
Planning Legal & Other Requirements	Process for tracking and evaluating applicable legal and other requirements	<p>POTW staff track existing and developing requirements through professional periodicals, newsletters, and participation in national (WEF) and local (KWEA) professional organizations. Residuals Coordinator is currently on KWEA Biosolids Committee, and has been active in national initiatives in the past. Also rely on Kansas League of Municipalities, which appears fairly proactive in following and attempting to influence legislation at the state level.</p> <p>Contractor has a dedicated staff person that tracks existing and developing regulations. Also have a comprehensive agronomic program that follows leading technological developments</p>	None.
Planning Objectives & Targets	Establishing long- and short-term improvement goals for biosolids management	<p>POTW has strong long-term strategic plan, as laid out in the Wastewater Facility Master Plan, which addresses all aspects of biosolids looks forward to and addresses capacity, etc. issues through 2020. Budget process develops shorter-term objectives and targets that are</p>	<p>Long-term objectives not as strongly linked with shorter term, e.g., annual targets, especially non-capital related as could be.</p>

		<p>primarily capital, technology, or project-specific.</p> <p>Contractor's contract contains specific annual volume targets that are quantified and measurable and other explicit tracking and regulatory requirements.</p>	
<p>Planning Biosolids Management Program</p>	<p>Program to achieve biosolids management objectives and targets, incl. compliance and best practices</p>	<p>Program achieves compliance with all regulations and covers or has links with all relevant operations. Program elements that are related to capital projects and technology are systematically set up to achieve applicable objectives and targets. With respect to BMPs, program is less structured.</p> <p>Balance between POTW and contractor roles and responsibilities appears to be optimized and oversight is highly effective. Contractor's management program is highly structured, and oriented toward technology and performance.</p>	<p>No process for formal periodic review of progress toward objectives and targets that are non-capital or non-process improvement oriented.</p>
<p>Implementation Structure &amp; Responsibility</p>	<p>Defining organizational roles and responsibilities for biosolids management</p>	<p>For both POTW and contractor, representative identified with very specific and clear job descriptions. Within POTW Residuals Coordinator has strong authority and responsibility other staff are well aware of this</p>	<p>Stature of Residuals Coordinator position seems oriented toward back-end of the process instead of the total biosolids value chain.</p>

		<p>person's role. With respect to contractor, project managers, drivers, and applicators are responsible for knowledge of biosolids production well beyond land application.</p>	
<p>Implementation Training</p>	<p>Training program to provide necessary awareness, skills, and knowledge for biosolids mgt., incl. best practices</p>	<p>For the POTW, training program is strong, though relatively informal, except as relates to operator certifications. Over half of POTW staff have such certifications (including 8 Class IV), which includes some biosolids production/quality training. Training and education incentives are strong, and are well funded explicit skill-based pay system in place. Training and other education (e.g., workshop attendance) is well documented.</p> <p>Although contractor not required to have training program under contract, training requirements are implicit and in fact contractor has extensive on-the-job, in-WWTP plant training program (three weeks operation and maintenance) plus four weeks on-the-job land application training covering application, regulations, agronomics, and procedures.</p>	<p>POTW has no biosolids-specific formal training program.</p>

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		Examining enhancing program using computer-based interactive tools.	
Implementation Communication	Formal process for internal and external communication on biosolids management	Biosolids issues discussed at all relevant venues internally, though relatively informal although residuals management does have high overall profile. POTW takes advantage of a variety of venues for external communication and education. Promotion activities match existing supply-demand situation (10 x more acreage in program than use on annual basis). Procedure for receiving and responding to complaints, inquiries clear, implicit set out at City level (i.e., all go through City manager). Depending on issue, Residuals Coordinator seeks utility department's and or city PR assistance.	Program is relatively passive with respect to regional or state-wide promotion of beneficial reuse.
Implementation Documentation & Document Control	Formal process for creation, storage, use, modification, and disposal of EMS documents	Documentation and records processes fairly formal and well developed, especially as relate to operational processes, but less so for application aspect of program. Well aware of retention requirements, though keep well beyond timeframe.  Contractor	Documents relating to policy, mission, and biosolids program not consolidated, and also incomplete.

		documentation and document control program is strong with respect to site and overall program management.	
Implementation Operational Control	Detailed procedures addressing environmental aspects of biosolids management. (best practices procedures)	POTW's SOPs for operational processes formal and well developed, but less so for application aspect of program.  Contractor SOPs for land application well developed, e.g., Residuals Operators Manual, including project start up, reporting, site evaluation, etc.	SOPs for application program not formally documented they exist but are implicit, only verbally communicated, or depend on self-directed action of Residuals Coordinator.
Implementation Emergency Preparedness & Response	Procedures to prepare and respond to emergency conditions, including emergency communication	Well developed and documented emergency response for pretreatment and all plant operations.  Contractor's EPR is a spill prevention and clean-up plan for transport and land application that covers all activities from when contractor takes possession of biosolids materials through injection. Drivers and appliers receive training in EPR procedures. Contractor also has trained emergency personnel and equipment to deploy for spill clean up.	POTW has no biosolids-specific EPR procedures as relate to transport and application detailing POTW responsibilities.  Contractor does not conduct simulated drills or testing of EPR plan.  Neither has explicit plans for weather or natural disaster events as relates to biosolids.
Checking Monitoring & Measurement	Procedures for routine compliance monitoring and measuring progress on objectives/targets	Both POTW and contractors monitoring and measuring routines are excellent covering	POTW does not have a formal compliance auditing program. Also no program for tracking

		regulatory requirements, equipment, calibration and records. In-house and contracted labs fully accredited. POTW has taken advantage of some opportunities for outside evaluation (e.g., mock inspection by EPA, this gap analysis).	progress toward objectives and targets for non-capital items.
Checking Nonconformance, Corrective & Preventive Action	Procedure for identifying and addressing nonconformances to internal EMS requirements	Both POTW and contractor procedures are strong, but relatively informal and implicit i.e., not mandated but done verbally as extension of day to day jobs. Covers all aspects of biosolids value chain.	Process to address nonconformance and determine root causes is not formal.
Checking Records	Procedure for maintenance and disposal of biosolids management records	All records relating to day-to-day management, process monitoring, sampling, site applications, at plant volume awaiting application, and cumulative application well documented, detailed, and available.  Contractor keeps all records required. Contractor prepares detailed daily, monthly, and annual reports on application activities. Annual report is submitted by POTW to state and has been consistently approved without deficiencies.	Records relating to environmental aspects and impacts, environmental audits and review, some EPR (biosolids-specific) are incomplete. Also, hold records beyond requirements.
Checking Internal	Procedure for	POTW and	No formal

Audit	periodic internal auditing of EMS	contractor both conduct frequent day to day checks, but do not have formal internal auditing program. POTW has taken advantage of ad hoc opportunities for some external evaluation (some proactively obtained, some reactive).	auditing program.
Management Review	Process for review by senior management of the effectiveness of the EMS and improvement progress	Well developed management review for capital and project activities, but less developed for biosolids. Review as relate to current plant expansion and upgrades, including decisions regarding new belt presses (i.e., increasing solids content), and other process aspects currently strong.	Management review does not address objectives and targets for biosolids program that are non-capital.

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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