



**National Biosolids Partnership
Biosolids EMS Verification Audit Report**

**Encina Wastewater Authority,
Carlsbad California**

Audit Report Date: August 10, 2005

Audit Conducted By:

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Audit Dates:

Phase 1 - June 27 – 29, 2005
Phase 2 – July 18 to 21, 2005

Approvals:

Peer Review By: Michael Wardell, Biosolids Auditor
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1. SUMMARY

KEMA-Registered Quality Inc. (KEMA) has conducted an independent Verification Audit of the Biosolids Environmental Management System (EMS) of Encina Wastewater Authority (EWA). The purpose of the audit was to verify that Encina's EMS conforms to requirements of the National Biosolids Partnership (NBP) *Environmental Management System for Biosolids* standard, comprised of 17 EMS Elements. The audit was also intended to verify that the EMS is functioning as intended, practices and procedures are conducted as documented and the EMS is producing desired outcomes.

A. Audit Scope and Methodology

In general terms, the scope of the Biosolids EMS audit encompasses the entire biosolids value chain (pretreatment, collection and treatment, stabilization, storage and transportation and end use / disposition), with special attention to practices and management activities that directly support biosolids-related operations, processes, and activities.

Specifically, the scope of the audit of EWA's biosolids EMS included:

- Review of EWA's EMS Documentation.
- Audit of EMS processes being used by EWA in managing their biosolids activities. The scope of these process audits cover the requirements of the 17 EMS Elements and included onsite audits at the Encina Water Pollution Control Facility (EWPCF) in Carlsbad California and the Ag Tech land application site in Yuma Arizona, as well as interviews with certain interested parties.
- Examination of outcomes EWA is achieving by the use of their EMS.

The audit was performed in two phases. Phase 1 was conducted June 27 to 29, 2005 and included a review of EMS Documentation and audit of seven key EMS processes. Phase 2 was conducted July 18 to 21, 2005 and included audits of all remaining EMS processes and examination of EMS outcomes.

Each audit was performed by interviewing key persons involved in the process, observing practices in place, and reviewing pertinent documents and records. Representative interested parties were interviewed.

B. Summary of Audit Findings

EMS Strengths

KEMA noted the following strengths in the EWA Biosolids EMS.

- There is a strong commitment throughout the organization to the principles of the Code of Good Practice. As an example, there is good housekeeping throughout the plant and trucks are kept exceptionally clean at both EWPCF and Ag Tech.

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- Odor management equipment and practices in place at EWPCF have resulted in good control of odors.
- The subsurface injection techniques being used by Ag Tech to apply biosolids are, we believe, a best practice. Regulators who have seen these methods are complimentary.
- An easy to use and understand EMS Awareness training program is in use.

EMS Outcomes

The biosolids EMS being used by EWA has demonstrated the following outcomes since implementation began in 2001. For more details, see “Detailed Audit Findings” in Section 2 of this report.

- Best practice sub-surface injection techniques are used for land applying EWA biosolids.
- Implementation of effective co-generation methods have reduced utility costs and minimized emissions.
- Designs have been developed to enable Class A biosolids production and expand opportunities for beneficial re-use.
- Methods have been implemented to eliminate dry weather water runoff to local waterways.
- NPDES permit violations have essentially been eliminated.
- Overall EWA performance and land application contractor operations control have resulted in recognized confidence from State regulators, stakeholders and the public.
- Public education and other methods have improved the stability of incoming wastewater.
- Local stakeholders have demonstrated full confidence in EWA’s ability to operate local facilities, including expanded operations and monitoring.

Nonconformances

During this audit, KEMA found no major nonconformances and nine (9) minor nonconformances with respect to the audit criteria. These nonconformances are described in Section 3 of this report (Audit Results).

EWA has prepared a Corrective Action Plan for each minor nonconformance identified and KEMA’s Lead Auditor has reviewed and approved those plans.

Opportunities for Improvement

KEMA noted the following opportunities for improvement in the EWA Biosolids EMS. Additional opportunities are included in the detailed audit reports.

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- Defining the internal audit process as being comprised of three (or more) separate assessments, including progress towards goals and objectives, performance in meeting biosolids policy commitments and conformance with EMS requirements, could give a better overall assessment of EMS effectiveness.
- Procedures and descriptions in the EMS Manual could be simplified to make the manual more user-friendly and still have it reflect actual practices.

C. Verification Statement

KEMA issues the following verification statement based on the results of our audit of the EMS being used by the EWA:

“Encina Wastewater Authority has been independently verified by KEMA Quality Inc. as having an effective biosolids environmental management system that supports continually improving environmental performance, meeting regulatory compliance obligations, utilizing good management practices, and creating meaningful opportunities for public participation and is in conformance with the requirements of the National Biosolids Partnership.”

D. Requests / Agreements

KEMA and EWA have agreed that the effectiveness of action taken to correct nonconformances identified in this audit will be verified by KEMA at or before the next interim audit. KEMA will perform the next interim audit within 12 months of EWA's receipt of a certification for their EMS from the National Biosolids Partnership.

2. AUDIT DETAILS

A. Local Agency Details

Agency Name: Encina Wastewater Authority

Facility: Encina Water Pollution Control Facility, Carlsbad California

Biosolids Produced = 34,000 wet tons per year (Class B)

Number of Employees = 52

Biosolids use / Disposition Sites:

Land Application – Ag Tech LLC Farm, Yuma Arizona

B. Audit Team

The National Biosolids Partnership assigned KEMA Quality Inc. to perform this audit on their behalf. KEMA's Audit Team consisted of:

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Jon Shaver – Biosolids EMS Lead Auditor
Ralph Eschborn – Biosolids Auditor

KEMA asserts that the relationship that our firm and our auditors have with EWA is completely independent and meets criteria established by the National Biosolids Partnership for Third Party Audit Companies and Third Party Auditors. We also assert that the auditors who conducted this audit on our behalf are qualified for their roles through certification by the National Biosolids Partnership.

C. Reference Materials

The following documents were used as references during this audit:

National Biosolids Partnership “EMS for Biosolids” standard (May 2002)
National Biosolids Partnership Biosolids EMS Auditor Guidance (November 2004)
National Biosolids Partnership Code of Good Practice
Encina Wastewater Authority EMS Manual (@ June 1, 2005)

D. Definitions of Terms

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 – a suggested improvement in the EMS based on auditor observations. There is no obligation for action in response to these observations.

Corrective Action Plan – a plan developed by the agency being audited to correct a nonconformance and/or prevent that nonconformance from re-occurring.

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3. AUDIT RESULTS

A. Summary of Results by EMS Element

EMS Element	EMS Status (@ 7/21/05)	Nonconformances (corrective action plan approved for each nonconformance)
1. Documentations of EMS for Biosolids	Conforms	None
2. Biosolids Management Policy	Conforms	None
3. Identification of Critical Control Points	Minor Nonconformance	<u>Minor Nonconformance 05-01</u> It is not clear how identified operational controls shown in EMS Manual, Section 3 apply to specific critical control points and environmental impacts.
4. Legal and Other Requirements	Minor Nonconformance	
5. Goals and Objectives for Continual Improvement	Minor Nonconformance	<p><u>Minor Nonconformance 05-02</u> Biosolids goals / objectives are not sufficiently specific or measurable.</p> <p><u>Minor Nonconformance 05-03</u> The written biosolids goals / objectives do not specify measurable targets in the areas of regulatory compliance and environmental performance.</p> <p><u>Minor Nonconformance 05-04</u> The process for tracking progress towards goals and objectives (tactical plan review) has not been used to track progress towards achieving biosolids goals / objectives and no other tracking has been done.</p>
6. Public Participation in Planning	Conforms	None
7. Roles and Responsibilities	Conforms	None
8. Training	Conforms	None
9. Communication	Conforms	<u>Minor Nonconformance 05-06</u> EWA's expectations for contractor communications roles / responsibilities are not stated in the Communications Program (EMS Manual, Element 9).

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EMS Element	EMS Status (@ 7/21/05)	Nonconformances (corrective action plan approved for each nonconformance)
10. Operational Control of Critical Control Points	Conforms	None
11. Emergency Preparedness and Response	Conforms	None
12. EMS Documentation, Document Control and Recordkeeping	Minor Nonconformance	<p><u>Minor Nonconformance 05-07</u> Written document control procedures do not clearly reflect actual practices, particularly as to what documents require control within the EMS and how the document hierarchy description is used in identifying and controlling documents.</p> <p><u>Minor Nonconformance 05-08</u> Records of audit reports, training, biosolids program performance reports and management reviews are not identified as EMS records requiring control.</p>
13. Monitoring and Measurement	Minor Nonconformance	<u>Minor Nonconformance 05-09</u> It is not clear how EWA is monitoring contractor performance against expectations in Service Agreement, such as principles of the Code of Good Practice and compliance (e.g. agronomic rates).
14. Nonconformances: Preventive and Corrective Action	Conforms	None
15. Biosolids Program Periodic Performance Report	Conforms	None
16. Internal EMS Audits	Minor Nonconformance	<u>Minor Nonconformance 05-05</u> The process used to assess the extent to which policy commitments are being met has only been partially implemented.
17. Periodic Management Review of Performance	Conforms	None

B. Examination of EMS Outcomes

The environmental management system being used by EWA is an integral part of the way all biosolids activities are managed. In that sense, the EMS has contributed significantly to the following improvements in biosolids activities since it was implemented approximately 4 years ago.

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Quality Biosolids Practices

1. Sub-surface liquid injection practices used by Ag Tech for land applying biosolids are highly regarded by Regulators and have successfully eliminated all odor complaints. Benefits – no complaints and effective agronomics. Estimated value = cost reduction of at least \$100K/yr in responding to complaints + indirect value of regulator confidence.
2. The use of methane off gas in blowers has enabled EWA to generate approximately 80% of its own electric needs. Benefit – reduced electric costs, reduced combustion and related air emissions. Estimated value = \$1MM / year reduced utility cost.
3. Designs have been developed and a project is underway to introduce dryer equipment that will enable Class A biosolids to be produced. Benefit – increased opportunity for beneficial reuse. Value – to be determined upon completion of project.
4. Improved offsite transportation and handling practices have been implemented. Benefit - reduced inspections by EWA. Estimated Value = \$20K/yr in staff time associated with inspections and housekeeping.

Environmental Performance

5. Surface water drains at EWPCF have been connected to the plant headworks within the past 5 years. Benefit – no dry weather storm water runoff, reduced pollutant loading on local waterways. Value = indirect value to EWA. Local pollutant loading reduced by approximately 100,000 gallons per year.
6. Chemically enhanced primary treatment was implemented by the addition of polymer and ferric chloride. Benefit – increased methane gas production and reduce energy requirements. Estimated value = \$150K / year reduced fuel costs.

Regulatory Compliance

7. NPDES permit violations have been eliminated in the past two years. Formerly about two such violations would occur annually. Benefit – no citations. Estimated value – at least \$50K/yr direct cost reduction, plus indirect cost reduction (correction of noncompliances).
8. Since Arizona was granted primacy in 2004 no problems with State Regulators have occurred and, in fact, Regulators have expressed confidence in Ag Tech and EWA's land application practices. Benefit – able to land apply 100% of biosolids and improve beneficial reuse. Estimated value = up to \$400K per year reduced disposal costs (compared to less beneficial options).

Relations with Interested Parties

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9. A public outreach and education program has reduced instances of BOD and color slugs entering the plant, enabling more stable operations and no effluent discoloration. Benefit – stable operations. Estimated Value = \$40K per year additional treatment cost reduction.
10. Methods described above in other outcomes areas have also helped in reducing complaints received at EWPCF from approximately 50 per year prior to implementing EMS principles to approximately 2 per year.
11. The EWA member agencies have developed sufficient confidence to contract EWA to operate pump stations and water reclamation plants. Benefit – fee for service and improved operational efficiency.

C. Detailed Audit Findings

The auditors made the following observations during this audit. This description has been prepared sequentially to parallel the 17 EMS Element. Actual audits consisted of process audits, which often involved more than one EMS Element.

Element 1 – EMS Documentation

Process Description

EMS procedures and practices are described in the EWA EMS Manual. This manual is organized to follow the elements of the EMS for Biosolids standard sequentially.

Details of the EMS Documentation Review are described in the appendices to this report. EWA addressed all of the “observations” noted in the Documentation Review and updated the EMS Manual prior to Phase 2 of this audit.

Audit Results

This process was found to conform to applicable requirements of the EMS Elements and meet NBP expectations.

Additional Observations

Procedures and descriptions in the EMS Manual could be simplified to make the manual more user-friendly and still have it reflect actual practices.

Element 2 – Biosolids Management Policy

Process Description

The EWA Biosolids Management Policy was authorized by Board Resolution on June 23, 2004. It is located in the EMS Manual (Section 2) and communicated to interested parties

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on the EWA website. Training programs include communication of the policy to employees and Service Agreements communicate the policy to contractors. The policy commits EWA to operate in accordance with the principles of the NBP Code of Good Practice and makes additional commitments consistent with that code.

Audit Results

This process was found to conform to applicable requirements of the EMS for Biosolids standard and NBP expectations.

Additional Observations / Opportunities

EWA's practices are consistent with the principles in the Code of Good Practice. More direct communication of these principles could help in continuing that consistency.

Some of the statements made in the Biosolids Policy describe achievements that are more like goals (e.g. achieve Class A biosolids quality). These types of commitments are difficult to incorporate into the EMS and will cause a need for changing the policy when the goal is achieved.

Element 3 – Critical Control Points

Process Description

Critical control points for EWA operations throughout the biosolids value chain are identified in the EWA EMS Manual, Element 3 and 10. The table providing this identification also lists numerous environmental impacts and operational controls for each CCP category.

A "transaction test" determined that EWA's list of critical control points and associated environmental impacts and operational controls were reviewed and updated following the January 2005 change in the Manual of Good Practice Appendix F (providing direction for critical control points). The EMS Coordinator communicated changes affecting EWA operations to the affected Department Manager / Supervisor. Operating personnel at EWPCF are aware of these critical control points.

Audit Results

This process was found to conform to applicable requirements of the EMS Elements and meet NBP expectations, except as noted below.

Minor Nonconformance 05-01 It is not clear how identified operational controls (EMS Manual, Section 3) apply to specific critical control points and environmental impacts.

Additional Observations / Opportunities

Referencing operational control categories / methods, rather than identifying and extensive list of detailed controls, could help enable managers to determine the level of detail needed based on the significance of actual or potential impacts.

Element 4 – Legal and Other Requirements

Process Description

The Environmental Compliance Director tracks and identifies regulations and permits that apply to EWA operations and biosolids product and keeps records of these requirements. Communications from regulators and national and State associations are used to keep information about regulations current. The Environmental Compliance Department generally prepares permit applications themselves. New / changed requirements are discussed at weekly and monthly staff meetings and an implementation plan is agreed upon. No “other” requirements exist.

A “transaction test” was performed to determine how the EMS responded to a new legal requirement, specifically a new regulation that set diesel particulate air emission limits for the test operation of standby generators. EWA’s Environmental Compliance Department had early warning about the impending change through their involvement with regional trade associations. No action was deemed necessary until a formal permit holder notice was received. In conjunction with the EWA O&M departments and an outside consultant, options were evaluated to meet the new limits, and reduced testing and certification of the sulfur content were identified as an appropriate solution. New operating and testing procedures and recordkeeping requirements were established. A plan is in place to complete the implementation of these changes and train personnel when the new permit is issued.

Audit Results

This process was found to conform to applicable requirements of the EMS for Biosolids standard and NBP expectations.

Additional Observations / Opportunities

Although the applicable legal and other requirements are well recorded, an environmental calendar could help ensure knowledge of required reports and other time-dependent regulatory events.

Element 5 – Goals and Objectives for Continual Improvement

Process Description

EWA goals and objectives for each calendar year are identified in tactical plans that are discussed and approved at a Board of Directors meeting. The status of achieving each tactical objective is also discussed at a Board of Directors meeting. The tactical objectives are reviewed to ensure they are consistent with “Strategic Focus Areas” identified in a 5-year Strategic Plan (November 2003). Biosolids goals and objectives are developed based on the overall tactical objectives for the year. Each biosolids objective has an action plan (management program) that includes responsibility and timing for each step.

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Audit Results

This process was found to conform to applicable requirements of the EMS Elements and meet NBP expectations, except as noted below.

Minor Nonconformance 05-02 Biosolids goals / objectives are not sufficiently specific or measurable.

Minor Nonconformance 05-03 The written biosolids goals / objectives do not specify measurable targets in the areas of regulatory compliance and environmental performance.

Minor Nonconformance 05-04 The process for tracking progress towards goals and objectives (tactical plan review) has not been used to track progress towards achieving biosolids goals/objectives and no other tracking has been done.

Additional Observations / Opportunities

Biosolids objectives may be more easily identified and their progress tracked if they were part of the tactical objectives for the entire facility.

Integrating Biosolids EMS outcomes with the goals and objectives process and internal audit process could be an effective way to monitor progress and EMS performance.

While progress towards biosolids goals and objectives is reported in the Biosolids Management Program Performance Report, it could help in communicating direction to interested parties if these objectives were made available for comment at the beginning of the applicable period.

Element 6 – Public Participation in Planning

Process Description

Planning for developing the EMS and developing biosolids goals and objectives is discussed at Board of Directors meetings that are open to the public. The Director of Environmental Compliance (also EMS Coordinator) communicates directly with regulators. Input from the public and other interested parties can also be received via letters, phone calls (complaints), plant tours, local civic events and membership in community associations. Input received about biosolids matters is directed to the EMS Coordinator for action and discussion during EMS Team meetings, weekly and monthly staff meetings and tactical planning meetings used to develop goals and objectives.

Audit Results

This process was found to conform to applicable requirements of the EMS Elements and meet NBP expectations.

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Additional Observations / Opportunities

It could be helpful to identify how each method of obtaining public input and proactively communicating with the public is used in order to measure the effectiveness of each method.

Element 7 – Roles and Responsibilities

Process Description

Biosolids and EMS job responsibilities are noted in written Position Descriptions and performance is reviewed annually during formal performance reviews. The Position Description for the Director of Environmental Compliance includes EMS Coordinator responsibilities. Contractor roles and responsibilities are noted in the EMS Manual (Section 7) and defined in Service Agreements with the contractor. The suitability and any need for changes in human, financial or equipment resources is discussed during annual budget / planning meetings and, if necessary, at monthly manager meetings.

Audit Results

This process was found to conform to applicable requirements of the EMS Elements and meet NBP expectations.

Additional Observations / Opportunities

None

Element 8 – Training

Process Description

EMS Awareness training is provided to all EWA personnel through an interactive training program on the Internet. Each employee is required to successfully complete this training annually, including achieving at least 70% on the test of subjects covered. Service Agreements specify that contractors must provide appropriate training and a signed acknowledgement is obtained from each Ag Tech (transportation contractor) driver noting that the driver has received information on the EMS and their biosolids responsibilities.

Job training includes a 12-month on the job instruction period, with a mid-term performance review, several contracted training programs that must be completed depending on the employee's job and discussions at tailgate sessions. Ag Tech has conducted EMS Awareness training at a recent Safety Meeting (record reviewed).

Audit Results

This process was found to conform to applicable requirements of the EMS Elements and meet NBP expectations.

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Additional Observations / Opportunities

The EMS awareness training provides an easy to understand overview of the EMS and is thoroughly provided. Since it was initiated 2 years ago, some parts may be outdated and a review / update of this training program may be appropriate.

Element 9 – Communication

Process Description

External communication about biosolids activities occurs through several different methods, including an interactive website, plant tours, community street fairs, attendance at various association meetings and presentations at public Board of Director meetings. The website and Board of Director meetings are used to communicate the Biosolids Policy and references legal and other requirements, goals and objectives and performance reports. The EMS Coordinator maintains an interested party list (any person can request to be on this) and periodically sends e-mails to these persons, including notification of third party audit. A local educator interviewed during this audit confirmed that he was aware of the EMS and plans for a Third Party Audit and noted that odor control and housekeeping at the EWPCF plant has improved considerably in recent years.

The services contract with the transportation and land application contractor (Ag Tech) provides specific EMS requirements, including need for consistency with EWA's commitment to the principles of the Code of Good Practice. The Assistant Operations Superintendent periodically inspects the contractor's activities and uses these opportunities to communicate about the EMS and other EWA performance expectations. There is no specific reference to Ag Tech's communication requirements within EWA's EMS, however an interested party near the land application site stated that Ag Tech is communicating with interested parties about their activities. Ag Tech has a well-written brochure available to the public on request that describes their biosolids activities. A complaint recording and monitoring practice is in place at EWPCF and Ag Tech.

EWA employees are made aware of EMS activities and requirements through training and in management meetings and other staff meetings, including Safety Meetings. The Operations Superintendent has discussed the EMS with Operators and Maintenance personnel. Several employees demonstrated awareness of the Biosolids Policy and understanding of the basic EMS concepts.

Audit Results

This process was found to conform to applicable requirements of the EMS Elements and meet NBP expectations, except as noted below.

Minor Nonconformance 05-06 EWA's expectations for contractor communications roles / responsibilities are not stated in the Communications Program (EMS Manual, Element 9).

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Additional Observations / Opportunities

The biosolids brochure being used by Ag Tech for public communication is well written and provides an easy to understand method of continuing to improve communication with interested parties.

Communications with contractors concerning their involvement in EWA's EMS could be more effective if EWA provided training for the contractor. EWA's EMS Awareness training program could be useful for doing that.

Communications about the EMS to employees (and others) could be more effective if they related measurable results.

A method for receiving input / feedback from employees about the EMS results (e.g. discussion at Safety Committee meetings) could help in achieving 2-way communication.

The current list of interested parties is relatively short and could be expanded for improving communication with the public.

The local educator interviewed noted that several other educators could be interested in receiving more information about the EMS and NBP's program.

Element 10 – Operational Control of Critical Control Points

Process Description

Pretreatment Process -

Identified critical control points and operational controls for this process are consistent with the National Manual of Good Practice. The majority of incoming flow is from residential / commercial sources and an effective public education program is used to help ensure incoming material is of acceptable quality. For instance, an effective education program about disposal of sugar is used at Thanksgiving. Industrial dischargers are controlled by permits. Laboratory tests are done 5 days per week to analyze incoming flow and results are communicated to operators, recorded and tracked (e.g. metals content). A written Source Control Program is in place describing these activities.

Wastewater Treatment Process -

Identified operational controls are in place (Preliminary Treatment controls reviewed to confirm). EWA utilizes bar screens to remove non-biodegradable materials that could detract from biosolids quality. Odor control in the headworks area is enhanced through addition of hydrogen peroxide.

Solids Stabilization Process -

Identified operational controls and monitoring are in place and are appropriate and effective, as evidenced by review of the anaerobic digestion process. A SCADA system, including monitoring and built-in control logic, is used to monitor and control operations, with back up by operator rounds, field readings and recordkeeping. Operators are familiar with methods

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for changing set points and responding to alarms. Tracking of maintenance service requests demonstrated control.

Solids Storage and Transportation Process -

Identified operational controls for trailer loading and spotting for pickup are in place and understood by operators. Trucks are loaded directly from the belt filter presses in a manner that minimizes splashing. Operators demonstrated knowledge of wash down and inspection procedures and what to do if a truck is considered to not be in acceptable condition. Once loaded, trailers are immediately covered. No odors were evident. Contractor drivers tie down the tarps prior to leaving the site. Tarps were observed to be in good condition.

Maintenance Process -

A preventive maintenance system is in place, including nondestructive testing, and personnel are well aware of how it is used. Records clearly demonstrate equipment maintenance history. Work order procedures are in place, understood, and work effectively.

Evening Shift Audit

An audit of an evening shift was conducted to ascertain how well the various Elements of EWA's EMS have been implemented, particularly Elements 9 (Communications), 10 (Operational Control) and 11 (Emergency Preparedness and Response). Operators were able to quickly produce an odor complaint log form and a checklist for monthly inspection of area safety equipment and were able to readily access several SOPs.

Biosolids Land Application Process (Ag Tech – Yuma AZ)

Ag Tech uses an effective sub-surface liquid injection method for applying biosolids. Agronomic Rate operational controls are consistent with the National Manual of Good Practice, including Application Rate Calculations, Agronomic Loading Rates, Soil Nutrient Characteristics and Land Area/Site application History. Contractor personnel are aware of these controls and how they are applied.

Reports to regulators are timely and records are retained. Application rate calculations, soil nutrient concentrations and crop/field agronomic loading rate requirements are reported and appeared compliant with Arizona Department of Environmental Quality requirements. The report did not, however, provide calculations or information to confirm the application rate translated to an agronomic loading rate that was no greater than the agronomic loading rate requirement.

Audit Results

Each of the processes described above was found to conform to applicable requirements of the EMS Elements and meet NBP expectations.

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Additional Observations

Operators at EWPCF commented that the EMS has “improved communications” and given them “a better sense of how their role fits into the big picture”.

The SCADA system provides efficient monitoring and control.

EWA has moved beyond the requirements of the Code by implementing Predictive Maintenance procedures to enhance their preventative maintenance program.

Categorizing operational control methods, rather than listing extensive controls, could help in prioritizing controls for specific points and impacts.

Requiring hazmat labels on tote tanks containing peroxide and bleach could help in communicating hazards and may be a regulatory requirement. In addition, inspection tags on these IBCs could be more durable.

Operators would like a better feedback mechanism when a maintenance service request is cancelled by the Maintenance Department.

The Ag Tech sub-surface liquid injection technique appears to be a best practice.

Ag Tech application records should be reviewed periodically to ensure agronomic rates remain consistent with Part 503 requirements.

Element 11 – Emergency Preparedness and Response

Process Description

EWA has prepared and implemented an Emergency Response Plan, including spill response procedures, that is reviewed annually. Drills / exercises are conducted annually at EWPCF, including tests of communications equipment. Personnel are trained in the plans and procedures and aware of required actions. Emergency equipment is inspected regularly and these inspections were found to be current. Copies of spill response procedures are included in trucks hauling biosolids offsite and drivers are aware of the procedures.

The Safety Team investigates any incidents that occur, including near misses, and corrective action is taken. Records of investigations and corrective action are kept.

Audit Results

This process was found to conform to applicable requirements of the EMS Elements and meet NBP expectations.

Additional Observations / Opportunities

A “stand-down” procedure in which all employees annually inspect the plant for safety conditions and improvement possibilities is an effective approach to promote safety and housekeeping awareness.

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Adopting the EMS corrective and preventive action procedure for correcting problems found in safety audits and incident investigations could enable a single procedure for these corrections that can help analyze common root causes.

Element 12 – EMS Documentation, Document Control and Recordkeeping

Process Description

The EMS Manual describes a document hierarchy scheme for identifying documents requiring control, but it is not clear how this hierarchy is used. Actual practices, however, show that several key EMS documents are being controlled and accessible on the BETS system (EWA hard drive), with approval and review requirements in place. It is understood that documents requiring control include “anything that establishes a standard of performance or action” (quote from EWA), including SOPs, Spill Response Plans, Board letters, contracts, Safety Procedures and the EMS Manual. The originator of a record is expected to take action to control that record and evidence indicates that important records are being controlled, although sometimes in a way that allows changes.

Audit Results

This process was found to conform to applicable requirements of the EMS Elements and meet NBP expectations, except as noted below.

Minor Nonconformance 05-07 Written document control procedures do not clearly reflect actual practices, particularly as to what EMS documents require control and how the document hierarchy description is used in identifying and controlling documents.

Minor Nonconformance 05-08 Records of audit reports, training, biosolids program performance reports and management reviews are not identified as EMS records requiring control.

Additional Observations / Opportunities

Document control methods could be simplified by identifying those documents that require control and using a practice to ensure the required and correct document is available where needed.

An archiving system for records may help ensure proper control, protection and disposal of EMS records.

Element 13 – Monitoring and Measurement

Process Description

Lab test results and operating parameters noted in SOPs are measured on a continuing basis to ensure biosolids production meets quality requirements. These records are kept by individual department managers and communicated to other personnel as needed. Ag

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Tech keeps records of their biosolids transportation and application activities, including monthly reports submitted to AZ State regulators. The regulator interviewed during this audit was satisfied with the records being submitted.

Department managers discuss progress towards goals and objectives at monthly manager meetings and during individual performance reviews and determine any corrective action needed. The Director of Environmental Compliance (or delegate) tracks compliance performance by monitoring lab test results and inspections done by regulatory agencies.

EWA's Assistant Operations Superintendent and others perform inspections at Ag Tech approximately quarterly.

Audit Results

This process was found to conform to applicable requirements of the EMS Elements and meet NBP expectations, except as noted below.

Minor Nonconformance 05-09 It is not clear how EWA is monitoring contractor performance against expectations in Service Agreement, such as principles of the Code of Good Practice and compliance (e.g. agronomic rates).

Additional Observations / Opportunities

Ag Tech application records should be reviewed periodically to ensure agronomic rates remain consistent with Part 503 requirements.

Element 14 – Nonconformances: Preventive and Corrective Action

Process Description

EWA has an effective corrective action process in place that includes cause analysis and determining an action plan to correct the problem. The EMS procedure reflects the procedure that has been used for several years, with the addition of a Corrective Action Request (CAR) form that is presently used to correct actual or potential EMS nonconformances. As an example, this Corrective and Preventive Action (CAPA) process was used to correct several observations concerning documentation made during Phase 1 of this audit (Documentation Review) plans were prepared and implemented for nonconformances identified during that phase.

Audit Results

This process was found to conform to applicable requirements of the EMS Elements and meet NBP expectations.

Additional Observations / Opportunities

An effective EMS Corrective and Preventive Action process is in place. This process, including documenting causes and actions could be useful in correcting problems identified elsewhere, such as safety audits and near-miss investigations.

Element 15 – Biosolids Management Program Performance Report

Process Description

A written report describing EWA's biosolids performance during the calendar year is prepared. This report is sent to identified interested parties and made publicly available through the EWA website.

Audit Results

This process was found to conform to applicable requirements of the EMS Elements and meet NBP expectations.

Additional Observations / Opportunities

The Biosolids Performance Report is well written and easy to read. Expanding the circulation of this report could help in maintaining good relations with interested parties.

While progress towards biosolids goals and objectives is reported in the Biosolids Management Program Performance Report, it could help in communicating direction to interested parties if these objectives were made available for comment at the beginning of the applicable period.

Element 16 – Internal EMS Audit

Process Description

Internal audits are scheduled to occur annually using auditors approved by the EMS Coordinator. An internal audit of EMS conformance with requirements was performed in February 2005 and the results were communicated to management (EMS Team) for correction of nonconformances.

Progress towards achieving goals and objectives and performance in meeting Biosolids Policy commitments has been assessed at a recent management review meeting.

Audit Results

This process was found to conform to applicable requirements of the EMS Elements and meet NBP expectations, except as noted below.

Minor Nonconformance 05-05 The process used to assess the extent to which policy commitments are being met has only been partially implemented.

Additional Observations / Opportunities

It may be helpful to define internal auditing as a process comprised of three parts, including, assessment of EMS conformance with requirements (or review of external audits doing

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that), assessment of consistency with Code of Good Practice and other policy commitments, and assessment of progress in achieving goals and objectives.

Element 17 – Management Review

Process Description

Management reviews of biosolids performance include weekly manager and staff meetings and monthly all hands meetings discussing current topics and annual (more frequent if desired) EMS Team meetings that discuss overall EMS performance, including its suitability, adequacy and effectiveness. Each of these meetings is recorded.

Audit Results

This process was found to conform to applicable requirements of the EMS Elements and meet NBP expectations.

Additional Observations / Opportunities

A review of EMS outcomes by the EMS Team could help in identifying benefits and priorities for continual improvement.

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APPENDICES

List of Interview Participants

Name	Position	Organization
Scott Allan	Operator	Encina Wastewater Authority
Tish Berge	Director of Environmental Compliance	Encina Wastewater Authority
Debbie Biggs	Enforcement Compliance Officer	Encina Wastewater Authority
Chuck Bollinger	Operations Supervisor	Encina Wastewater Authority
Bruce Dale	Assistant Operations Superintendent	Encina Wastewater Authority
Charlie Duvel	Operations Supervisor	Encina Wastewater Authority
Kevin Hardy	Assistant General Manager	Encina Wastewater Authority
Mike Hogan	General Manager	Encina Wastewater Authority
John Jardin	Operations Superintendent	Encina Wastewater Authority
Jeff Leads	Safety & Training Coordinator	Encina Wastewater Authority
Alan Menges	Operator	Encina Wastewater Authority
Mark Parli	Systems Supervisor	Encina Wastewater Authority
Mike Steinlicht	Maintenance Superintendent	Encina Wastewater Authority
Irek Wenske	Operator	Encina Wastewater Authority
James Mattern	Operator	Encina Wastewater Authority
Fred Asaraga	Driver	Ag Tech LLC
Junior Asaraga	Supervisor	Ag Tech LLC
Jim Donley	President	Ag Tech LLC
Sue Pemberton	Admin	Ag Tech LLC
Bonnie	Admin	Ag Tech LLC
Chris Metzler	Interested party (public / educator)	Local Community College
Diane Reed	Biosolids Regulator	State of Arizona
Dan Shuck	Neighbor to Ag Tech	Ag Tech LLC

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List of Documents Reviewed (by EMS Element)

1. Documentation of EMS for Biosolids

Encina Wastewater Authority EMS Manual (received June 1, 2005)

2. Biosolids Management Policy

Biosolids Policy dated June 23, 2004 (resolution 04-17)

3. Identification of Critical Control Points

EMS Manual Element 3 & 10

4. Legal and Other Requirements

Emails T Berge & D King (May 8 & 9 2005) re EWA Diesel Generator program
ATCM compliance for EWA Emergency Generators (Dec 1 04)
NPDES compliance inspection by CWQCB (11/15/04)
CA report in response to 11/04 CWQCB compliance inspection (12/08/04)

5. Goals and Objectives for Continual Improvement

Calendar year 2005 Tactical Plan (Dec 8 04)
2003 Tactical Plan goals report (Nov 19 2003)
Strategic Planning Update (Nov 2003)
Objectives / targets action plan – achieve class A biosolids (plan not dated)
Objectives / targets action plan – biosolids disposal (plan not dated)
Objectives / targets action plan – biosolids EMS outreach (plan not dated)
Objectives / targets action plan – biosolids EMS (plan not dated)

6. Public Participation in Planning

EWA website (June 28 05)
Interested party list (T Berge file)

7. Roles and Responsibilities

Performance Review T Berge (3/14/05)
Position Descriptions – Dir Env Compliance, Lab Supervisor

8. Training

EMS training record – J Leads (2001 through 2005)
EMS review J Jardin to Operators & Maintenance (1/19/05)
Cart Safety Training J Leads to Op's & Mtce (5/11/05)
EMS Awareness Training Certificate

9. Communication

Pretreatment Newsletter (May 05)
Biosolids EMS Brochure
Brochure – 10 simple ways to help protect the ocean
Weekly Supervisors Mtg notes (June 21, May 25 2005)
General Mgr staff mtg agenda / J Jardin record
Operations Div Digester Report June 2005
Supervisors Mth agenda & notes 7/6/05

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Emails T Berge to interested parties (May 2 05)
EWA website (www. encinajpa.com)

10. Operational Control of Critical Control Points

Pretreatment SOPs 13 & 24

Request for vehicle repair / maintenance

Ag Tech Equipment Maintenance & Repair Records

Equipment service record

AZ DEQ letter 6/23/05 – permission to add additional generators (Ag Tech)

Contract Services Agreement between EWA & Ag Tech (7/25/01) + June 05 Amendment

Ag Tech procedures Manual (= Land application, transportation, spill response Sops)

Ag Tech Driver's Vehicle Inspection Report

Ag Tech records – EWA Nani report Mar / Apr 2005

Ag Tech training records – driver training Nov 23 2004

EWA source control program & permit guidance (Aug 2001)

Infometals.xls spreadsheet (lab test results)

SOP 13 - Source Control Program (6/5/01)

SOP 14 - Septic tank discharge & chemical waste (June 1/01)

EWA Inspection of Ag Tech 2/23/05

AG TECH Documents

- Brochure
- ADEQ 2004 Biosolids Annual Report
- Driver's Vehicle Inspection Report
- Biosolids Transportation SOP
- Biosolids Land Application SOP
- Complaint Intake Record
- Forms – Request for Vehicle Repair; Repair record; Equip. Serv. Record
- ADEQ Approval letter – Addition of new generators
- Belt Press SOP (SOP #21)
- Pump Station Air Permitting Correspondence
- ATCM Compliance for Emergency Generators
- Flow Report (example)
- Supervisor's Meeting Agenda/Minutes (example)
- Digester Monitoring Report (compliance with Path. & VAR)
- PM Work Order and WO Status Report examples

11. Emergency Preparedness and Response

Safety Stand-down Action Items

Incident Report – TWAS pipe rupture

Tailgate Safety Training session attendee record

Safety Training – Annual Agenda

Emergency Response Plan – November 2004

12. EMS Documentation, Document Control and Recordkeeping

Document Revision System flowsheet (EMS Manual EI 12)

BETS home page – (Biosolids EMS Tracking System)

13. Monitoring and Measurement

NANI Reports Mar / April + May / June 05

Digesters operating data 7/6/05 to 7/15/05

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14. Nonconformances: Preventive and Corrective Action

CARs from phase 1 audit

Corrective action description 9/04 (following pretreatment compliance assessment)

15. Biosolids Program Periodic Performance Report

Biosolids Performance Report - Year 2004

16. Internal EMS Audits

Internal audit report (audit dates Feb 1 – 3, 2005)

CAR1 – date issued Feb 3 05, closed 4/20/05

17. Periodic Management Review of Performance

EMS Team mtg notes (June 8 05)

EMS Team mtg notes May 10 05

Management Review meeting minutes – July 25, 2005

Desk Audit Findings (by EMS Element)

The following “observations” were made during the review of EWA EMS Documentation (EMS Manual):

1. EMS Element 1 & 4 - The EMS Manual does not contain specific procedures for identifying and tracking other requirements and incorporating these requirements into the EMS.
2. EMS Element 1 & 13 - The EMS Manual does not contain specific procedures for monitoring compliance and biosolids program performance or for tracking progress toward achieving biosolids goals and objectives.
3. EMS Element 1 & 7 - Contractor roles and responsibilities are not clearly identified in the EMS Manual.

EWA addressed each of these observations using their Corrective Action process and verification of effective correction was done during Phase 2 of this audit.

Appeals Process Information

The NBP provides an appeals process for biosolids organizations and interested parties that disagree with the findings of a third party EMS audit. The verification appeals process involves an Appeals Board; representing a balance of biosolids management interested parties, including an environmental advocacy group, and wastewater industry professionals. An appeal must be submitted within 30 days of the official verification decision or interim audit decision by the Audit Company. Anyone who may need help in understanding the appeals process should contact the National Biosolids Partnership staff, Mr. Eugene DeMichele at 703-684-2438, or send an e-mail to: edemichele@wef.org.