

**NATIONAL BIOSOLIDS PARTNERSHIP AUDIT REPORT**

**Central Davis Sewer District  
Wastewater Treatment Facility  
Kaysville, Utah**

**Audit conducted by**

**NSF-International Strategic Registrations**

**William R. Hancuff, Lead Auditor**

**References:**

**National Biosolids Partnership (NBP) *EMS Elements*  
NBP *Third Party Verification Auditor Guidance – November 2001*  
*(Latest Revision August 2007)*  
NBP *Code of Good Practice*  
*Central Davis Sewer District EMS Manual – July 2006*  
*(Revised – June 2007)***

**Final Report – November 5, 2007**

## **INTRODUCTION**

The purpose of the Biosolids Environmental Management System (EMS) Third Party Verification audit is to verify the Central Davis Sewer District (CDS) Wastewater Treatment Facility Biosolids Environmental Management System (EMS), Kaysville, Utah conforms to EMS requirements of the National Biosolids Partnership (NBP). The goal of the Third Party Verification audit is to collect and evaluate objective evidence that determines whether the CDS biosolids EMS is functioning as intended, that practices and procedures are conducted as documented, and that the EMS as implemented conforms to the NBP's EMS Elements, the Code of Good Practice and the EMS program objectives.

## **RECOMMENDATION**

The results of the Central Davis Sewer District verification audit and review of their corrective actions are positive, and it is the recommendation of the audit team that the Wastewater Treatment Facility Biosolids Environmental Management System (EMS), receive "Verification" status. Verification is not the end, but rather the beginning of a continuously improving biosolids management system.

## **AUDIT SCOPE**

In general terms, the scope of the Third Party Verification audit encompasses the entire biosolids value chain (pretreatment, collection and treatment, through final end use) with special attention on those practices and management activities that directly support biosolids-related operations, processes, and activities within the Wastewater Treatment Plant's operations.

The NSF- International Strategic Registrations, Ltd. (NSF-ISR) conducted a third party verification audit of the CDS Wastewater Treatment Facility's Biosolids Environmental Management System. The verification began with a documentation desk audit and operational readiness review (ORR) completed in late May with the results presented to the Water Resources Facility on 31 May 2007. The process continued with an on-site verification audit from 4 September to 63 September 2007. The on-site audit team consisted of Dr. William R. Hancuff, Lead Auditor.

The physical biosolids facilities included in the audit and visited during the operational readiness review and verification audit included the CDS Wastewater Treatment Facility (including the biosolids composting operation) and the land application site contiguous with the treatment plant site.

The following individuals were interviewed as part of the audit process:

Susan Holms, Trustee, Central Davis Sewer District, Board of Trustees.  
Sherman H Cloward, Trustee, Central Davis Sewer District, Board of Trustees.  
Leland Myers, Director, Central Davis Sewer District.  
Jill Houston, Engineer, Grade IV, Wastewater treatment plant operator.  
Gary DeJong, Superintendent, Grade IV, Wastewater treatment plant operator.  
Lee Miller, Grade II, Wastewater treatment plant operator.  
Jon Hess, Grade III, Wastewater treatment plant operator.  
Trace Workman, Grade II, Wastewater treatment plant operator.  
Rowdy DeJong, Grade I, Wastewater treatment plant operator.  
Debbie DeJong, laboratory supervisor and technician.  
Larry Justicesen, farmer, part time employee.  
Cloyd Hess, grounds maintenance, part time employee.  
Mark Schmitz, State Biosolids Management Program Coordinator, Environmental  
Scientist, State of Utah, Department of Environmental Quality.  
David Actor, Engineer, Snyderville Basin Wastewater Reclamation Facility (EMS  
internal auditor).

## **DOCUMENTATION REVIEW**

Document review was conducted in two parts, the desk audit/operational readiness review audit and the verification audit. During each of these activities various documents were reviewed to verify conformance with the National Biosolids Partnership (NBP) EMS Elements using the NBP Third Party Verification Auditor Guidance. Additionally interviews were conducted with various personnel to obtain supplemental objective evidence on the effectiveness of the implementation of the EMS. Attachment 1 summarizes the documents and other objective evidence associated with each element that was considered during the above mentioned audits.

## **DESK AUDIT/OPERATIONAL READINESS REVIEW**

A complete document review was performed as a desk audit. The principal focus was on the CDSO EMS Manual dated July 2006. The operational readiness review (ORR) involved assessment of supplemental information such as cross referenced standard operating procedures, management review records, background reference information, training records, summary of outcomes, and various public outreach and communication materials. It also entailed a survey of the biosolids land application site.

The results of the desk audit/ORR provided a number of observations and opportunities for improvement. This initial effort resulted in 12 observations, 6 opportunities for improvement, 2 general notes, and 2 positive findings. Detailed results from the desk audit/ORR are provided in Attachment 2.

Essentially all the observations and opportunities for improvement identified during the desk audit/ORR were addressed to varying degrees by the time of the verification audit. Significant improvement in the EMS was made as a result of these efforts.

## **VERIFICATION AUDIT FINDINGS**

The verification audit covered all elements of the standard in considerably greater detail than the desk audit/ORR. The verification audit included review of the latest version of the CDSO EMS Manual dated June 2007 and employed the most recent version of the NBP Third Party Verification Auditor Guidance dated August 2007. The verification audit found, 1 major finding, 12 minor non-conformances and 7 opportunities for improvement and 5 commendations or positive observations. For an environmental management system, which is more challenging than the ISO 14001 standard, this is an impressive accomplishment.

The following is a review of the positive observations made during the verification audit. Major non-conformances, Minor non-conformances and opportunities for improvement follow and are listed by item number, which correspond to the Element minimum conformance requirement, in the sequence of the NBP standard elements.

### **Positive Observations**

The CDSO Wastewater treatment management and plant operations personnel involved in the biosolids environmental management system development should be recognized for their outstanding achievements, and the exceptional features of their Biosolids EMS. The following is a summary of those positive items observed during the audits.

### **Commendations:**

Element 1 – Excellent use of the Small Agency EMS manual, prepared in May 2006.

Element 6 – Exemplary involvement of the State Biosolids Management Program Coordinator in all aspects of the Biosolids EMS development and maintenance, including the internal EMS audit.

Element 8 – First rate production of video training modules for various critical control points such as mixer truck loading and operation; belt press start up and operation; gravity belt start up and operation; and compost turner operation.

Element 9 – Excellent handout provided to all recipients of the CDSO Compost provided to all customers receiving this product.

Element 9 – The public participation procedure contains a benchmark proactive school education program including tours, talks and videos.

And finally, the hard work and dedication of the EMS Team must be acknowledged. While attainment of the EMS verification goal is obviously a team effort the guidance provided by the Director CDSO to ensure accomplishment of this goal must be recognized.

## **Major Nonconformance**

- Requirement 16.1 – The District had not fully implemented an internal audit program. The internal audit did not implement a methodology, conducted a one-day snapshot audit, used no checklist, had no field notes, and had no findings, i.e. no major or minor nonconformances. This Major nonconformance was corrected by the internal audit conducted on October 16, 17 and 23, 2007.

## **Minor Nonconformances**

- Requirement 1.7 – The EMS manual does not describe those biosolids management activities assigned to and performed by contractors. Bobs Tree Service is not identified in the EMS manual as providing the compost admixture preparation (fresh and recycled wood chips grinding) in a tub grinder.
- Requirement 2.2 – The Biosolids Management Policy has not been communicated to the contractor, Bobs Tree Service.
- Requirement 5.7 – The action plan for Goals 3 through 6 does not designate resources and responsibilities for achieving program goals and objectives as is done for Goals 1 and 2.
- Requirement 8.4 – The contractor has not developed its own training program or participated in the districts training program related to their EMS roles and responsibilities, i.e. the SOPs for composting.
- Requirement 10.5 – The contractor has not developed its own operational controls (SOPs) nor adopted or implemented the operational controls developed by the district for those biosolids activities consistent with the contractors roles and responsibilities (compost admixture preparation [fresh and recycled wood chips grinding] in a tube grinder.)
- Requirement 11.4 – The contractor has not established its own Emergency Response Plans and Procedures nor has the district required the contractor to be a part of the districts own Emergency Preparedness and Response Plans and Procedures.
- Requirement 12.3 and 13.2 – The procedure for element 12 does not identify where the monitoring and measurement records required in element 13.2 are available and easily locatable.
- Requirement 12.4 – The contractor has not established documentation, document control and record requirements for biosolids management activities, or has a written agreement with the district as to how relevant documents and records

generated by the contractor are to be controlled consistent with the districts EMS procedures.

- Requirement 13.4 – The contractor has not established its own regular monitoring and measurement procedures and practices, or adopted the districts own monitoring and measurement procedures and practices.
- Requirement 14.2 and 14.3 – The procedure for element 14 does not identify that the procedure to identify the cause and take corrective action with any noncompliance are specified in UPDES Permit UT0020974. Similarly, the procedure to document the necessary corrective actions taken to prevent a recurrence of noncompliance is not referenced in the procedure.
- Requirement 14.1 – Item 2(c) in the procedure for element 12 does not reference the use of the NBP Third Party Auditor Guidance as a checklist. Additionally the tracking identified in item 2(e) for minor nonconformances of eight weeks does not reflect the true tracking interval. Also, item 3(c) does not reflect step 2(b)(vii-xiv).
- Requirement 16.1 – The procedure for element 16 does not adequately address the methodology for conducting an internal audit including the use of the NBP Third Party Auditor Guidance as a checklist and field worksheet.

### **Opportunities for Improvement**

- Requirement 5.3 – Consider including in the table of goals and objectives the identification of those which considered input from interested parties through proactive public participation.
- Requirement 5.5 – Consider presenting goals and objectives 1 and 2 in the same format as goals 3 through 6, presenting how each meets the SMART criteria, the required outcomes, and milestones.
- Requirement 9.4 – Consider clarifying in Element 9 procedure the contractor’s responsibilities in the Communication Program.
- Requirement 10.1 – Operating requirement 5(a) for the biosolids land application process contained in SOP # 004 indicates that signage should be posted around the site warning of biosolids application. Not all signs were posted.
- Requirement 10.1 – Consider including the desirable compost pile heights, other desirable dimensions and normal range of numbers of piles in SOPs # 002 and # 003. Consider also including examples of the types of objectionable materials that may be advantageous to remove from wood wastes used for admixtures, such as: plastics, metals, root balls, railroad ties, laminated woods, etc.

- Requirement 11.1 – In the Element 11 procedure the existence of an Emergency Response Plan is not mentioned. Additionally consider providing an introductory segue to why slug loading is an emergency concern.
- Requirement 12.3 – Item 6 of Element 11 procedure does not mention that sewer district records retention policy is the same as the Utah Municipal General Records retention schedule prepared by the State Archive Office.

The above major non-conformance was corrected through conducting a full and complete internal audit of the CDSB Biosolids EMS on October 16, 17 and 23. For the minor non-conformances, the District personnel prepared Audit and Corrective Action Worksheets and will implement corrective actions according to their EMS procedures to provide continual improvements to their biosolids program. All proposed corrective actions were found to be acceptable and final closure will be completed during the first interim audit.

There have been significant improvements in the District's EMS over the past few months as observed by the lead auditor. This level of improvement will undoubtedly continue into the future.

## **CENTRAL DAVIS SEWER DISTRICT COMMENTS**

Central Davis Sewer District accepts the recommendations of the Audit and will correct all major and minor non-conformances and address all opportunities for improvement. The District believes the NBP should continue to work on ways to make the audit process more small facility friendly.

## **OUTCOMES MATTER**

The CDSB Biosolids Environmental Management System established six groups of biosolids EMS goals. These consisted of 6 goals and 9 objectives. The goals and objectives were developed by the CDSB director with input from the operators and consideration of potential public concerns. The CDSB Biosolids goals for its EMS were established cognizant of each of the four outcome focal points of the NBP program as identified below:

1. Environmental Performance,
2. Regulatory Compliance,
3. Relations with Interested Parties, and
4. Quality Biosolids Management Practices.

While it is not a requirement to attain all objectives established, it is a critical component of the system to make progress towards accomplishing the overall goals. The CDSB has established several goals for 2007 and a couple long term goals that extend

into 2008. The goals have been established using Specific, Measurable, Achievable, Relevant, and Time Bound (SMART) criteria. Progress has been made in attaining the goals and objectives through 2006 and thus far in 2007. The facility's performance relative to each of the above outcome groups is addressed below.

In the Environmental Performance outcome area, the CDSD established three goals and three objectives. The first two objectives are related to odor controls and the third is related to measurement of compost pile temperatures.

The first objective is to meet or exceed odor management plan goals. The performance indicator is to have no complaints or off-site odor detection above 20 dilutions to threshold (D/T). The District has an odor sampling and evaluation program that employs a Nasal Ranger Field Olfactometer and H<sub>2</sub>S evaluation using the Gerome 631X. Additionally the District has installed an odor neutralization system that permits dispensing of an odor masking agent in the vicinity of the composting area should odors become an issue. There have been no recorded odor complaints in the past year.

The second objective is to evaluate odor emission potential when using a fabric cover on aerated static compost piles. The ultimate objective is to determine if using these covers produces a cost effective alternative to further reducing or controlling the multitude of odors that compost produces. This objective has several milestones as described below:

- Purchase cover and control system
- Install power and control system
- Test odor measurement equipment
- Construct first test piles
- Complete first test pile testing
- Construct cold weather piles
- Complete cold weather testing
- Complete performance evaluation report

The first five steps have been completed with mixed success. The pile cover concept seems to foster the intended goal of lowering off gas emissions, however, there were operational problems associated with the covers that were used during the testing, some of which may be attributable to the cover material and its construction as opposed to the functionality of the system. The balance of the evaluation is scheduled for completion through the cold weather season and should be complete by December 2007.

The third goal related to environmental performance is demonstration of the representativeness of compost pile temperature measurements. The method used is based on one or more temperature measurements taken in each of the compost piles based on visual inspection and the operator's best professional judgment. A study is scheduled to determine the statistical validity of one or more random temperature measurements versus a series of specified measurement taken every 20 feet in a compost pile. The acceptability of using operator's best judgment will be based on the probability of having one (or more) random temperature measurements fall outside the minimum regulatory temperature requirements for Class A biosolids composting criteria. The statistical variance criteria defined to be acceptable is a 10% probability of temperature failure. The milestones for this objective are as follows:

- Train operator on objectives of goal and establish procedure for testing
- Commence testing of piles
- Compile test results and statistical analysis, and prepare report
- Make determination of best temperature measurement method to use on compost piles

The first two steps have been accomplished. Added to the study has been specialized continuous temperature monitoring to determine diurnal temperature fluctuations of the compost piles. The balance of the study is scheduled for completion on 1 November 2007.

In the Regulatory Compliance outcome area, the District established three related objectives. The first is identical to the one previously discussed in the Environmental Performance area related to reliability of temperature measurements of compost piles. Progress on this objective is as reported with completion expected by the first of November 2007.

The second objective is having no Utah Pollutant Discharge Elimination System (UPDES) permit violations in 2006 and 2007. Part II of the UPDES permit specifically addresses Biosolids Requirements. An interview with the State Biosolids Management Program Coordinator confirmed that there have been no permit violations in 2006 and thus far in 2007.

The third objective related to regulatory compliance is to ensure site restrictions are met for land application areas. There are homes proposed for construction on the east of the District's northern farm fields. Secure separation is needed to ensure site restrictions are met and to prevent problems with children in the farm/land application area. The objective is to provide separation from future housing by installing a six-foot high security fence along the District property in this area. The milestones are as follows:

- Survey and mark the North and East property lines

- Issue installation contract for bid
- Award contract and issue notice to proceed for construction
- Complete construction and installation of fencing.

The first three milestones have been achieved and the completion of the project is scheduled for 15 November 2007.

In the Relations with Interested Parties outcome area, the District has established several goals and objectives, some of which overlap with other outcome areas.

The first objective in this area is to meet or exceed odor management plan goals, which was discussed extensively in the *Environmental Performance* outcome section above. Goals and objectives continue to be met.

The second objective in this area is associated with the installation of a six foot high security fence along the east boundary of the Districts northern farm areas. This objective is the same as already discussed in the Regulatory Compliance outcome area above. Accomplishment of this goal is eminent and should be completed by the middle of November 2007.

The third objective in the relations with interested parties is the same as the one previously discussed in the Environmental Performance outcomes section above, related to controlling odors using a membrane cover on compost piles. This objective is nearing completion and is expected to be finished by the end of the year 2007.

The fourth goal in the relations with interested parties contains three objectives, or rather milestones. It involves evaluating and developing an off-site biosolids land application farm. This goal has the advantage of eliminating or minimizing the biosolids odors associated with onsite composting and further reducing the potential for odor complaints. The objectives (or milestones) for this goal are:

- Prepare a site due diligence report
- Create an inter-local agreement for operation of the land application farm
- Purchase farmland or secure options to purchase

While progress has been made toward accomplishing this goal difficulties have developed with interest by other local wastewater agencies in pursuing the approach. If further progress is not made or it becomes unlikely that this is a viable option this goal will be removed from the EMS.

The fifth and final goal in this area is fostering community relations through sponsoring an open house and tours for interested citizens. This will provide the local citizenry with an opportunity to see a wastewater treatment plant and the processes that are used to produce the compost they use. The milestones established for this goal are as follows:

- Establish with the Board the date for an open house
- Plan open house and tours
- Advertise open house in newspaper
- Conduct open house activities

In the Quality Biosolids Management Practices outcomes area, the District established three goals and objectives, all three of which have already been discussed in other outcomes areas.

The first goal involves evaluating and developing an off-site biosolids land application farm. This has the benefits of expanding or replacing the land application sites presently located onsite at the treatment plant. This increase in land allows greater flexibility in biosolids production and by combining with other jurisdictions provides economies of scale and potential to increase quality biosolids management region-wide. Although the progress on this approach has temporarily stalled, it may still have potential in the future.

The second goal is the same as the one described previously dealing with installation of fencing on the eastern boundary of the northern farming area. The installation of this fencing provides an indirect benefit to biosolids management practices. The goal is scheduled for completion in November 2007.

The third goal related to quality biosolids management practices was addressed in the legal requirements outcome area and is related to compost pile temperature measurements. By increasing the reliability of the temperature measurement when producing Class A biosolids product the District further increases the probability of having a quality product all of the time. Completion of this effort is scheduled by the end of 2007.

## **CONCLUSIONS AND RECOMMENDATIONS**

The results of the verification audit show the CSDS has a very strong Environmental Management System. The NSF lead auditor reviewed and approved the implementation of the corrective action for the major nonconformance on November 5, 2007. The review and approval of the corrective action plans for each of the minor non-conformances identified during the verification audit were also made by the auditor. Therefore the “Verification” recommendation for the (CSDS) Wastewater Treatment Facility Biosolids

Environmental Management System (EMS), Kaysville, Utah is made to the NBP. The full implementation of the corrective actions for the minor findings will be accomplished according to the schedule proposed in the corrective actions worksheets.

As was mentioned previously, an EMS is a continuous improvement process, and verification is not the end -- it is the beginning. The results of this and future audits will provide value added to the system and should be viewed as an overall opportunity to improve. Every audit is a snapshot in time, and does not, or cannot, identify each and every area for improvement. And yet, while no single audit identifies all of the areas for improvement the results of each audit provide an additional incremental step in the overall system's improvement.

Based on discussions between the Facility's Biosolids EMS Coordinator and the third party auditor the following tentative interim audit schedule is proposed for the next four years:

Year 1 (third party) – Elements 1, 2, 5, 6, 9, 14, 15, 16 and 17

Year 2 (internal or third party) – Elements 1, 2, 4, 5, 6, 8, 9, 10, 14, 15 and 17

Year 3 (third party) – Elements 1, 2, 3, 5, 10, 13, 14, 15, 16 and 17

Year 4 (internal or third party) – Elements 1, 2, 5, 7, 10, 11, 12, 14, 15, 16 and 17.

## **Attachment 1**

### **Documents and Other Object Evidence Reviewed During the Desk Audit/Operational Readiness Review And Verification Audit**

#### Element 1. Documentation of EMS for Biosolids

- Central Davis Sewer District – EMS Manual – June 2007, signed by Leland J. Meyers, District Manager.
- EMS Manual Element 1: Central Davis Sewer District EMS Manual.
- Central Davis Sewer District signed letter of understanding with NBP dated December 16, 2002 signed by Dean Brand, Chairman Board of Trustees.
- EMS Manual Element 2: Biosolids Management Policy containing CDSD Biosolids Management Statement.
- Interview Susan Holms, Trustee, Central Davis Sewer District, Board of Trustees.
- Interview Sherman H Cloward, Trustee, Central Davis Sewer District, Board of Trustees.
- Interview with Leland J. Meyers, CDSD Manager.
- EMS Manual Element 6: Public Participation in Planning.
- EMS Manual Element 9: Communication.
- EMS Manual Element 11: Emergency Preparedness and Response.
- Biosolids EMS Manual - Table of Contents.
- Table 3.1 Critical Control Points, Operational Controls, SOPs, Monitoring and Measurements and Environmental Outcomes.
- EMS Manual Element 7: Roles and Responsibilities.

#### Element 2. Biosolids Management Policy

- EMS Manual Element 2: Biosolids Management Policy containing CDSD Biosolids Management Statement.
- Central Davis Sewer District signed letter of understanding with NBP dated December 16, 2002 signed by Dean Brand, Chairman Board of Trustees.
- Interview Susan Holms, Trustee, Central Davis Sewer District, Board of Trustees.
- Interview Sherman H Cloward, Trustee, Central Davis Sewer District, Board of Trustees.
- Interview with Leland J. Meyers, CDSD Manager.
- Interview Jill Houston, Gary DeJong, Lee Miller, Jon Hess on Policy awareness.
- Reviewed Safety training log for 2007, containing EMS training activities.
- Reviewed EMS training log for 2007.
- Policy communicated to interested parties through availability on web-site.

#### Element 3. Critical Control Points

- EMS Manual Element 3: Critical Control Points.

- Table 3.1 Critical Control Points, Operational Controls, SOPs, Monitoring and Measurements and Environmental Outcomes.
- Interviews with Jill Houston, Gary DeJong, Lee Miller, Jon Hess
- Comparison of Critical Control Points with those contained in Appendix F.
- Spot check operations controls in SOPs.
- Field review of wastewater treatment plant facilities.
- Toured onsite land application area.
- Cross checked operational SOPs with critical control points.

#### Element 4. Legal and Other Requirements

- EMS Manual Element 4: Legal and Other Requirements.
- Reviewed eight sources of regulatory updates.
- Reviewed UPDES Permit UT0020974 Part II Biosolids – Limitations and Reporting Requirements.
- Reviewed UPDES Permit UT0020974 Part IV – Industrial Pretreatment Program.
- Table 4.1 – Legal Requirements and Guidance Specific to Central Davis Sewer District Biosolids Land Application Program.
- Table 4.2 - UT0020974 – Summary of Permit Requirements.
- Validated changes made according to procedure #2 in EMS Element 4.
- Interviews with Leland J. Meyers, Jill Houston, Lee Miller, Gary DeJong and Jon Hess.
- Interview with Mark Schmitz, State Biosolids Management Program Coordinator, Environmental Scientist, State of Utah, Department of Environmental Quality.
- Reviewed various operational SOPs for inclusion of legal requirements.
- Reviewed CDS Industrial Pretreatment Program – October 1991.
- Wastewater Control Rules and Regulations for the CDS.
- Reviewed CDS Industrial Pretreatment Program local limits submittal – August 2000 (updated 2005).

#### Element 5. Goals and Objectives for Continual Improvement

- EMS Manual Element 5: Goals and Objectives.
- Goals & Objectives - Action Plan and Tracking Template for 2007.
- Goals & Objectives - Action Plan & Tracking – Critical Outcome Indicators 2007.
- Reviewed CDS Wastewater Treatment Plant Odor Management Plan Executive Summary – December 19, 2003.
- Discussed results of public opinion polls.
- Interviews with Leland J. Meyers, Jill Houston, Lee Miller.
- Input from interested parties regarding odors was used in developing goals and objectives.
- EMS Annual Report and Management Review submitted to Board of Trustees – February 8, 2007.
- Reviewed 2006 Biosolids Annual Report and National Biosolids Partnership Report and Audit – February 19, 2007.
- Access and evaluation of website.

#### Element 6. Public Participation in Planning

- EMS Manual Element 6: Public Participation in Planning Public.
- Reviewed public notice of third party audit published in Davis County Clipper on August 30, 2007.
- Public Notice of third party audit posted at wastewater treatment plant entrance.
- Notice of third party audit posted on website.
- Interviews with Leland J. Meyers, Jill Houston, Lee Miller and Jon Hess.
- Discussion of past odor complaints.
- Review Odor Management Plan.
- Informational letters to neighbors/officials.
- Comment options on website.
- Compost Fact Sheet
- Interview Susan Holms, Trustee, Central Davis Sewer District, Board of Trustees.
- Interview Sherman H Cloward, Trustee, Central Davis Sewer District, Board of Trustees.
- Interview with Mark Schmitz, State Biosolids Management Program Coordinator, Environmental Scientist, State of Utah, Department of Environmental Quality.

#### Element 7. Roles and Responsibilities

- EMS Manual Element 7: Roles and Responsibilities.
- EMS responsibilities of district manager, superintendent, engineer, and operations staff.
- Board of Trustee Meeting Minutes – November 14, 2002 – authorization of District Manager to participate in EMS program.
- Interviews with Leland J. Meyers, Jill Houston, Lee Miller, Gary DeJong and Jon Hess.
- Review of resources expended on EMS related biosolids operations – (serial port data logger, compost pile temperature probes, flux hood, air sampling chamber, annual calibration of H<sub>2</sub>S meter, textile compost cover, etc.)

#### Element 8. Training

- EMS Manual Element 8: Training.
- Verification of Operator Certifications for 2007.
- Interviews with Lee Miller, Gary DeJong and Jon Hess to determine effectiveness of EMS training.
- Review Biosolids EMS training log book – August 8 and 23, 2007 training sessions.
- Watched training video on mixer truck loading and operations.
- Other videos include – Belt press start up and operation, gravity belt start up and operation, and planned compost turner operation.

- Reviewed sample CEU log of training maintained by District Manager (2003-2007).
- Biosolids 101 and Annual Report Course (October 3, 2007?).
- Reviewed Safety Meeting log book (including early EMS training)
- EPA Risk Management Plan – March 1999.
- Employee General Awareness Training Attendance Sheet in log books.

#### Element 9. Communications

- EMS Manual Element 9: Communication
- Reviewed Biosolids EMS website.
- Interviews with Leland J. Meyers, Jill Houston, and Lee Miller.
- Reviewed 2006 Biosolids Annual Report and National Biosolids Partnership Report and Audit – February 19, 2007.
- CDS Consumer Information sheet on Compost (distributed to all recipients of final compost product.)
- Employee EMS awareness training records maintained in EMS & Safety log books.
- Educational video made for school age children.

#### Element 10. Operational Control of Critical Control Points

- EMS Manual Element 10: Operational Controls.
- Reviewed Standard Operating Procedure 001 – Anaerobic Digestion.
- Reviewed Standard Operating Procedure 002 – Class A Composting.
- Reviewed Standard Operating Procedure 003 – Class B Composting.
- Reviewed Standard Operating Procedure 004 – Land Application of EQ Biosolids.
- Reviewed Standard Operating Procedure 005 – Distribution and Marketing of Class A EQ Compost.
- Reviewed Standard Operating Procedure 006 – General Operations/Daily Operating Duties.
- Interview Leland Myers, Director, Central Davis Sewer District.
- Interview Jill Houston, Engineer, Grade IV, Wastewater treatment plant operator.
- Interview Gary DeJong, Superintendent, Grade IV, Wastewater treatment plant operator.
- Interview Lee Miller, Grade II, Wastewater treatment plant operator.
- Interview Jon Hess, Grade III, Wastewater treatment plant operator.
- Interview Trace Workman, Grade II, Wastewater treatment plant operator.
- Interview Rowdy DeJong, Grade I, Wastewater treatment plant operator.
- Interview Debbie DeJong, laboratory supervisor and technician.
- Interview Larry Justicesen, farmer, part time employee.
- Interview Cloyd Hess, grounds maintenance, part time employee.
- As Built drawings for RAS/WAS.
- As Built drawings for Oxidation Ditch Clarifiers.

### Element 11. Emergency Preparedness and Response

- EMS Manual Element 10: Operational Controls.
- Reviewed CSDS Emergency Response Plan March 2007.
- Interviews with Leland J. Meyers, Jill Houston and Lee Miller.
- Emergency procedures in O&M manuals for electrical/mechanical systems for RAS/WAS and Oxidation Ditch Clarifiers.
- Checked availability of cleanup equipment: vacuum truck, portable pumps, and emergency generators.
- Internet guidance on State Point Analysis.

### Element 12. EMS Documentation and Document Control

- EMS Manual Element 12: Documentation, Document Control and Recordkeeping.
- Reviewed EMS Manual Revision Log 2007.
- Utah Municipal General Records Retention Schedule – 1990 – State Archives Office.
- Reviewed procedure section on document creation protocol.
- Reviewed EMS Manual revisions and records of revisions.
- Interviews with Leland J. Meyers, Jill Houston and Lee Miller.
- Reviewed Operations SOPs.
- UPDES Permit UT0020974 Part II Section H – additional recordkeeping requirements.

### Element 13. Monitoring and Measurement

- EMS Manual Element 13: Monitoring and Measurement.
- Reviewed odor monitoring and measurements made for covered aerated static pile composting versus windrow composting (August 2007).
- Goals & Objectives - Action Plan & Tracking – Critical Outcome Indicators 2007.
- Reviewed Standard Operating Procedure 001 – Anaerobic Digestion.
- Reviewed Standard Operating Procedure 002 – Class A Composting.
- Reviewed Standard Operating Procedure 003 – Class B Composting.
- Reviewed Standard Operating Procedure 004 – Land Application of EQ Biosolids.
- Table 4.2 - UT0020974 – Summary of Permit Requirements.
- Interviews with Leland J. Meyers and Jill Houston.
- Discussed maintenance management.
- Discussed land application controls and settings.
- Interviews with Operations staff – Gary DeJong, Lee Miller, Jon Hess, Trace Workman, and Rowdy DeJong.
- Reviewed numerous monitoring and measurement records (digester and composting operations) as contained EMS Annual Report and Management Review submitted to Board of Trustees – February 8, 2007.
- UPDES Permit UT0020974 Part II Section G – Reporting monitoring results.
- Visual observation of compost temperature monitoring procedure.

#### Element 14. Nonconformances: Preventive and Corrective Action

- EMS Manual Element 14: Nonconformances – Preventive and Corrective Actions.
- UPDES Permit UT0020974 Part V Section H(3) – Regulatory corrective action requirements.
- Reviewed Audit and Corrective Action Worksheets prepared to address results of internal audit of February 6, 2007.
- Reviewed Audit and Corrective Action Worksheets prepared to address third party desk audit and operational readiness review findings from May 2007..
- Interviews with Leland J. Meyers and Jill Houston, engineer (auditor).
- Interviewed Mark Schmitz, State Biosolids Management Program Coordinator, Environmental Scientist, State of Utah, Department of Environmental Quality.
- Interviewed David Actor, Engineer, Snyderville Basin Wastewater Reclamation Facility .
- Internal Audit Report for audit conducted on February 6, 2007.
- Board of Trustees Meeting Agenda for June 14, 2007 (included review of external audit results.)

#### Element 15. Periodic Biosolids Program and EMS Performance Report

- EMS Manual Element 15: Biosolids Management Program Report.
- EMS Annual Report and Management Review submitted to Board of Trustees – February 8, 2007.
- Interviews with Leland J. Meyers, Jill Houston and Lee Miller.
- Reviewed 2006 Annual Biosolids Report with extensive summaries of monitoring and measurements.

#### Element 16. Internal EMS Audit

- EMS Manual Element 16: Internal EMS Audit.
- Reviewed Internal Auditor’s Worksheet.
- Reviewed Internal Audit Report for audit conducted on February 6, 2007
- Interviews with Leland J. Meyers, Jill Houston and Lee Miller.
- Interviewed Mark Schmitz, State Biosolids Management Program Coordinator, Environmental Scientist, State of Utah, Department of Environmental Quality.
- Interviewed David Actor, Engineer, Snyderville Basin Wastewater Reclamation Facility (EMS internal audit participant).

#### Element 17. Periodic Management Review of Performance

- EMS Manual Element 17: Management Review.
- Reviewed Board of Trustees Management Meeting Agenda for June 14, 2007. (included EMS elements.)
- Reviewed 2006 Biosolids Annual Report and National Biosolids Partnership Report and Audit – February 19, 2007.
- Interview Susan Holms, Trustee, Central Davis Sewer District, Board of Trustees.

- Interview Sherman H Cloward, Trustee, Central Davis Sewer District, Board of Trustees.
- Interview with Leland J. Meyers, CDSO Manager.

## **Attachment 2**

### **Detailed Findings Resulting From Desk Audit/Operational Readiness Review**

#### **Positive Findings**

Element 1 – Excellent use of the Small Agency EMS manual, prepared in May 2006.

Item 9.1 –The public participation procedure contains an exemplary proactive school education program including tours, talks and videos.

#### **Observations**

Item 4.2 – The procedure and Table 4.1 do not clearly include or cross-reference what specific standards, limits, reports, records, etc. the facility must meet in order to be in compliance; or the operational controls, procedures, processes, and other management methods used to achieve and maintain compliance. Additionally there is no Table 4.2, as referenced.

Item 5.2 – The goals and objectives have captured some but not all of the critical outcome indicators; namely, environmental performance; regulatory compliance; relations with interested parties; and quality biosolids management practices.

Item 5.7 – The goals and objectives action plan does not contain milestones for achieving goals and objectives.

Item 7.1 – Several roles and responsibilities are not clearly defined in the Element 7 procedure, namely; analytical laboratory responsibilities, public participation and communication responsibilities; EMS and technical training; and Emergency Preparedness and Response.

Item 8.1 – Element 8 procedure does not address the required EMS general awareness training for each employee.

Item 8.3 – There are presently no records associated with individual training delivered on EMS general awareness.

Item 10.1 – Standard Operating Procedures have not been adequately established for all critical control points in the biosolids value chain, for example; the digester mixing in the anaerobic digester and dewatering, including the loading operations.

Item 12.1 – There is no document creation protocol, nor are the version numbers properly marked on program documents.

Item 13.1 – The detailed specific regulatory and critical control point monitoring and measurement is not identified, although referenced to have been included in Table 3.1.

Item 14.2 – There is no corrective action procedure presented that addresses legal and regulatory noncompliances.

Item 16.3 – The qualifications of the internal auditors are not identified in the documents and records.

### **Opportunities for Improvement**

Item 3.2 – Some of the environmental impacts identified at critical control points do not clearly indicate the actual or potential impacts on air quality, water quality (surface and groundwater), noise, resource consumption, human and ecological health, land contamination, etc.

Item 5.5 – It is not clear that the goals and objectives action plan and tracking template presented in the manual is actually the action plan and tracking for 2007.

Element 9 – It is not clear what information is available on the website, and what information, not on the website, will be provided on request.

Item 10.2 – It is not clear if all of the regulatory requirements are adequately contained in the SOPs of critical control points.

Element 14 – There are a few technical and typographical errors in the procedure.

Element 17 – All of the elements with deadlines have established deadlines of February 28 of each year. These include: review of critical control points, establishment of annual goals and objectives; update of roles and responsibilities; review of operational controls; review of monitoring and measurements; preparation of nonconformance reports; preparation of Biosolids Management Progress Report; internal audit; and management review. Several of these are typically performed in sequence. There was no timeline available to demonstrate how these would be sequentially accomplished to meet the end date of February 28.

### **General Notes**

Element 14 – It is not possible to fully verify the implementation of this procedure at this time because of the very small number of findings in the internal audit.

Element 16 – It is not possible to fully verify the implementation of this procedure at this time because of the very small number of findings in the internal audit.

## Attachment 3

### National Biosolids Partnership Appeals Process

Biosolids organizations that participate in the National Biosolids Partnership (NBP) Environmental Management System (EMS) Program are required to undergo an EMS verification audit by an independent, third party auditor assigned by the NBP and yearly interim audits. The purpose of the EMS audit is to determine whether or not the organization's EMS conforms with -- that is, meets the requirements of -- the NBP program, as defined in the EMS Elements<sup>1</sup>. The spirit of these requirements includes a well-documented program and meaningful opportunities for interested party involvement.

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 audit company's official verification decision or interim audit decision.

To submit an appeal before the Appeals Board, the petitioner must set forth the specific EMS element(s) and requirements that is believed to have not been evaluated and/or implemented consistent with NBP requirements as reflected in the EMS Elements, along with the objective evidence to support that claim. For example, a petitioner may believe that a major nonconformance exists but was not found by the auditor. In this case, the petitioner would need to identify in the petition the specific EMS element believed to be out of conformance and why.

To submit an appeal, petitioners must fill out and submit the standardized appeals petition form that is available on the NBP website at <http://www.biosolids.org>. A formal appeal must be submitted within 30 days of the verification decision or interim audit decision by the audit company.

The Board's Administrative Officer receives all appeals petitions on behalf of the Board and conducts a basic completeness check. Upon completion of this check, the petition is either forwarded to Appeals Board members or back to the petitioner with incomplete areas documented. Petitions should be sent via certified, return receipt requested mail to:

The NBP EMS Appeals Board, Attention: Board Administrative Officer, c/o  
Water Environment Federation, 601 Wythe Street, Alexandria, VA 22314

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<sup>1</sup> The *EMS Elements* and other program materials are available on the NBP website at <http://www.biosolids.org>.

The Appeals Board will examine the facts, interview parties involved, deliberate the case, and then make a determination as to whether a major nonconformance does or does not exist. Appeals cases vary in complexity. As a result, the time required for the Board to evaluate a case and make a decision might vary. However, the overall Board target for processing an appeal is approximately four months.