NATIONAL BIOSOLIDS PARTNERSHIP
INTERIM 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) BMP Elements
NBP Third Party Verification Auditor Guidance – November 2001
(Latest Revision August 2011)
NBP Code of Good Practice
Central Davis Sewer District EMS Manual – July 2006
(Updated – December 6, 2017)

Draft Report – November 6, 2018
INTRODUCTION

The purpose of the Biosolids Management Program (BMP) interim audit is to verify through regular reviews the program’s health and effectiveness between verification audits. The third party on-site interim audits provide independent reviews and support credibility between verification and re-verification audits. The scope of the interim audit is to collect and evaluate objective evidence to demonstrate continuous improvement of the management system and to review a portion of the BMP such that over the course of the four interim audits conducted between verification audits all 17 elements are covered.

Continuous improvement is evaluated in each interim audit through assessment of the organization’s progress toward goals and objectives, BMP outcomes, actions taken to correct minor nonconformances, the management review process, corrective action requests and responses and preventive action requests.

The audits determine whether the Central Davis Sewer District (CDSD) Wastewater Treatment Facility BMP is functioning as intended, that practices and procedures are conducted as documented, and that the BMP as implemented conforms to the NBP’s Code of Good Practice and BMP program objectives.

RECOMMENDATION

The results of the Central Davis Sewer District interim audit and review of their biosolids management program are positive, and it is the recommendation of the audit team that the Wastewater Treatment Facility BMP maintain its platinum plus level recognition certification status.

AUDIT SCOPE

The NSF-International Strategic Registrations, Ltd. (NSF-ISR) conducted a third party interim audit of the Central Davis Sewer District’s BMP from November 1 2018 through November 2, 2018. The on-site interim audit team consisted of Dr. William R. Hancuff, Lead Auditor.

The overarching scope included review of the following activities related to the identified core element requirements:

- The organization’s progress toward goals and objectives (Element 5),
- BMS outcomes (environmental performance, regulatory compliance, interested party relations, and quality practices) (Element 5),
- Actions taken to correct minor non-conformances (Element 14),
- Management review process (Element 17), and
- Corrective and preventive action requests and responses (Element 14).
Because other system elements interact with the above specific requirements the interim audit also included partial auditing of activities found in elements 1, 2, 4, 6, 9, 15, and 16.

Since the NBP allows that any individual interim audit cover a portion of the BMP, but requires that over the course of the four interim audits conducted between verification and re-verification audits the entire BMP (i.e. all 17 elements) must be covered, the following elements were audited in their entirety as part of this third interim audit:

- Element 3 – Critical Control Points
- Element 10 – Operational Controls
- Element 12 – Documentation, Document Control & Recordkeeping
- Element 13 – Monitoring and Measurement

Auditing these elements involved document review, interviews, and activity evaluations.

In general terms, the audit encompassed 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 biosolids value chain.

The physical biosolids facilities included in the audit and visited during the on-site audit were the head works, screens, backup pump station, sodium hypochlorite disinfection process, primary and secondary trickling filters, oxidation ditches, dewatering facilities, digesters, land application fields, composting area (wood/chipping, compost piles, compost screens, compost storage piles, screened woodchip storage, and final compost product storage), surrounding neighborhoods and commercial areas, and outfall channel to the Great Salt Lake.

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

Sherman Cloward, Central Davis Sewer District Board of Trustees
Steve Brough, Central Davis Sewer District Board of Trustees
Jill Jones, District Manager, Central Davis Sewer District
Leland Myers, Advisor, Central Davis Sewer District
Manjot Kaur – Engineer
David Hatch – Engineer, auditor
Brett Jorgensen – Collection Systems Operator
Paul Hirst – Interested Citizen – compost user
Daniel R. Griffin, P.E., Environmental Engineer, Biosolids Program Coordinator, Department of Environmental Quality, Division of Water Quality, State of Utah

INTERIM AUDIT FINDINGS

The interim audit found no major non-conformances, 2 minor non-conformances, 6 opportunities for improvement and 3 positive observations or commendations. The
following presents the positive observation made during the audit. The Minor nonconformances are then described, followed by opportunities for improvement. Each finding is listed by item number, which corresponds to the element minimum conformance requirement, in the sequence of the NBP standard elements of the Third Party Verification Auditor Guidance document.

Positive Observations

The CDSD wastewater treatment management and plant operations personnel involved in the biosolids management program development and maintenance should be recognized for their outstanding achievements, and the exceptional features of their Biosolids Management Program. The following positive items were observed during this audit.

Commendations:

- The CDSD Board of Trustees has established a benchmark management leadership program, which other wastewater agencies should emulate. The Board is not only knowledgeable regarding the Biosolids Management Program but also actively supports the National Biosolids Partnership Code of Good Practice. Each member of the Board plays a key role in the implementation of the system.

- CDSD has an exceptional staff dedicated to doing the right thing as driven by the Code of Good Practice. The staff is innovative and embraces continual improvement changes made to operations. Their professionalism and commitment to treatment plant optimization is unequaled.

- CDSD has implemented a proactive approach to odor complaints. The District staff, trained in odor evaluation, are dispatched to the odor complaint site and involve the complainant in the determination of the dilutions to threshold using the Nasal Ranger. This demonstrates to the local citizens the concern the District has with odors and its interest in abating the situation. It also reduces the number of random complaints from individuals who think they may smell something.

The continued hard work and dedication of the BMP Team is also acknowledged. While attaining the BMP platinum plus level recognition certification is obviously a team effort the guidance provided by the CDSD Manager to ensure continual improvement of the program is once again recognized.

Minor Nonconformances

Requirement 5.1 – The standard requires the establishment and periodic review of measurable biosolids program goals and objectives for biosolids management activities, including measurable goals for each of the four NPB outcome areas: environmental
performance, regulatory compliance, relations with interested parties, and quality biosolids management practices. A couple of 2017 goals and objectives did not accurately define the measurability of the goals in terms of the specific frequency of sampling that would be performed to evaluate whether the goal was being achieved in a timely manner. For example, 2017 Goal 4 related to reducing phosphorus to 1.0 mg/l from the trickling filter side and oxidation ditch side did not specifically indicate that the goal of 1.0 mg/l was to be met on a weekly basis through samples collected three times per week.

Requirement 12.2(c) and (d) – The standard requires the organization to establish and maintain document control procedures and practices to ensure that its biosolids management program documentation and documents are kept up to date through periodic reviews and revision (if applicable) and properly marked with version number, effective dates and references to replaced or superseded versions. Also, the CDSD Element 12 procedure #5 indicates the revision log for each Element or SOP will identify changes to that Element or SOP.

There appeared to be an inconsistency between some of the Block Header dates and revision numbers on the Element procedures, and the dates and revision numbers in the revision log. A specific element and procedure review practice and its frequency was not clearly defined in the procedure. Second, there was not a clear identification of the specific procedure or element changes included in some of the revision logs. Third, there appears to be an inconsistency in the procedure terms “review” and “revision.” Fourth, the EMS manual provided to the auditor was not the most current version (several of the element procedures were not the current versions).

Opportunities for Improvement

Requirement 6.2 – In the key areas of interpretation of Element 6 it indicates that the biosolids organization must have notified interested parties about their intent to receive an independent third-party audit and have built into their BMP planning a discussion with interested parties about approaches for observing the third-party audit. Procedure #4 of the CDSD Element 6: Public Participation in Planning procedure indicates “information on the third-party verification process will be shared with interested parties using any of the formal or informal participation opportunities identified...” Notification of the third-party interim audit and a discussion with interested parties about approaches for observing the third-party audit was provided to interested parties through the website and Facebook. Consider including in the “additional participation opportunities” section of Element 6 procedure the uses of social media to distribute invitations to attend third party audits.

Requirement 7.2 – The NBP standard requires the appointment of an individual with overall responsibility for ensuring that the BMP is implemented and maintained. Ensure that the District Manager has reviewed and updated, as necessary, all BMP Element Procedures.
Element 10 – Consider preparing a Standard Operating Procedure for Digester Cleaning.

Requirement 11.1 – The NBP standard requires the establishment of Emergency Preparedness and Response Plans and Procedures to assure effective response to accidents and emergency situations associated with biosolids management activities. CDSD prepared an undated procedure for “Emergency Action for Biosolids Transportation Release.” Consider making this procedure a standalone SOP and referencing it in the Element 11 procedure, or merging it into SOP # 13 – Landfilling of Biosolids.

Requirement 11.2 – The NBP standard requires the review and evaluation of the effectiveness of emergency preparedness and response procedures, including communications systems, and revise them as necessary. CDSD does not have a regular testing and evaluation of its response procedures to biosolids releases but has established an annual table top exercise in conjunction with Safety Days; consider including a discussion of this approach in the Element 11 procedure and adding the Table Top Exercise to the EMS portion of the Safety Days schedule.

Element 14 – Consider a comprehensive review and revision of the Element 14: Nonconformance – Preventive & Corrective Action procedure to simplify and streamline the process to facilitate implementation. (Note: procedure 2(b) is redundant with the audit and corrective action work sheet; several other subsections of procedure 2 may be simplified; and the procedure does not identify that corrective action worksheets will be used for opportunities for improvement to document they are addressed (or why they were not addressed).

CENTRAL DAVIS SEWER DISTRICT COMMENTS

*Central Davis Sewer Districts appreciates the opportunity to meet with and review the District’s EMS Program with NSF International Strategic Registration Ltd, Lead Auditor William Hancuff. The District accepts the audit and has corrected the minor non-conformance identified. The District believes the audit reflects fairly the quality of the District’s NBP program and the District’s Platinum Status.*

OUTCOMES MATTER

The CDSD Biosolids Management Program established four biosolids BMP goals; some are long term goals established in 2016, some have been completed and will be replaced and others were new in 2017. The goals and objectives were developed with input from the operators and consideration of potential public concerns. The final goals and objectives were formulated by the CDSD Manager and selected by the Board of Trustees. The CDSD Biosolids goals for its BMP were established to align with 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

While it is not a requirement to attain all goals and objectives, it is a critical component of the program to demonstrate overall biosolids and BMP improvements. As was mentioned the CDSD established several goals for 2016/17. The latter goals were developed using Specific, Measurable, Achievable, Relevant, and Time Bound (SMART) criteria. The goals and objectives for 2016 were attained or carried over and progress was demonstrated on the goals and objectives for 2018. The District’s performance relative to each of the goals is addressed below.

**2016 -2018 – Goal 1 – Increase the Dewatered Biosolids Concentration from 12.5% Solids to 16% Solids or Greater by December 31, 2018.** (Original goal was by December 31, 2017)

The action plan or tasks identified to accomplish this goal included selection of a consultant; evaluation of equipment and identification of specific process to be used for dewatering; design of facilities; selection of construction contractor; construction of facilities and building; and commencement of operation of the new process.

The accomplishments through October 2017 include selection of the consultant and completion of extensive evaluation of dewatering options that resulted in the selection of the FKS screw press technology. Detailed designs of the process and control system and preliminary layout of the building were completed by early 2017 and a building contractor was selected May 11, 2017. Construction of the dewatering building was substantially complete by October 2017 and installation of the screw presses began at that time. The dewatering process started operation on May 27, 2018. The District has been able to achieve 15% to 15.5% total solids with the new screw presses.

While the manufacturer guaranteed 16% minimum performance, however the sensitivity of the polymer feed system has made it difficult to track the WAS solids content with the online TSS probe. This has impacted the measurement of screw presses performance on dewatering the solids. Optimization is scheduled to be completed by December 31, 2018. (Note: a new process is being added to the biosolids value chain that may impact dewatering, therefore this could influence the attainment of this goal.)

The cost savings resulting from this improvement will result in approximately $25,000 per year in landfill tipping fees as well as a projected $5,000 per year in polymer.

Outcome Areas: Quality Biosolids Management Practices as well as Environmental Performance.

**2016 – Goal 2 – Reduce Pump Plugging by 5% in 2017** (evolved from 15% in 2016).
Wet wipes are a problem in wastewater pumping systems as they can plug pumps and increase maintenance. Historically the District has had to unplug pumps six to eight times per month. This frequency has been reduced to about four times monthly due to equipment replacement and improvements by the start of 2016.

The action plan in 2016 was to educate 1000 individuals on eliminating wet wipe disposal. The District evaluated target audiences for education on reducing flushing wet wipes. The staff concluded that targeting students as part of the outreach to schools would result in a measureable reduction in wet wipe flushing, thus reducing pump plugging. The effective communication to the children would allow them to convey the message to their parents. The District obtained and used a music video entitled “Can’t Flush This” for the children’s presentations.

By the time of the interim audit conducted in October 2016 the total number of students who had been trained were 1,445 individuals. Historically the District has had to unplug pumps six to eight times monthly. From the beginning of the program through the end of October 2017 the number of plugged pumps decreased to about 2 per month.

The action plan associated with the outreach program lead to the development of a new goal.

**2017/2018 Goal 2 – Have 10 Schools within the District Participate in a Poster Contest related to Disposal of Wet Wipes. (Closed)**

This goal was based on a new action plan implemented in 2017. The District established poster contest related to the disposal of wet wipes, with a contest award date of June 2017. The District established a goal of having 10 schools within its boundaries participate. Of the 16 schools contacted, 10 responded with submittals. The 10 schools that entered the contest submitted 157 posters. Each school winner received $100 while the first, second and third overall winning students received $500, $300, and $200, respectively. The winning schools of each city also received $500. A total of $3,000 was awarded.

The goal was extended to 2018 and was met with greater success, i.e. there were 254 posters submitted from the 10 responding schools and the contest and awards were completed by June 1, 2018.

The new goal of reducing plugging by 5% more would result in approximately one plug less per 3 months. Since each of these plugged pump maintenance activities costs about $1,000; the annual cost savings from the beginning of this goal and objective is approximately $24,000 per year.

Since this goal was so successful it was determined to move it from a goal to a standard part of the communications process of the management system.
Outcome Areas: Relations with Interested Parties, as well as Environmental Performance and Quality Biosolids Management Practices.

2016/17 – Goal 3 – Reduce the Amount of Digester Gas Flaring by 50% through Beneficial Use. (Closed)

Flaring digester gas wastes a valuable resource. Cost effective beneficial use of this gas reduces the waste and captures the resource. In the past, the cost of cleaning the gas limited the feasibility of this concept. However, new technology now appears to make lower quality gas use a possibility. In order for this option to be implemented there needs to be an improvement in digester gas capture by reducing or eliminating leaks in the secondary digester cover.

The action plan for this goal includes several tasks including: procure and install a secondary digester cover to eliminate the leaks; install a flow monitoring and measurement system; evaluate the potential use of Gas Box Technology and performing an on-site testing of the equipment. Potential additional future goals or objectives may involve application of disruptive technologies to increase digester gas production.

In June 2016 the District hired an engineer for the supply and installation of dual membrane gas cover and an evaluation of Clean Energy Gas Box system for use as a combined heat and power (CHP) facility. The dual membrane cover was installed and was tested by mid-October 2016 and found successful.

In April 2017 a sample of digester gas was submitted to WesTech for testing. The results indicated that the Gas Box technology required the use of digester gas with hydrogen sulfide concentration below 250 ppm, which is no different than what is required by conventional cogeneration engines. Therefore, the district began consideration of the use of alternative cogeneration engines using Duryea Technologies, a Pennsylvania company. In August 2018 Duryea decided they would rather pilot at a facility closer to their corporate headquarters. This resulted in the District closing this goal, with the understanding that if and when technical and economic energy recovery from small scale municipal digesters becomes feasible it may be resurrected.

The environmental benefit of this goal would be the reduction of consumption of natural resources for energy generation and a measurable decrease in greenhouse gas production through conversion of methane to carbon dioxide and water. (Note that methane is 25 times more potent as a greenhouse gas as carbon dioxide.)

The District anticipated it could produce 18KW/hour of energy from cogeneration installation. This would result in a savings of about $11,000 per year in purchased energy savings. If the units produce combined heat and power with the heat being used to warm the digesters, and additional $5,000 annual saving in natural gas could be achieved.

Outcome Areas: Environmental Performance, as well as Regulatory Compliance, Relations with Interested Parties, and Quality Biosolids Management Practices.
2015/16/17 – Goal 4 – Original Goal - Increase the Capture of 70 pounds/day of Phosphorus from the Final Effluent for Beneficial Use and Compliance with New Wastewater Regulations.

2017 – Goal 4 – Achieve continuous effluent quantity of 1.0 mg/l of phosphorus in the effluent by the end of 2019, with the possibility of being able to beneficially use the phosphorus in the solids removed from the wastewater.

This goal has evolved since its initial inception in 2015. New regulations require the reduction of phosphorus to 1.0 mg/L in the final effluent by 2020. The initial approach was to remove phosphorus from the wastewater through chemical treatment of biosolids side stream that is part of the biosolids value chain. To attain a level of 1.0 mg/l in the final effluent would require a reduction of roughly 60% of the phosphorus or a removal of approximately 70 lbs. per day.

The first step in the action plan was to perform a mass balance of the plant including side streams that can be used in a reduction option. The second step was to evaluate side stream treatment for recycled flows for biosolids treatment and dewatering to determine the cost effectiveness of new treatment units. And the third step was to determine mass amounts that could be removed and then evaluate process removal efficiencies to allow for determination of operational changes in current biological systems, which can achieve higher reduction in effluent nutrients. Included in this stage is the consideration of chemical supplement treatment. The mass balance was completed and the first report discussing side stream treatment concluded that this option was not operationally or financially desirable.

The next steps in the action plan for this goal are an expansion of that identified in 2015 and includes: evaluation of side stream treatment; evaluation of impact on biosolids and cost of treatment; evaluation of micro-dosing of chemicals in wetlands; evaluation of algae treatment as marketed by Clearas Water Technology; evaluation of unit process optimization and potential enhancements; determination of final method to meet phosphorus limitations; and implementation of the selected treatment plan.

Progress to date includes completion of action plan identified in 2015 and production of the following reports: Solids Production Evaluation – Brown and Caldwell; Preliminary Report on Micro-dosing of Alum in Wetlands – CH2M; and Algae Pilot Study – Clearas Water Technology. There are no anticipated cost savings associated with this regulatory driven goal and objective.

The penultimate stage of this action plan was the selection of the most cost effective reliable process from among the following: 1) micro-dosing of chemicals in wetlands; 2) algae treatment as marketed by Clearas Water Technologies; and 3) unit process optimization and potential enhancements. Alum addition after the trickling filter and before final settling was selected for evaluation at full scale. And the final step will be the
optimization of monitoring measurement and controls to consistently meet the phosphorus limitation of 1 mg/l and implementation of final treatment plan by 2020.

Outcome Areas: Environmental Performance, Regulatory Compliance, Relations with Interested Parties, and Quality Biosolids Management Practices.

CONCLUSIONS AND RECOMMENDATIONS

The results of the third party interim audit showed the Central Davis Sanitary District has a very strong mature Biosolids Management Program. The NSF lead auditor identified three positive observation, no major nonconformities, two minor nonconformity and six opportunities for improvement. Therefore, it is the recommendation of the audit team that the CDSD Wastewater Treatment Facility Biosolids Management Program, Kaysville, Utah attain the platinum plus level recognition certification status.

As was mentioned previously, a BMP is a continuous improvement process, and retention of certification status is not the end. The results of this and future audits are intended to provide value added to the program and should be viewed as an overall opportunity to improve. Every audit is a snapshot in time, and does not, or cannot, identify every potential 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 program’s enhancement.

Based on discussions the following is the proposed interim audit approach and schedule. Each interim audit will include a review of: the organization's progress toward goals and objectives; BMP outcomes (environmental performance; regulatory compliance; interested party relations; quality practices); actions taken to correct minor non-conformances; the management review process; corrective action requests and responses; and preventive actions. The above areas are mostly addressed in the standard Elements 5, 14, and 17 and to a lesser degree in Elements 1, 2, 4, 6, 9, 15, and 16.

In addition to the above, the following elements will be audited in detail according to the proposed schedule:

Year 11 (completed) – Elements 3, 10, 12, 13
Year 12 (third party) – Elements 1, 8, 15, 17
Year 13 (third party) – Elements 5, 6, 9, 14, 16
Year 14 (third party) – Elements 2, 4, 7, 11
Year 15 (third party) Re-verification
Attachment 1

Documents and Other Objective Evidence
Reviewed During the Third Party Interim Audit

Element 1. BMP Manual

- Interview with Jill Jones, District Manager, Central Davis Sewer District, Grade IV Wastewater treatment plant operator and Grade IV collection system operator.
- Interviews with Manjot Kaur – Engineer and David Hatch – Engineer, auditor.

Element 2. Biosolids Management Policy

- Interviews with Steve Brough, Central Davis Sewer District Board of Trustees; and Sherman Cloward, Central Davis Sewer District Board of Trustees.
- Interviews with Jill Jones, District Manager, Central Davis Sewer District, Grade IV Wastewater treatment plant operator and Grade IV collection system operator.
- Interviews with Manjot Kaur – Engineer, David Hatch – Engineer, auditor and Brett Jorgensen, Collecticon System Operator.
- The CDSD Biosolids Policy communicated to interested parties through availability on web-site (cdsewer.org).

Element 3. Critical Control Points

- Element 3: Critical Control Points, dated July 13, 2006; Revision 10, 7/21/2015.
- Table 3.1: Critical Control Points, Operational Controls, SOPs, Monitoring/Measurements and Potential Environmental Impacts, contained in Element 3 procedure.
- Interview with Jill Jones, District Manager, Central Davis Sewer District, Grade IV Wastewater treatment plant operator and Grade IV collection system operator.
- Interviews with Manjot Kaur – Engineer; David Hatch – Engineer, auditor; and Brett Jorgensen – Collection System Operator.
- Field tour of the following CCPs: head works, screens, backup pump station, sodium hypochlorite disinfection process, primary and secondary trickling filters, oxidation ditches, dewatering facilities, digesters, land application fields,
composting area (wood/chipping, compost piles, compost screens, compost storage piles, screened woodchip storage, and final compost product storage, surrounding neighborhoods and commercial areas, and outfall channel to the Great Salt Lake.

Element 4. Legal and Other Requirements

- Element 4: Legal and Other Requirements, dated July 13, 2006, Revision 9, 7/21/2015.
- Table 4.1: Legal Requirements and Guidance Specific To Central Davis Sewer District Biosolids Land Application Program (part of Element 4 procedure).
- Table 4.2: UT0020974 Summary of Permit Requirements (Table of Contents) (part of Element 4 procedure).
- Utah Pollutant Discharge Elimination System Permit: Major Municipal Permit UT0020974 (including Part II – Pretreatment Program), effective April 1, 2015, expires March 31, 2020.
- Utah Pollutant Discharge Elimination System Permit: Major Municipal Permit UT0020974 (including Part III – Biosolids Requirements), effective April 1, 2015, expires March 31, 2020.
- Utah Pollutant Discharge Elimination System Permit: Major Municipal Permit UT0020974 (including Part IV – Storm Water Requirements - UPDES Multi-sector Storm Water General Permit Number: UTR000000), effective April 1, 2015, expires March 31, 2020.
- Reviewed goals and objectives outcomes associated with legal requirements.
- Interview with Jill Jones, District Manager, Central Davis Sewer District, Grade IV Wastewater treatment plant operator and Grade IV collection system operator.
- Interview with Daniel R. Griffin, P.E., Environmental Engineer, Biosolids Program Coordinator, Department of Environmental Quality, Division of Water Quality, State of Utah.

Element 5. Goals and Objectives for Continual Improvement

- Element 5: Goals and Objectives, dated July 13, 2006, Revision 9, 7/21/2015.
- Reviewed Action Plan and Tracking – 2018 – Critical Outcome Indicators
- Interviews Steve Brough, Central Davis Sewer District Board of Trustees; and Sherman Cloward, Central Davis Sewer District Board of Trustees.
- Interviews with Jill Jones, District Manager, Central Davis Sewer District, Grade IV Wastewater treatment plant operator and Grade IV collection system operator; Manjot Kaur – Engineer; and David Hatch – Engineer.
- Reviewed and discussed the 2018 goals and objectives and their respective action plans.

Element 6. Public Participation in Planning
- Reviewed Odor Management Plan, including Odor Response Program and Odor Mitigation Program.
- Reviewed Relations with Interested Parties Outcome.
- Interviews with Steve Brough, Central Davis Sewer District Board of Trustees; and Sherman Cloward, Central Davis Sewer District Board of Trustees.
- Interviews with Jill Jones, District Manager, Central Davis Sewer District, Grade IV Wastewater treatment plant operator and Grade IV collection system operator and Manjot Kaur – Engineer.
- Interviews with Leland Myers, Advisor, Central Davis Sewer District and Paul Hirst – Interested Citizen – compost user.
- 2017 Goal 2: Contact 10 schools for a poster contest related to disposal of wipes.

Element 7. Roles and Responsibilities

- Interviews with Steve Brough, Central Davis Sewer District Board of Trustees; and Sherman Cloward, Central Davis Sewer District Board of Trustees.
- Interview with Jill Jones, District Manager, Central Davis Sewer District, Grade IV Wastewater treatment plant operator and Grade IV collection system operator.
- Interviews with Manjot Kaur – Engineer, David Hatch – Engineer, auditor; and Brett Jorgensen – Collection System Operator.

Element 8. Training

- Element 8, Attachment 1 – List of 25 training videos.
- Interview with Jill Jones, District Manager, Central Davis Sewer District, Grade IV Wastewater treatment plant operator and Grade IV collection system operator.
- Interviews with Manjot Kaur – Engineer, David Hatch – Engineer, auditor and Brent Jorgensen – Collection System Operator.
- Reviewed Safety Days log books with sign-in sheets (training) for 2018.
- Reviewed Biosolids EMS training logbooks.

Element 9. Communications

- Reviewed Odor Management Plan, including Odor Response Program and Odor Mitigation Program.
Interviews with Steve Brough, Central Davis Sewer District Board of Trustees; and Sherman Cloward, Central Davis Sewer District Board of Trustees.

Interview with Jill Jones, District Manager, Central Davis Sewer District, Grade IV Wastewater treatment plant operator and Grade IV collection system operator and Manjot Kaur – Engineer.

Interviews with Leland Myers, Advisor, Central Davis Sewer District and Paul Hirst – Interested Citizen – compost user.

Interview with Daniel R. Griffin, P.E., Environmental Engineer, Biosolids Program Coordinator, Department of Environmental Quality, Division of Water Quality, State of Utah


2017 Goal 2: Contact 10 schools for a poster contest related to disposal of wipes.

Element 10. Operational Control of Critical Control Points

- Table 3.1: Critical Control Points, Operational Controls, SOPs, Monitoring/Measurements and Potential Environmental Impacts, contained in Element 3 procedure.
- CDSD Block Flow Diagram.
- Index of Standard Operating Procedures (001 – 014).
- Interview with Jill Jones, District Manager, Central Davis Sewer District, Grade IV Wastewater treatment plant operator and Grade IV collection system operator.
- Interviews with Manjot Kaur – Engineer, David Hatch – Engineer, auditor and Brett Jorgensen – Collection System Operator.
- Discussion of the CDSD new eMaint computer based maintenance management system (CMMS) used by the District for routine work orders and corrective work order processing.
- Reviewed Odor Management Plan and Program.

Element 11. Emergency Preparedness and Response

- Interview with Jill Jones, District Manager, Central Davis Sewer District, Grade IV Wastewater treatment plant operator and Grade IV collection system operator; Manjot Kaur – Engineer, and David Hatch – Engineer.
- Reviewed Safety Days log books with sign-in sheets (training)
- Reviewed corrective action plans and discussed Emergency Response Program
- Discussed Safety Day training to include Drills and Table Top Exercises (including fuel spills)

Element 12. BMP Documentation and Document Control
- Interview with Jill Jones, District Manager, Central Davis Sewer District, Grade IV Wastewater treatment plant operator and Grade IV collection system operator, Manjot Kaur – Engineer, and David Hatch – Engineer.
- Reviewed various Element procedures and SOPs for conformity to documentation procedure.

Element 13. Monitoring and Measurement

- Table 13.1 – Records Storage Locations, part of Element 13 procedure.
- Reviewed SOPs # 1 through SOP # 4.
- Interview with Jill Jones, District Manager, Central Davis Sewer District, Grade IV Wastewater treatment plant operator and Grade IV collection system operator.
- Interviews with Manjot Kaur – Engineer, David Hatch – Engineer, auditor; Brett Jorgensen – Collection System Operator.
- Reviewed Odor Management Plan and Program.
- Reviewed 2018 Biosolids EMS Goals Reports.

Element 14. Nonconformances: Preventive and Corrective Action

- Audit and Corrective Action Worksheet (Part of Internal Audit Procedure).
- Reviewed and discussed the corrective actions taken in response to the third party external re-verification audit conducted in October 2017.
- Reviewed and discussed the use of Defect Reports in implementing corrective actions associated with operations and/or monitoring and measurement.
- Reviewed Biosolids Internal Audit Report for the audit conducted on October 22, 2018.
- Interview with Jill Jones, Lead Auditor 2016, District Manager, Central Davis Sewer District, Grade IV Wastewater treatment plant operator and Grade IV collection system operator and Manjot Kaur, Engineer.
- Interview with David Hatch – Engineer, trained internal lead auditor.
- Reviewed Corrective Action – BMP Deficiency (Routine Operations and Maintenance Activities.)

Element 15. Biosolids Management Program Report

- Interviews with Steve Brough, Central Davis Sewer District Board of Trustees; and Sherman Cloward, Central Davis Sewer District Board of Trustees.
- Interview with Jill Jones, District Manager, Central Davis Sewer District, Grade IV Wastewater treatment plant operator and Grade IV collection system operator, and Manjot Kaur, Engineer.

Element 16. Internal BMP Audit

- Element 16: Internal EMS Audit, dated July 13, 2006, Revision 9, 7/21/2015.
- CDSD Internal Audit EMS Checklist – Goals and Objectives and Code of Good Practice (part of Internal Audit Procedure).
- Audit and Corrective Action Worksheet (Part of Internal Audit Procedure).
- Reviewed Biosolids Internal Audit Report for the audit conducted on October 222, 2017.
- Interview with Jill Jones, Lead Auditor 2016, District Manager, Central Davis Sewer District, Grade IV Wastewater treatment plant operator and Grade IV collection system operator and Manjot Kaur, Engineer.
- Interview with David Hatch – Engineer, Trained Internal Auditor.

Element 17. Management Review

- Minutes CDSD Board Meeting – Feb 8, 2018, 6:00 PM (included Biosolids Report).
- Interviews with Steve Brough, Central Davis Sewer District Board of Trustees; and Sherman Cloward, Central Davis Sewer District Board of Trustees.
- Interview with Jill Jones, District Manager, Central Davis Sewer District, Grade IV Wastewater treatment plant operator and Grade IV collection system operator.