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 – October 23, 2019)

Final Report – December 2, 2019
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 October 31 through November 1, 2019. 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 1 – BMP Manual
- Element 8 – Training
- Element 15 – Nonconformances: Preventive and Corrective Action
- Element 17 – Management Review

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, alum feed system, phosphorus monitoring and control building, 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 outfall channel to the Great Salt Lake.

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

Susan Holmes, Central Davis Sewer District Board of Trustees
Sherman Cloward, Central Davis Sewer District Board of Trustees
Jill Jones, District Manager, Central Davis Sewer District
Manjot Kaur – Engineer
David Hatch – Engineer, auditor
Trace Workman – Superintendent, maintenance management system
Brett Jorgensen – Collection Systems Operator
Jace Woodrow – Operations
John Woodrow – Collections Operations
Paco Orona, Biosolids/Solids Handler
Paul Bushell – Puffer Landscaping – compost user
Carrie Rasmussen – interested citizen – compost user for 7 years
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, no minor non-conformances, 5 opportunities for improvement and 3 positive observations or commendations. The following presents the positive observation made during the audit. These are 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:

- As has been demonstrated in the past, 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.

- The CDSC has implemented an affordable and efficient computer maintenance management system ideal for small wastewater treatment operations called “emaint.” This tool provides all of the necessary information and data to effectively provide preventive and corrective maintenance using the most cost-effective web based system seen to date. It allows access by operational personnel using a variety of platforms including desktop computers, lap top computers, ipads, androids and iPhone.

- The CDSD installed a state of the art continuous monitoring station for orthophosphate to optimize the alum dosage added to the trickling filter and oxidation ditch treatment systems in order to assure compliance with future phosphorus limitations in the effluent of 1 mg/l.

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

Requirement 5.5 – the standard requires that each program goal use the SMART criteria (Specific, Measurable, Achievable, Relevant and Time Bound). Clarify that: 1) the goal related to odor complaints is specific in that it will allow immediate personal response to odor complaints while they are occurring; is measurable through making odor sensing trained staff available 100% of the time 24/7 as opposed to previously only available less than 75% of the time; 2) the goal related to the inDense project is specific in that it will improve settling during high loading periods, is measureable by reducing the SVI to an average of 200 on a monthly basis, is achievable because application of this technology at other sites had demonstrated a history of producing an SVI of 200, and is relevant because it is a component of the biosolids value chain; 3) the goal related to reducing phosphorus is specific because it relates to operational and environmental improvements, is measurable through monitoring phosphorus concentrations three times per week so that on a weekly average basis it does not exceed 1 mg/l, it is achievable because operational testing of the approach demonstrated success, and it is relevant because the solids produced become a product that must be handled.

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. The Element 14: Nonconformance – Preventive & Corrective Action procedure indicated in its revision log that changes were made to the procedure on October 23, 2019 but the header on the procedure indicated that most recent revision was on November 9, 2018.

Requirement 14.5 – there are several locations in the Element 14: Nonconformance – Preventive & Corrective Action procedure that do not clearly identify reference to the “audit corrective action worksheet”, and procedure 3 c) references a step that no longer exists in the procedure.

Requirement 14.5 – Element 14: Nonconformance – Preventive & Corrective Action procedure 4 does not specifically identify how corrective actions addressing opportunities for improvement will be documented. Also, the procedure does not identify the method used to document the justification for why any individual opportunity for improvement was not addressed.

Requirement 14.5 – Element 14: Nonconformance – Preventive & Corrective Action procedure 5 addresses problems identified during routine operations and maintenance. Consider rewriting this part to substitute the use of “emaint” in place of the BMP Deficiency Routine Operations and Maintenance Worksheet.
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 will address the opportunities for improvement. The District believes the audit reflects fairly the quality of the District’s NBP program and the District’s Platinum Plus Status.

OUTCOMES MATTER

The CDSD Biosolids Management Program established several biosolids BMP goals since 2016; some were long term goals established in 2016, some have been completed, some have been dropped, some have morphed into new goals and some of those no longer active have been replaced in 2019. 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 since 2016. The goals established in 2019 were developed using Specific, Measurable, Achievable, Relevant, and Time Bound (SMART) criteria. The District’s performance relative to each of the goals is addressed below and the outcome areas affected by the goal are found at the end of each discussion.

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 – Completed by 2019.)

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 completed 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.

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 impacted the measurement of screw presses performance on dewatering the solids. Optimization was scheduled to be completed by December 31, 2018 and reach an average of 17% before a new process was added to further improve dewatering. The “Indense” process was and the performance topped out at 19%.

The cost savings resulting from this improvement resulted in excess of $25,000 per year in landfill tipping fees but an increase in cost of dewatering 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 – Completed).

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 measurable 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 2017/2018 Goal 2.

Outcome Areas: Relations with Interested Parties, as well as Environmental Performance and Quality Biosolids Management Practices.
2017/2018 Goal 2 – Have 10 Schools within the District Participate in a Poster Contest related to Disposal of Wet Wipes. (Completed)

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.

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. Morphed into the following:

2017/18/19 – Goal 4 – Achieve continuous effluent quantity of 1.0 mg/l of phosphorus in the effluent by the end of 2019 (adjusted to end of 2020).

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 were an expansion of that identified in 2015 and included: 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 was 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.

As of September 2019, phosphate concentration of 1.0 mg/l was being attained from the trickling filter and chemical dosage controls were in place for controlling alum dose for both the trickling filter and the oxidation channels.

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

2019 – Goal 1 – Identify land owners in the immediate vicinity of the CDSD plant to take a portion or all of the District’s Class B biosolids for beneficial use. (Dropped)

After an extensive search for land owners in the immediate vicinity of the CDSD facilities it was determined no land was found to be available and the goal was dropped.

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

2019 – Goal 2 – Develop the Capability to Immediately Respond to Odor Complaints 100 Percent of the Time Over the Current Response of 75 Percent of the Time. (Completed).
The objective of this goal was to allow immediate on-site personnel response to odor complaints while odors are occurring, and provide scientific measurability of odors to verify the severity of odors. The measurable improvement is through making odor sensing trained staff available 100% of the time 24/7 as opposed to previously being only available less than 75% of the time. The action plan involved training 100% of the operational staff on the use of the Nasal Ranger so that a treatment plant staff member can immediately verify the severity of the odor in the presence of the complainant.

Outcome Areas: Environmental Performance, Regulatory Compliance, and Relations with Interested Parties.

2019 – Goal 3 – Reduce the Sludge Volume Index to an Average of 200 on a Monthly Basis During High Loading Periods.

The objective of this goal is through use of the inDense equipment increase the density of the oxidation ditch solids to improve settling and increase the hydraulic capacity of the operation. The CDSD 2018 Winter (November – January) average SVI was 320. The goal is to reduce the SVI during this period to a monthly average of 200. Commencement of this evaluation began the first of November 2019.

Outcome Areas: Environmental Performance 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, no minor nonconformity and five opportunities for improvement. Therefore, it is the recommendation of the audit team that the CDSD Wastewater Treatment Facility Biosolids Management Program, Kaysville, Utah maintain its certification at the platinum plus level of recognition.

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 (completed) – 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 Susan Holmes, Central Davis Sewer District Board of Trustees 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 Trace Workman – Superintendent, maintenance management system
- The CDSD Biosolids Policy communicated to interested parties through availability on web-site (cdsewer.org).

Element 3. Critical Control Points

- 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 Trace Workman – Superintendent, maintenance management system
- Field tour of the following CCPs: head works, screens, backup pump station, sodium hypochlorite disinfection process, alum feed system, phosphate monitoring operations, 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 areas, and outfall channel to the Great Salt Lake.

Element 4. Legal and Other Requirements

- 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 CDSD Slug Discharge Control Program.
- 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

- Reviewed Action Plan and Tracking – 2019 – Critical Outcome Indicators
- Interviews with Susan Holmes, Central Davis Sewer District Board of Trustees 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 and 2019 goals and objectives and their respective action plans.

Element 6. Public Participation in Planning
- Reviewed Relations with Interested Parties Outcome.
- Interviews with Susan Holmes, Central Davis Sewer District Board of Trustees 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 Paul Bushell – Puffer Landscaping – compost user and Carrie Rasmussen – interested citizen – compost user for 7 years
- Reviewed school poster contest related to disposal of wipes.

Element 7. Roles and Responsibilities

- Interviews with Susan Holmes, Central Davis Sewer District Board of Trustees 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 and David Hatch – Engineer, auditor.
- Interviews with Trace Workman – Superintendent, maintenance management system; Nate Cloward, Lead Operator; Jace Woodrow – Operations, auditor in training; John Woodrow – Collections Operations; Paco Orona, Biosolids/Solids Handler.

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 and David Hatch – Engineer, auditor.
- Interviews with Trace Workman – Superintendent, maintenance management system, Nate Cloward, Lead Operator, and Jace Woodrow – Operations, auditor in training.
- Reviewed Safety Days log books with sign-in sheets (training) for 2019.
- Reviewed Biosolids EMS training logbooks.

Element 9. Communications

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 – 017).
- 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; Trace Workman – Superintendent, maintenance management system; Nate Cloward, Lead Operator, and Jace Woodrow – Operations.
- 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.

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.
- Index of Standard Operating Procedures (001 – 017).
- 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; Trace Workman – Superintendent, maintenance management system; Nate Cloward, Lead Operator, and Jace Woodrow – Operations.
- Reviewed 2019 Biosolids EMS Goals Reports.

Element 14. Nonconformances: Preventive and Corrective Action

- Audit and Corrective Action Worksheet (Part of Internal Audit Procedure).
- Reviewed response to 2018 third party interim audit findings dated 29 November 2018.
- Reviewed and discussed the corrective actions taken in response to the third party external interim audit conducted in October 2018.
- Reviewed and discussed the use of Defect Reports in implementing corrective actions associated with operations and/or monitoring and measurement.
- 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 Two Corrective Actions – BMP Deficiency (Routine Operations and Maintenance Activities.)
- Reviewed new CMMS for preventive and corrective work order program.

Element 15. Biosolids Management Program Report

- Interviews with Susan Holmes, Central Davis Sewer District Board of Trustees
  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.

Element 16. Internal BMP Audit

- 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).
- 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 and Jace
  Woodrow – Operations, auditor in training.
- Reviewed internal audit field notes.
- Reviewed Biosolids Internal Audit Report for the audit prepared on October 8,
  2019.

Element 17. Management Review

- Discussed CDSD Board Meeting that included Biosolids Management Report.
- CDSD 2019 Biosolids EMS Goals activities report.
- Interviews with Susan Holmes, Central Davis Sewer District Board of Trustees,
  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.