



CH2M – City of Sweet Home
2014-2015 Annual Report
Water and Wastewater Operations

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Table of Contents

Introduction	4
Staffing	5
Management Systems	8
Safety Management	9
Wastewater Treatment Operations	10
Description of Facilities	10
Process Control Measures	10
Sludge Disposal	12
Water Treatment Operations	14
Description of Facilities	14
Process Control Measures	15
Maintenance	15
Maintenance and CMMS	15
Maintenance Services and Activities	15
Capital Improvement Projects	17
Community Involvement	18
Summary	19



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Introduction

CH2M HILL is pleased to present the 2014-2015 annual report to our client and partner, the City of Sweet Home (the City). Content of this report is in reference to activities from July 1, 2014 through June 30, 2015. The completion of our work in 2015 marks another year of quality service we've provided to the citizens of Sweet Home. This report highlights some of last year's accomplishments.



Staffing

CH2M HILL provides many hours of training for job, safety, and quality control aspects of operations and management. CH2M HILL also supports associates' efforts to obtain and hold State of Oregon certifications for water treatment and wastewater treatment-related operations as required by State law. This includes paying for training, travel, and other related costs. This helps ensure improved associate retention and improves recruitment efforts in what has become a highly competitive job market.

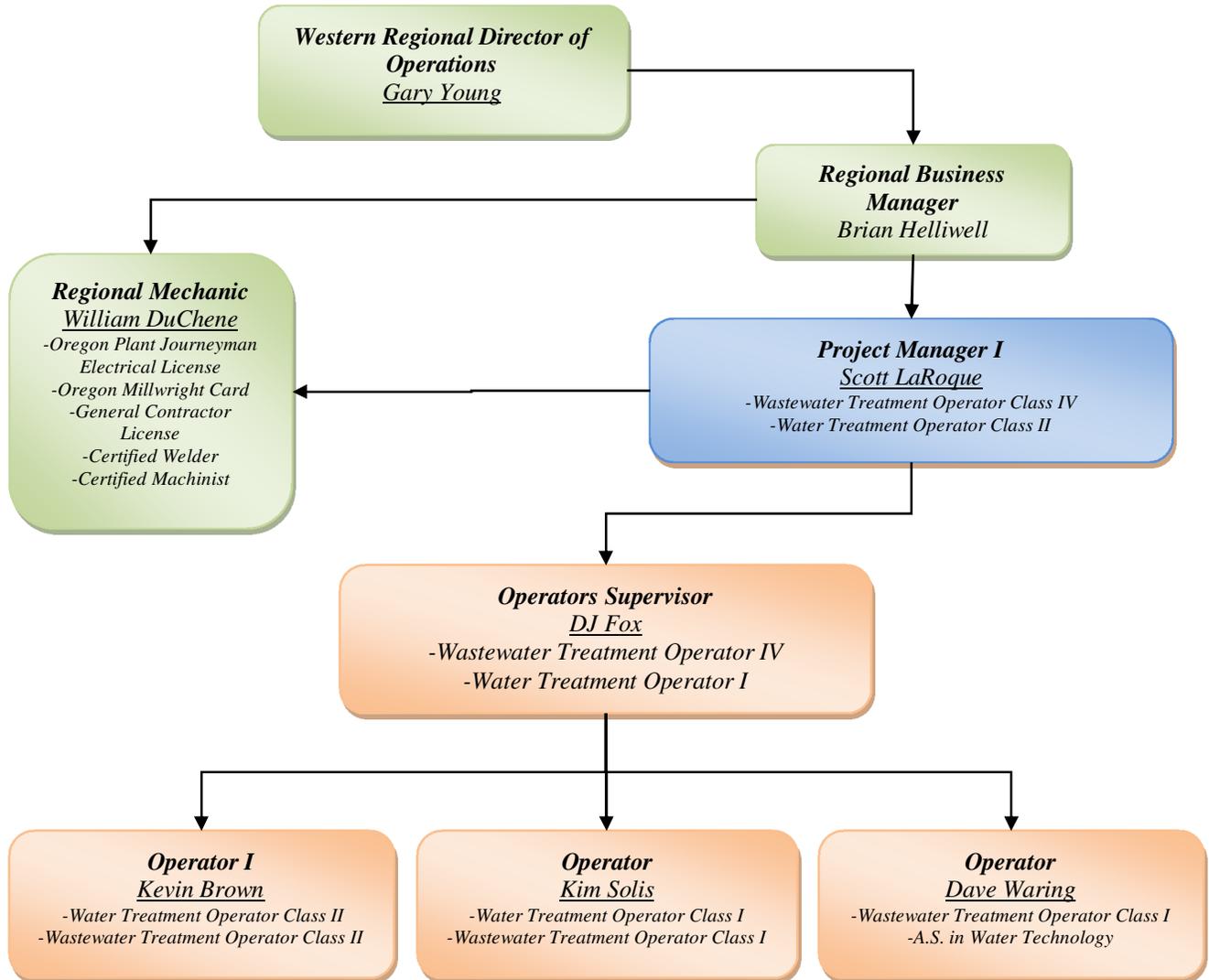
In addition to onsite training, all staff also participated in numerous other training, both onsite and offsite. Onsite training includes associates from Lebanon and Dallas. This ensures that operations continue uninterrupted during vacations and/or illnesses.

The Sweet Home organizational chart is detailed in Exhibit 1 on the following page.



Exhibit 1

Organizational Chart – Sweet Home, OR



Associates are supported by CH2M HILL's Technical Services Group and Regional Operations and Maintenance Specialists. This support includes:

- **Consulting Services.** Process troubleshooting, facility startup, performance testing, and system improvement recommendations.
- **IT Solutions and Services.** Computer hardware, software, and network solutions and upgrades.
- **Asset Services.** Condition assessments using proprietary software; determining facility asset operating longevity, life-cycle cost, and risk; and estimating repair and replacement costs and capital replacement costs.
- **Optimization Services.** Optimization that lowers variable costs, benchmarking against database of more than 100 facilities, and providing a Web-enabled portal for data access and analysis.

Management Systems

CH2M HILL's delivery of services revolves around management systems that ensure our team is meeting the requirements defined in the Services Agreement. Exhibit 2 outlines these management systems.

Exhibit 2

CH2M HILL Management Systems

CH2M HILL Management Systems	
Management Program	Description
<i>Capital Improvement Planning</i>	<i>Recommendation and implementation (as requested/ funded) of system improvements</i>
<i>Chemical Management</i>	<i>Establishment of chemical usage and management plan</i>
<i>Communication Management Systems</i>	<i>Documentation provided according to client's format and schedule</i>
<i>Community Involvement</i>	<i>Activities to demonstrate good corporate citizenship in our community</i>
<i>Compliance and Regulatory Interface</i>	<i>Regulatory compliance planning, coordinating with agencies, and tracking of compliance</i>
<i>Computerized Maintenance Management System (CMMS)</i>	<i>Software system used to track costs as well preventive and corrective maintenance activities</i>
<i>Computerized Operations Data Systems</i>	<i>Software system used to track process control data for water and wastewater treatment processes</i>
<i>Emergency Preparedness and Response</i>	<i>Coordination with local agencies and preparedness for emergencies</i>
<i>Associate Training and Development</i>	<i>Program for training and development of O&M personnel</i>
<i>Energy Management</i>	<i>Establishment of energy conservation plan</i>
<i>Facility Appearance Plan</i>	<i>Standards applied to facility, grounds, and personal appearance</i>
<i>Everyday Excellence</i>	<i>Associate training to ensure highest-quality, customer-focused services</i>
<i>Procurement Procedures</i>	<i>Negotiation of best value for goods and services, procured locally or through alternate suppliers</i>
<i>Project Evaluation</i>	<i>Corporate review of facilities and systems to ensure conformance with highest industry and CH2M HILL standard practices</i>
<i>Quality as a Business Strategy</i>	<i>Management and leadership system to guide and focus service delivery</i>
<i>Quality Assurance/Quality Control</i>	<i>Assurance of data quality and reliability for water treatment processes</i>
<i>Safety and Security</i>	<i>Site and facility security and adherence to associate safety standards</i>
<i>Standard Operating Procedures</i>	<i>Documented standard approaches for treatment process operation and onsite activities</i>
<i>Warranty Protection</i>	<i>Tracking and support for new equipment warranties</i>

Safety Management

Safety is a fundamental approach to how we conduct business. We are recognized leaders in the field of safety, and we apply this experience and knowledge for the benefit of the City, our associates, our subcontractors, and the community. We always intend to provide our associates with a safe and healthful work environment and to comply fully with all applicable federal, state, and local regulations regarding safe practices.

The safety of our associates, the communities we serve, and our environment are the three single most important considerations in the day-to-day delivery of our services.

A proactive approach to identifying and addressing potential hazards is critical to the success of our Safety Management Program. All associates are trained to look for and to report unsafe conditions and acts. The Project Safety Team completes a monthly inspection and documents any unsafe conditions or acts, and CH2M HILL specialists perform a quarterly walk-through of all facilities. Any hazards we identify as a result of these efforts, either formal or informal, are mitigated immediately. We use our CMMS program to issue and track work orders for hazards requiring repairs; in the interim, these areas are blocked using temporary means such as cones. We make associates aware of hazards in our weekly tailgate sessions.

The Sweet Home facility has completed seven years without lost time safety incident, totaling over 93,000 man hours without injury or illness resulting in days away from work. The team received an award for another perfect safety year, which it has received annually since 2006.

Wastewater Treatment Operations



Description of Facilities

CH2M HILL operates and maintains the City's wastewater treatment plant (WWTP). The City's WWTP liquid train consists of secondary treatment (aeration basins), secondary clarification, slow sand filtration, sodium hypochlorite disinfection and sulfur dioxide de-chlorination. Solids handling consists of waste activated sludge, supernatant separation, and solids conditioning with use of belt dewatering press. Final disposal of the sludge cake is at Wasco County Landfill.

Process Control Measures

On the next page, Exhibit 4 accurately displays how rainfall correlates to the amount of flow treated at the wastewater treatment plant.

Exhibit 4

Previous WWTP flow and rain totals by contract year

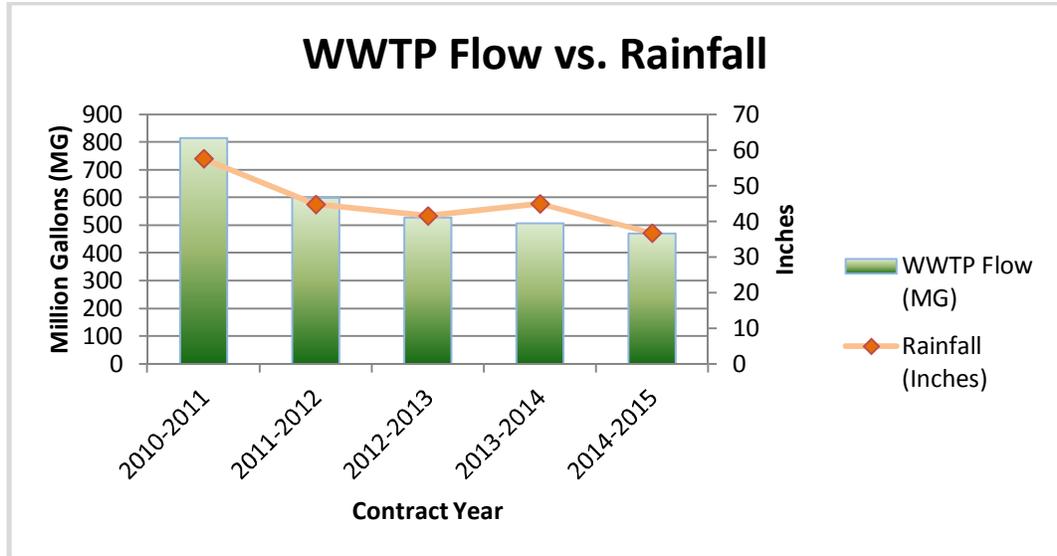
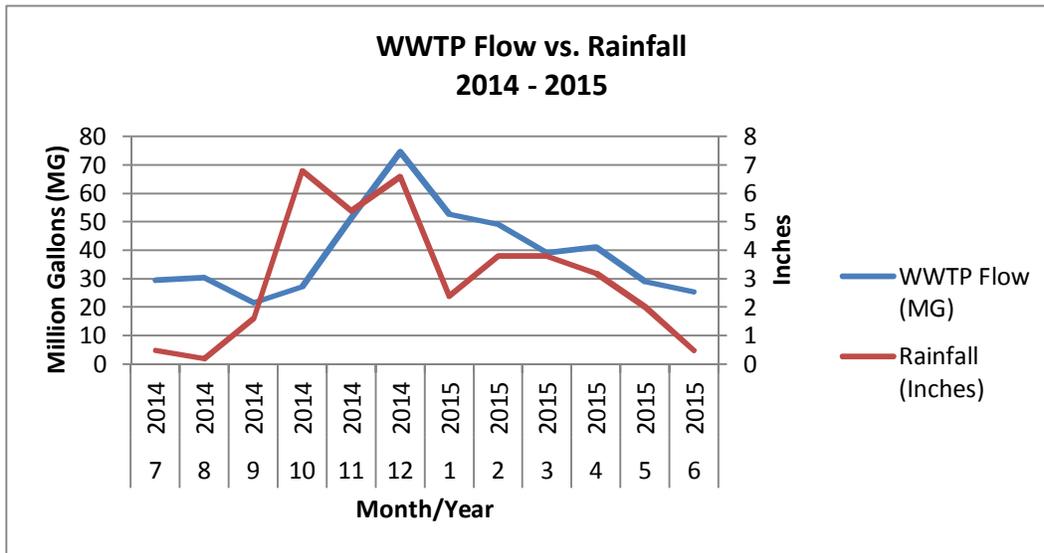


Exhibit 5 provides a further breakdown of the rainfall and flow for the 2014-2015 contract year. Due to improvements made by the City of Sweet Home in the collection system, the effect of rainfall on flow received at the wastewater treatment plant has been noticeably less than in years past, though solids loading has remained relatively stable.

Exhibit 5

WWTP flow and rainfall breakdown by month

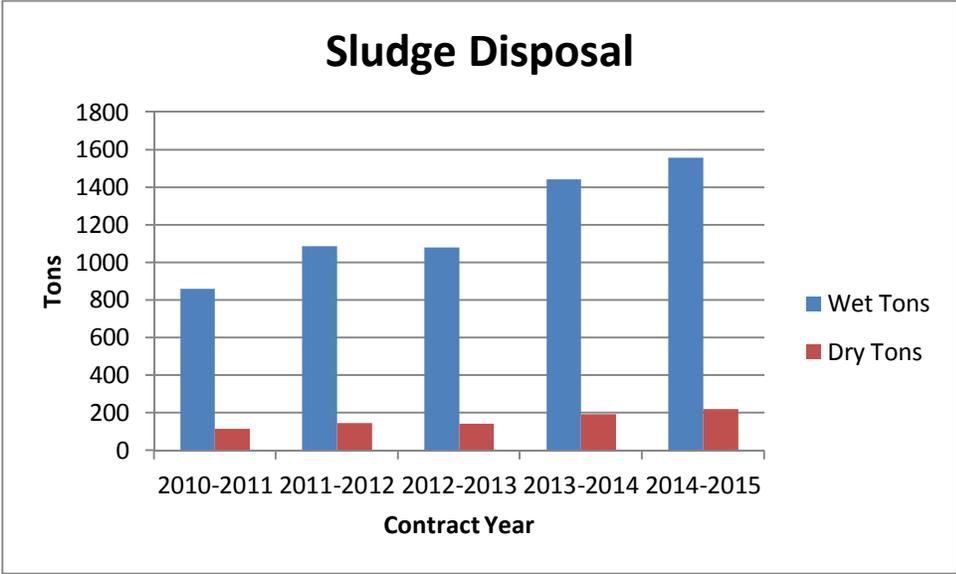


Sludge Disposal

Solids removed from the wastewater treatment process is collected and stored in a holding tank onsite. From there, the solids are de-watered via a belt press before being disposed of into a dumpster. Once the de-watered solids, called sludge cake, fills a 20-yard dumpster it is hauled to Wasco County Landfill, near The Dalles, for final disposal. The belt press de-waters the sludge to an average of 14.3% solid material, meaning that the majority of waste hauled from the plant is water. Below, Exhibit 6 which shows 2014-2015 hauling totals as well as previous contract years. A noticeable increase of sludge was hauled offsite during 2014-2015 for the cleanout of the solids holding tank. Not shown on Exhibit 6 is the additional 38.5 dry tons of material pumped from the tank during the cleanout. The cleaned-out material was sent to Heard Farms in Roseburg, OR for additional processing.

Exhibit 6

Total tons of sludge hauled during previous contract years



Water Treatment Operations



Description of Facilities

Facility ID #	OR41 00851
No. of Connections	3,064
Type of Treatment	Conventional Filtration
Method of Disinfection	Sodium Hypochlorite (on site generation)

The source water for the Sweet Home Water Treatment Plant is Foster Lake. The City's intake is located in the face of Foster Dam, about one mile east of the treatment facility. The City of Sweet Home holds water rights for water withdrawn from the South Santiam Drainage Basin. Currently the City has water rights allocated up to 13.1 cfs, of which 11.11cfs (7.2MGD) is certified. The water plant averages ~1.1 MGD production to keep up with demand from the population of 9,065.

Water flows from the Foster Dam intake to the raw water holding pond before being pumped to one of three filter trains where polymer, aluminum chlorohydrate, and soda ash are added. The filtered water flows by gravity to the clear-well for chlorine disinfection. After meeting contact-time requirements, the water is pumped into the 49th St. reservoir. As the water is pumped from the clear-well and into the distribution system, fluoride is added.

Exhibit 7

Outstanding Performer Certificate awarded by Oregon Health Authority



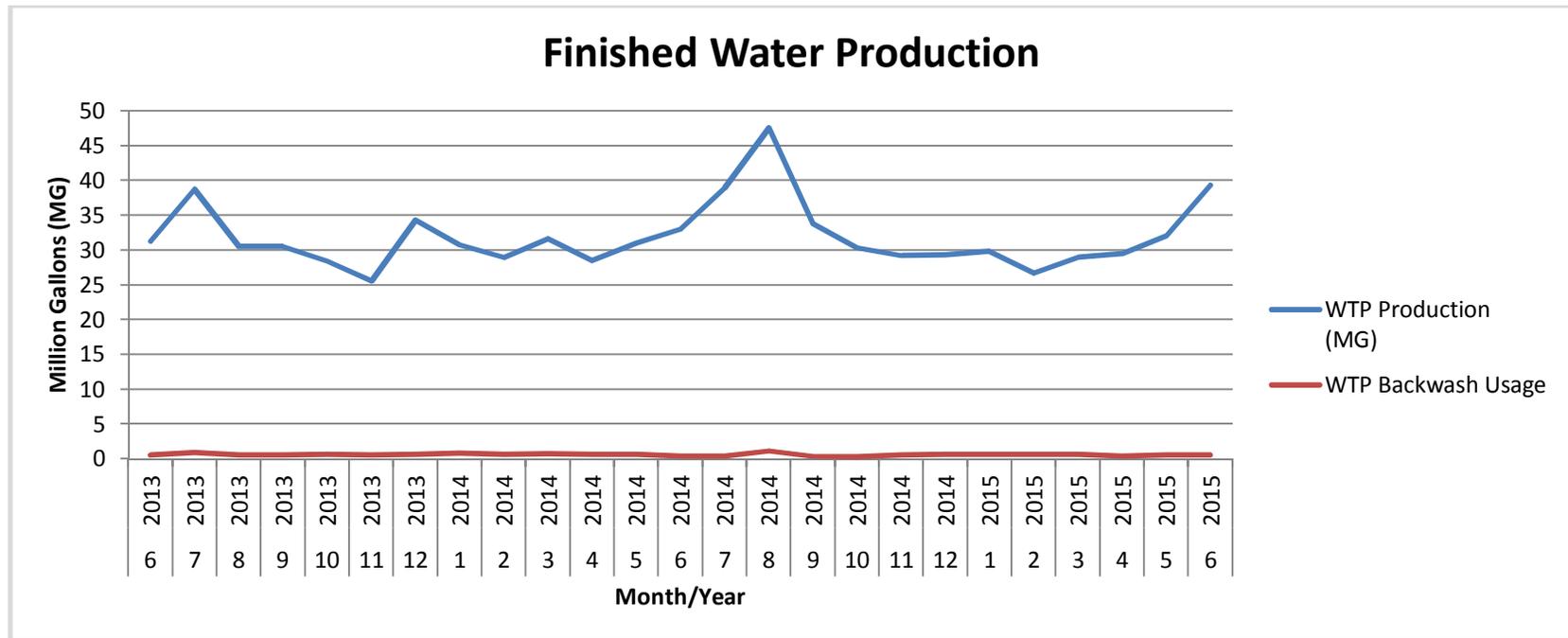
In May 2015 the water system was inspected by the Oregon Health Authority (OHA) as part of their normal schedule. The inspection is focused on record keeping, laboratory practices, sample collection, operation of facilities (treatment plant and reservoirs), and safety. OHA was unable to find any deficiencies, therefore the City was recognized as an Outstanding Performer (see Exhibit 7 above).

Process Control Measures

Total finished water production and backwash water usage is shown in Exhibit 8 on the next page. Backwash water is used to clear debris buildup in the filters. Finished water from the distribution system is used to backwash the filters, therefore it is advantageous to fine tune filter chemical dosages in order to use less chemicals and minimize the number of backwashes necessary.

Exhibit 8

Previous finished water production and backwash water usage, breakdown by month



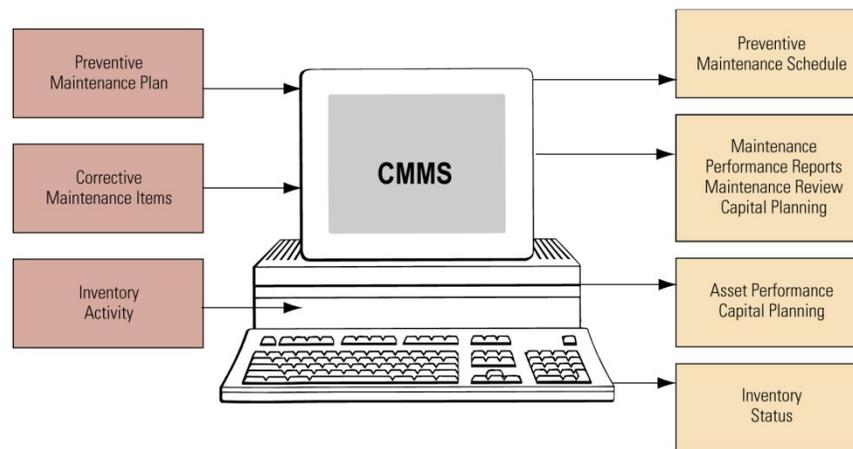
Maintenance

Maintenance and CMMS

CH2M HILL emphasizes proper equipment and facility maintenance as part of our management approach. Our maintenance program begins with a thorough audit and analysis of equipment condition, warranty status, and repair records. We use data that we gather from the analysis to populate our CMMS and to establish baselines for ongoing maintenance services site-wide. The CMMS serves as the key tool for guiding and tracking all onsite maintenance activities as shown below in Exhibit 9.

Exhibit 9

Sophisticated Data Management Systems Support CH2M HILL's Maintenance Program



Maintenance Services and Activities

CH2M HILL classifies maintenance activities at the sites we manage into three major categories:

Preventative Maintenance

Preventive maintenance (PM) is defined as those routine and/or repetitive activities required or recommended by manufacturers and/or internal standards to maximize the service life and reliability of the equipment, vehicle, facility, or any component thereof. Proper PM is the critical first line of defense against deterioration and failure.

Predictive Maintenance

Under CH2M HILL's predictive maintenance (PM) program, major electrical equipment is scheduled for testing using infrared thermography equipment annually to confirm that components are in working order with no loose or faulty connections. Readings are recorded in the CMMS. Additional PM activities include more detailed equipment condition assessments, and vibration monitoring.

Corrective Maintenance

Corrective Maintenance (CM) encompasses activities required for operational continuity, safety, and performance. The status of CM work orders is maintained using the CMMS, and work is scheduled within groups of equipment to save time and reduce labor costs. Exhibit 10 shows repair cost for the 2014-2015 and former contract years. Exhibit 11, on the next page, is a list of some of the major repair items for the 2014-2015 contract year.

Exhibit 10
Repair Cost Tracking

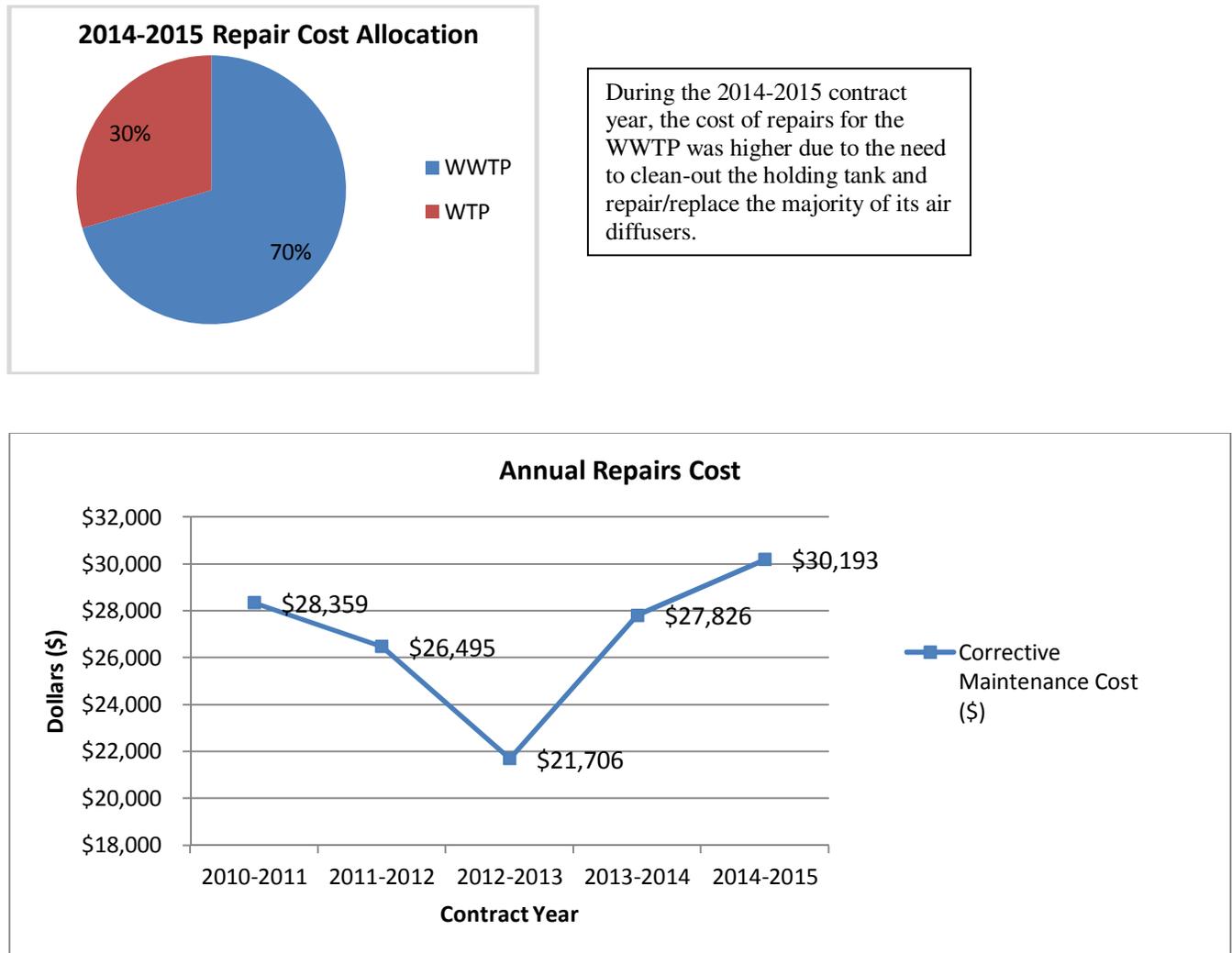


Exhibit 11

Major repair items, 2014-2015 contract year

Facility	Description
WWTP	Temporary Operations equipment for Holding Tank Clean out
	Install 3 dome hatches for access to Holding tank
	Troubleshoot/Repair polymer mixer for belt press
	RAS pump #1 rebuild
	RAS pump #1 impeller replacement
	Replacement HMI on Digester control panel
	Sand filter pump pull, replacement
	Outdoor lighting controller replacement
WTP	Replace Hypochlorite pump
	Troubleshoot SCADA control issues/errors
	Troubleshoot starter control for Finished Water Pump
	Re-map Fire system sensors after failure
	Replace 3 hypochlorite dosing monitors
	Filter blower Soft-Start re-installation, troubleshooting

Capital Improvement Projects

As part of the service provided to the City of Sweet Home, CH2M HILL evaluates capital assets and makes recommendations for annual improvement projects. These approved projects are funded by the City of Sweet Home with labor frequently provided by CH2M HILL personnel. With project labor provided by CH2M HILL, thousands of dollars were saved by the City of Sweet Home without the need to hire outside contracted labor to complete the projects. Below, the capital projects completed during the past contract year are listed:

- *Purchase of Siemens Programming for WTP*
- *Installation of gutter leaf guards for WTP*
- *Replacement of Vers-a-matic solids pump for WWTP*

Community Involvement

Community involvement is an essential part of the way CH2M HILL does business. Our associates take pride in giving back to the community where they live and work. CH2M HILL associates determine which projects they want to be involved in and seek input from the City for any special projects where they can help. Specific examples of community involvement activities CH2M HILL is proud to be a part of include:

- Donated scholarship funds to the Sportsman’s Holiday Court
- Participated as interviewers for Sweet Home High School’s Mock Interviews
- Joined the Sweet Home Community Foundation Board
- Volunteered to help with the Sweet Home Sweetheart run
- Hosted an “After Hours” event at the WTP through the Chamber of Commerce
- Served free hotdogs and drinks @ The annual Safety Fair
- Served free hotdogs and drinks @ The annual Harvest Festival



2015 Sweet Home Sweetheart Run

Summary

CH2M HILL is committed to the City of Sweet Home and its citizens by providing the best service at the lowest reasonable price. Our priority is to provide the City of Sweet Home with the assurance that the best interests of the City and community are being met. Our objectives are to provide the community with plentiful & clean potable water and to protect the receiving waters of the community. In performing above the expectations of our agreement, we are proud to continue our relationship with the City of Sweet Home so that all can benefit from a lasting partnership.



*Sweet Home Team
Left to right – Back: Dave Waring, Scott LaRoque, Kevin Brown. Front: D.J. Fox, Kim Solis*