

# Town of Castle Rock

## Agenda Memorandum

**Agenda Date:** 6/5/2018

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**Item #:** File #: TMP 2018-405

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**To:** Honorable Mayor and Members of Town Council

**From:** Mark Marlowe, P.E., Director of Castle Rock Water  
Matt Benak, P.E., Water Resources Manager  
Lauren Tyner, Water Resources Program Analyst

**Update: Gold Leader Application for the Colorado Department of Public Health and Environment (CDPHE) Environmental Leadership Program**

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### Executive Summary

The Environmental Leadership Program (ELP) is a voluntary program through the State of Colorado that recognizes entities that exceed both the state and the federal requirements for environmental regulations and make steps towards the goal of sustainability. Castle Rock Water's ultimate goal is to continue making positive strides towards sustainability and environmental stewardship in order to attain the top tier of Gold Leader status within the program.

In August of 2014, Castle Rock Water received the Bronze Environmental Achievement Award, the entry-level tier to the program. Continued improvements in water quality, water conservation, energy-use reductions, and environmental education allowed Castle Rock Water to receive the Silver Award for the Environmental Leadership Program in 2015, 2016 and 2017. As a Silver Partner, the requirements are to commit to develop and implement an environmental management system (EMS) within a three-year timeframe of achieving silver status and to subsequently apply for the Gold level.

After two years as a Silver Partner and with goals to achieve the Gold Leader status within the program, Castle Rock Water developed an Environmental Policy Statement in 2016. This statement documents the Department's commitment to environmental excellence, continual improvement, pollution prevention, compliance with applicable environmental regulations, as well as acknowledging the importance of communication with employees and the public. With the Environmental Policy Statement in place, Castle Rock Water then embarked on the development and implementation of an Environmental Management System, which we have recently completed.

Castle Rock Water's EMS is a tool for managing operations and the environmental aspects associated with them. The current EMS identifies five goals for Castle Rock Water:

- Reduce the Town's dependence on non-renewable water sources;
- Reduce the number of sanitary sewer overflows (SSOs) per year;

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**Item #: File #: TMP 2018-405**

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- Reduce overall water demand;
- Optimize the existing recycling program;
- Reduce overall electrical energy consumption.

For each goal identified, there are targets to track and record progress. The EMS utilizes a plan-do-check-act approach to achieve goals and assist in continual improvement for operations, safety, efficiency, and environmental protection. As both internal and external audits of the EMS have taken place this month, Castle Rock Water has completed the requirements necessary to apply for Gold Leader.

The EMS is included as ***Attachment A***.

### **History of Past Town Council, Boards & Commissions, or Other Discussions**

Staff announced that Castle Rock Water had achieved the Environmental Leadership Program Silver Award to the Castle Rock Water Commission on August 26, 2015.

Staff presented the Environmental Policy Statement to the Castle Rock Water Commission on April 13, 2016. Castle Rock Water Commission unanimously recommended that Council approve the agreement.

On April 19, 2016, Town Council approved Resolution 2016-038: Execution of the Environmental Policy Statement for Castle Rock Water.

Staff announced that Castle Rock Water has achieved the Environmental Leadership Program Silver Award for the third year in a row to the Castle Rock Water Commission on October 25, 2017. The award ceremony took place at the 19<sup>th</sup> Annual ELP Awards breakfast on October 4, 2017.

### **Budget Impact**

Becoming an ELP Gold Leader will not have an impact to Castle Rock Water's budget; however, positive economic benefits may be realized through the implementation of the EMS.

### **Staff Recommendation**

Staff and Castle Rock Water Commission recommend that the application for ELP Gold Leader be submitted to CDPHE by the June 30, 2018 deadline.

### **Attachments**

Attachment A: Plan





DRAFT

Revision 4

April 27, 2018

# Environmental Management System 2018



Environmental Management System Committee

## Table of Contents

Acknowledgements.....	iii
Letter from the Director.....	iv
Environmental Policy Statement.....	v
Chapter 1 - Introduction.....	1-1
1.1 Overview of Castle Rock Water.....	1-1
1.2 Organizational Chart.....	1-4
1.3 Definitions and Acronyms.....	1-5
Chapter 2 - Identify and Prioritize Aspects and Impacts.....	2-1
Chapter 3 - Regulatory Requirements (Federal, State, County, and Local).....	3-1
Chapter 4 - Goals and Objectives.....	4-1
Chapter 5 - Emergency Preparedness and Response.....	5-1
5.1 Emergency Response Plan.....	5-1
5.2 Emergency Action Plan.....	5-2
Chapter 6 - Roles, Responsibilities and Authorities.....	6-1
6.1 Leadership Team.....	6-1
6.2 Environmental, Health and Safety Program Manager.....	6-2
6.3 Supervisory Staff.....	6-3
6.4 All Employees.....	6-3
6.5 Contractors/Subcontractors.....	6-3
Chapter 7 - Operational Controls.....	7-1
7.1 Operational Planning and Control.....	7-1
Chapter 8 - Competence, Training and Awareness.....	8-1
Chapter 9 - Communication.....	9-1
9.1 Internal Communication.....	9-1
9.2 External Communication.....	9-2
9.3 Environmental Community Events.....	9-3



Chapter 10 - Control of Records and Documents.....	10-1
Chapter 11 - Monitoring and Measurement.....	11-1
Chapter 12 - Management Review.....	12-1
Chapter 13 - Audits.....	13-1
13.1 Internal Audits.....	13-1
13.2 Third Party Audits.....	13-1
Chapter 14 - Nonconformity, Corrective Actions and Previous Actions.....	14-1
14.1 Nonconformity and Corrective Actions.....	14-1
14.2 Continual Improvement.....	14-2

## **Appendices**

Appendix A - Corrective Action Report.....	A-1
Appendix B - Corrective Action Log.....	A-2
Appendix C - Revision Log .....	A-3
Appendix D – Regulatory Matrix.....	A-4

## **List of Figures**

Figure 1.2 - Castle Rock Water Organizational Chart.....	1-4
Figure 2.1 - EMS Matrix for Aspects and Impacts.....	2-1

## **List of Tables**

Table 3-1 - CR Water Regulatory Requirements Summary.....	3-1
Table 4-1 - Environmental Management Program.....	4-1

## **Document Revision History**

## **References**

## Acknowledgements

The development of the 2018 Castle Rock Water Environmental Management System was a collaborative effort led by the Castle Rock Water Environmental Management System Committee. The following people made significant contributions of time and input on this document.

- Mark Marlowe, P. E., Director of Castle Rock Water
- Tim Friday, P. E., Assistant Director
- Matthew Benak, P.E., Water Resources Manager
- Mark Billman, Environmental, Health and Safety Program Manager
- Lauren Tyner, Water Resources Program Analyst
- Evan Bahn, Regulatory and Water Quality Compliance Analyst
- Sandi Aguilar, Customer Relations Program Manager
- Melinda Pastore, Sr. Office Assistant





Dear Customers, Stakeholders and Castle Rock Water Employees:

In 1893, with two and a half miles of wooden pipeline, a few water mains and one reservoir, the Town of Castle Rock began its first water service to just a few hundred people. Thus began the Town's commitment to delivering residents this vital and important natural resource. Over a century later Castle Rock Water is an industry leader, providing state-of-the-art water, wastewater and stormwater services to a growing community of more than 65,000 residents. Castle Rock's water is one of the most important resources to ensure the long-term health of the community. Castle Rock Water's Vision of being an industry leader among water utilities, and its Mission of providing the community with exceptional service that protects public health and balances social, environmental and fiscal responsibilities in a sustainable manner, drive its business. With that in mind, staff has embraced an Environmental Management System (EMS) that complements the Vision and Mission. Effective environmental awareness and management is a key component of fulfilling the Vision and Mission.

EMS is a tool for managing operations and the environmental aspects associated with them. It serves as a framework to achieve, build and improve environmental excellence. The implementation of an EMS will:

- ❖ Strengthen operational processes and actions to meet business and environmental goals;
- ❖ Reduce overall costs through more energy efficient operations; and
- ❖ Emphasize the continual improvement of the system as a means of maximizing efficiencies and effectiveness.



*The membrane filtration system within the Plum Creek Water Purification Facility provides robust treatment through state-of-the-art technology.*

Castle Rock Water strives toward continuous improvement to fulfill its Mission. Water is one of the most important resources to the community and, as Castle Rock Water builds on the past, Castle Rock Water is absolutely committed to protecting the environment and providing a sustainable water supply for future generations. Please feel free to contact us at 720-733-6000 or [Water@CRgov.com](mailto:Water@CRgov.com) if you have any questions or would like more information about our Environmental Management System.

Sincerely,

Mark Marlowe  
Director of Castle Rock Water





## Environmental Policy Statement

"Be Water Wise" is the motto of Castle Rock Water. We truly take it to heart, as we strive to provide and preserve this precious resource for Town residents and businesses. In line with our Vision and Mission, that effort includes daily operations, maintenance, asset management, upgrades and expansions associated with the Town's water, wastewater and stormwater systems. The responsibilities of Castle Rock Water include:

**Water and Water Resources ~** Water procurement, treatment, distribution, sales and storage; system planning and engineering; capital improvement projects; preserving water quality; long-term planning of future water supplies; securing and managing water supplies; and water conservation programs.

**Wastewater ~** System planning and engineering; lift station and sewer line operation / maintenance; capital improvement projects; and wastewater conveyance.

**Stormwater ~** Long-term planning and engineering; capital improvement projects; and floodplain program administration, including inspections, operation and maintenance, continued implementation of permit requirements, FEMA flood mapping and master plans for all major drainageways within Town.

Castle Rock Water's faithful commitment to the environment extends to our staff, our customers, and to the community in which we operate. We are committed to:

- Compliance with all applicable environmental laws and regulations;
- Prevention of pollution whenever possible;
- Training of our staff on our environmental program;
- Empowering our staff to contribute and participate in environmental excellence;
- Communication of our environmental commitment and efforts to our staff, customers and community; and
- Continual improvement by measuring our environmental impacts and setting goals to reduce these impacts each year.

By:

Mark Marlowe, Director of Castle Rock Water

Date:

1/11/17



## Chapter 1 - Introduction

An Environmental Management System (EMS) is a set of management processes and procedures that allows an organization to analyze, control and reduce the environmental impact of its activities, products and services, and operate with greater efficiency and control.

The EMS is built on ISO 14001's Plan-Do-Check-Act (P-D-C-A) model and is designed to help an organization systematically identify, control and monitor environmental issues.<sup>1</sup>

An Environmental Management System includes:

- Defining roles and responsibilities
- Identifying and prioritizing environmental impacts
- Setting measurable objectives and targets
- Verifying and establishing operational controls
- Monitoring and measuring activities and progress
- Seeking continual improvement as part of a review cycle

Implementing an EMS does not necessarily involve a drastic change from the way Castle Rock Water (CR Water) conducts its business. The EMS builds on what the organization has been doing well, and provides a structured approach to improve what CR Water wants to do better.

### 1.1. Overview of Castle Rock Water

Castle Rock Water oversees the Town's water, wastewater and stormwater systems and serves over 20,600 customers and approximately 65,000 people. The Town secured its first water rights in 1880, and today, operates five water treatment plants, 52 deep groundwater wells, 13 alluvial wells, a surface

**VISION: CASTLE ROCK WATER WILL BE A NATIONAL LEADER AMONG WATER UTILITIES, FOCUSED ON CUSTOMER SATISFACTION AND DELIVERING OUTSTANDING QUALITY AND VALUE.**

**MISSION: CASTLE ROCK WATER PROVIDES ITS COMMUNITY WITH EXCEPTIONAL SERVICE THAT PROTECTS PUBLIC HEALTH AND BALANCES SOCIAL, ENVIRONMENTAL AND FISCAL RESPONSIBILITIES IN A SUSTAINABLE MANNER.**

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<sup>1</sup> *Achieving Environmental Excellence: An Environmental Management Systems (EMS) Handbook for Wastewater Utilities*. US EPA Cooperative Agreement No. 82895101; Global Environment & Technology Foundation, August 2004.

water diversion, an imported supply network (WISE), nearly 300 miles of sanitary sewer main and ten lift stations, and 350 stormwater detention ponds. CR Water strives to provide the community with exceptional service that protects public health and balances social, environmental and fiscal responsibilities in a sustainable manner. CR Water's vision complements that mission, and the goal to be a national leader among water utilities, focused on customer satisfaction and delivering outstanding quality and value.



Securing long-term water for CR Water's future, drop-by-drop, is one of the most important goals that the utility strives to meet, and work towards every day.

Today, a large quantity (approximately 82 percent) of the Town's annual water supply comes from nonrenewable Denver Basin groundwater, while only a small portion (approximately 18 percent) comes from renewable supplies along Plum Creek. The nonrenewable Denver Basin groundwater won't last forever, so it's important that CR Water continues moving to a renewable water supply. In accordance with the current plan, CR Water is striving for a 75 percent renewable water supply by the year 2050.





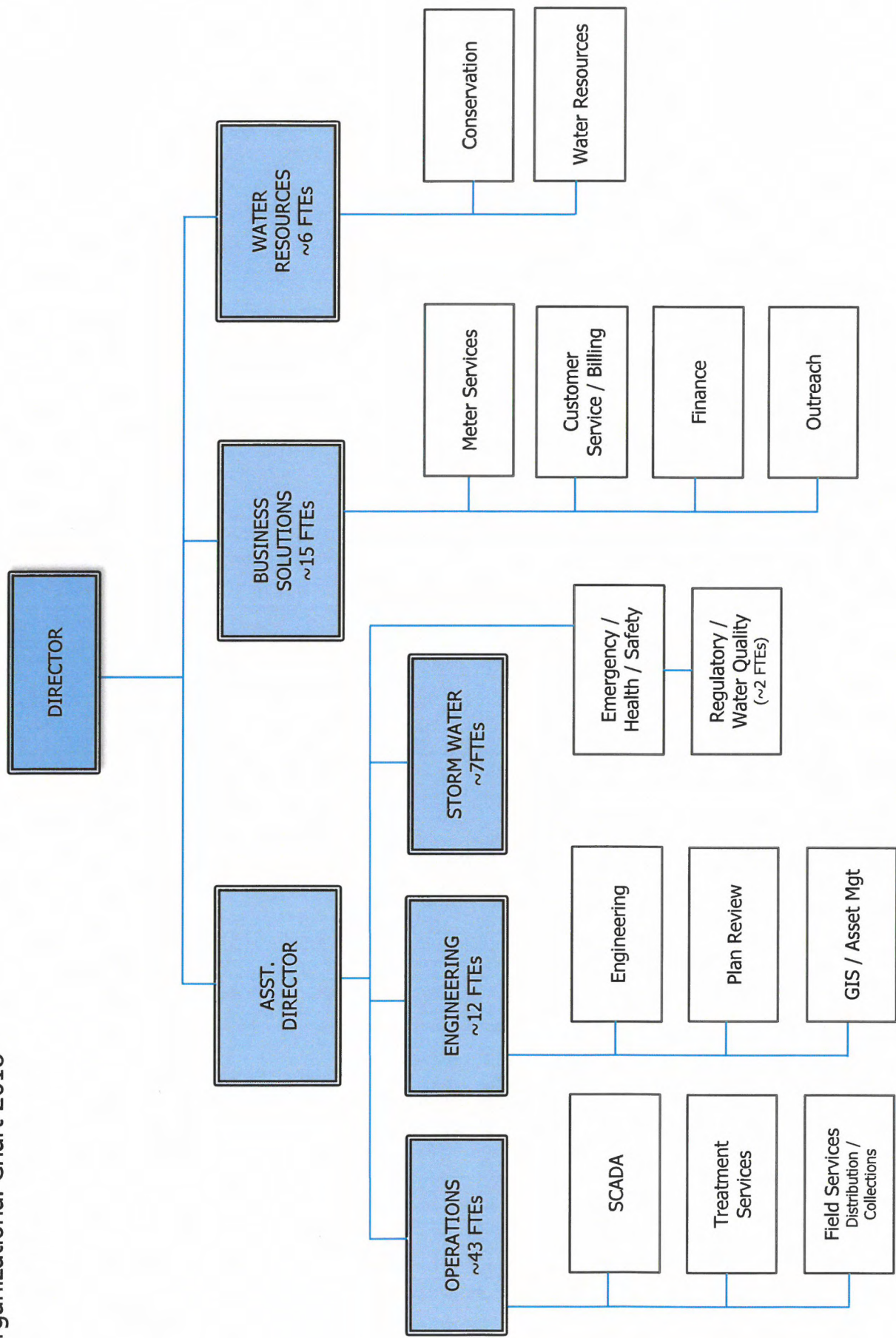


Castle Rock Water Staff

## 1.2 Organizational Chart

The staffing structure of Castle Rock Water is displayed in the most updated organizational chart (see Figure 1.2), which can be found on the shared drive (J:\A. EXECUTIVE\4.0 Leadership and Organization\4.4. Administration). CR Water is led by the Director of Castle Rock Water, who reports directly to the Town Manager, and is aided by the Assistant Director. There are five major functional divisions, each lead by a Manager. Those Divisions are Operations, Engineering, Stormwater, Business Solutions, and Water Resources.

Figure 1.2  
CASTLE ROCK WATER  
Organizational Chart 2018





### 1.3 Definitions and Acronyms

Below is a list of some of the acronyms and defined terms used throughout this document.

AF	acre-feet
AF/yr	acre-feet per year
ASR	Aquifer Storage and Recovery
AWWA	American Water Works Association
Btu	British Thermal Units
CEC	Contaminants of Emerging Concern
CDPHE	Colorado Department of Public Health and Environment
CIP	Capital Improvement Plan
cfs	cubic feet per second
CR Water	Castle Rock Water
CWCB	Colorado Water Conservation Board
EHS	Environmental Health and Safety
EMP	Environmental Management Program
EMS	Environmental Management System
EPA	United States Environmental Protection Agency
EAP	Emergency Action Plan
ERP	Emergency Response Plan
gpcd	gallons per capita per day
gpd	gallons per day
gpm	gallons per minute
ICS	Incident Command System
KPI	Key Performance Indicator
MG	million gallons
MGD	million gallons per day
MS4	Municipal Separate Storm Sewer System
PCWPF	Plum Creek Water Purification Facility
PCWRA	Plum Creek Water Reclamation Authority
Town	Town of Castle Rock
WISE	Water Infrastructure and Supply Efficiency

**Baseline:** The starting point from which the meeting of an objective is to be measured.

**Corrective Actions:** As a result of the audit findings, corrective action reports (CARs) are assigned to all nonconformities to correct EMS deficiencies as they occur. CARs track an audit finding, and assign tasks to be completed, responsibilities, and timeframes.



**EMS Committee:** A group of individuals from across the various CR Water Divisions who are focused on the creation, maintenance and updating of the Environmental Management System.

**Environmental Aspect:** Element of an organization's activities, products or services that can interact with the environment (Aspects = Causes).

**Environmental Impact:** Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products or services.

**Environmental Management Program (EMP):** A structured program with a set of specific identifiable actions (an "action plan") providing the direction for EMS objectives and targets to be obtained and tracked.

**Environmental Objective:** An overall environmental goal based on an established environmental policy, that an organization sets itself to achieve. Wherever possible, environmental objectives should be quantified to facilitate the evaluation of environmental performance and the measurement of progress towards specific environmental targets.

**Environmental Target:** A detailed performance requirement, quantified where practicable, that arises from the environmental objectives and that needs to be set and met in order for the objective to be achieved.

**Key Characteristic:** An element of an operation or activity that can be measured or evaluated for environmental performance of objectives and targets.

**Leadership Team:** CR Water's leadership group consisting of the Director, Assistant Director, Administrative Assistant, and the Managers of each division.

**Major Nonconformance:** A deficiency in meeting the requirements of an EMS. One or more of the elements of the EMS are not addressed or implemented.

**Minor Nonconformance:** A finding that leads to a failure to conform completely with an EMS element, but is not considered to be a breakdown in the system.

**Performance Indicators:** Measurement tools, selected by management that can be used to support the evaluation of environmental performance in relation to a specific target. Performance indicators may be adjusted to meet specific management needs or as necessary to ensure progress towards specific environmental targets.

**Significant Environmental Aspect:** An environmental aspect that has or can have a significant environmental impact.



## Chapter 2 – Identify and Prioritize Aspects and Impacts

In keeping with the Environmental Policy Statement, the EMS Committee examined the operational aspects and prioritized those that have the most significant impacts to the environment. The main tool for this process is the Matrix for Aspects and Impacts. Using this matrix has given CR Water the ability to monitor operations and assess the prioritization of them as the utility grows. This matrix shall be reviewed at least annually to determine if modifications or additions need to be made. Figure 2.1 shows the Matrix of Environmental Aspects and Impacts.

**Figure 2.1 – EMS Matrix for Aspects and Impacts**

Aspect		Potential Impact												
Aspect / Agent		Air	Water	Land	Other									
		Air Quality Impacts	Surface Water Quality and/or Aquatic life Impacts	Ground Water Quality Impacts	Water Use and Availability	Soil Contamination	Landfill Use Offsite	Human Health Impacts	Impacts to Wildlife	Natural Resource Depletion	Energy Use	Noise	Aesthetic Impacts	
Water Treatment	Extraction of ground and surface water sources		3	3	5	1			1	5	5		1	24
	Treatment, chemical handling, and disposal	1	3	1	1	1	3	1	1	2	1	1	17	
	Drilling/maintenance of wells	1	1	1	3	1	3		1	1	1	3	4	20
Field Services	Maintain water infrastructure	1	1	1	1	1	1	1			1	1	3	13
	Cleaning of maintenance equipment		1		1	1	1		1	1				6
	Sanitary Sewer Overflows (SSO)	1	3			3		3	1		1		5	17
	Maintain Wastewater Infrastructure	2	2						1	1		1		7
Water Quality	Collect compliance water quality samples for analysis				1			1		1	1			4
	system-wide sampling and monitoring of water quality				1			1		1	1			4
	Laboratory Practices													
Stormwater	Construct and maintain stormwater structures/features	1	3	1	2	1	2		1			1	1	17
	Illicit dumping/discharges	1	5	2	3	3		5	3				5	27
	Urban runoff		3	1	1	3		3	1				1	13
Admin (office spaces)	Facility energy consumption				1					3	3			7
	Facility waste streams		1				3			3				8
	Facility vehicle/fuel use	3	1		1			3		3	3	2		16
		11	27	10	22	15	11	21	12	19	20	8	26	

Using this matrix, CR Water has identified four main objectives, or goals, which the organization strives to reach. These goals are derived from the significant operation aspects shown in the matrix highlighted in yellow and are determined either by the impact value shown in the purple column or by their feasibility of practical accomplishment. The specific goals and objectives are further defined in section 4.



## Chapter 3 – Regulatory Requirements

Castle Rock Water is subject to various regulatory requirements under the U.S. Environmental Protection Agency and Colorado Department of Public Health and Environment, as defined primarily by the Safe Drinking Water Act and the Clean Water Act. A matrix of the legal requirements and regulations that CR Water complies with is organized in Table 3-1. A more detailed matrix can be found in Appendix D.

**Table 3-1 – CR Water Regulatory Requirements Summary**

Agency	Regulation	Primary Responsible Position
<b>CDPHE</b>	Regulation 11 - Colorado Primary Drinking Water Regulations	Operations Manager
	MS4 Permit	Stormwater Manager
	Clean Air Act - Odor Control	Operations Manager
	Collection System Rules	Collection System Supervisor
<b>EPA</b>	Resource Conservation and Recovery Act (RCRA) - Spent Media Disposal	EHS Program Manager
	NPDES Permit - Downstream Discharge	<i>PCWRA Compliance*</i>
	Underground Injection Control (UIC) - ASR Permit	Water Resources Manager
	TENORM - Sludge Disposal	Assistant Director
	Spill Prevention Control and Countermeasure Plan (SPCC) and Facility Response Plan (FRP)	EHS Program Manager
	Endangered Species Act and Rodent Control	Natural Resource Specialist
<b>FWS</b>	Superfund Amendments and Reauthorization Act (SARA) - Title III	EHS Program Manager
	Endangered Species Act – Preble's Meadow Jumping Mouse Protection	Natural Resource Specialist
<b>CIRSA</b>	CIRSA Safety Requirements - Annual Training Program	EHS Program Manager

\*Note: The Town of Castle Rock is a member of the Plum Creek Water Reclamation Authority; however, compliance with the treatment facility's discharge permit rests with the authority.





## Chapter 4 - Goals and Objectives

With the key environmental aspects determined, CR Water was able to generate environmental objectives/goals that it wishes to achieve. Each of these goals has an environmental target and a performance indicator associated with them, which are regularly monitored and evaluated while considering at least the following information:

- *Legal and regulatory requirements*
- *Significant environmental aspects and impacts*
- *Prevention of pollution*
- *Technological options*
- *Financial, operational, and business requirements*
- *CR Water environmental policy statement*
- *Views of interested parties*

This framework has become the core of the Environmental Management Programs (EMPs), which allow CR Water to map out the action plans that will ultimately lead to reaching the environmental goals. Castle Rock Water has built strong historical sets of baseline data for each of the applicable EMPs. This data sets the groundwork to measure and track the associated performance indicators and targets through specific tasks. The deadlines and resources for each task within the EMPs are regularly tracked, documented and communicated. The CR Water Environmental Management Program is presented in Table 4-1.

**Table 4-1 – Environmental Management Program**

Environmental Management Program				
GOAL	Significant Aspect	Objective/Goal	Target	Performance Indicator
1	Depletion of groundwater sources	Reduce the Town's dependence on non-renewable water sources	Reach 75% of total water supply from renewable water sources by 2050	Renewable/non-renewable Source of Supply Ratio. Renewable supply against total demand
2	SSO's and Collections System maintenance	Reduce number of SSO's per year	Zero SSO's & clean or inspect one third of collections system annually	Feet of sewer inspected and cleaned
3	Water Conservation	Reduce overall water demand	Reach 100 gpcd by 2050	Continue downward trend of usage
4	Solid Waste Generation (non-treatment)	Optimize existing recycling program.	Increase awareness and ease of recycling among CR Water staff	Documentation of improved posted signage, incentivised surveys, questionnaires, etc.
5	Electrical Energy Consumption	Reduce Overall Energy Consumption	Downward trend in kBTU per million gallons produced	AWWA Benchmark KPI (kBTU/Million Gallons)



## Chapter 5 - Emergency Preparedness and Response

CR Water recognizes the fact that emergency situations can occur. As a result, plans have been prepared that illustrate the response actions intended to reduce injuries, protect employees and the public, reduce the loss of assets, and minimize the downtime of the department functions and systems.

The following is a brief discussion of each plan, along with a link to each one.

### 5.1 Castle Rock Water Emergency Response Plan (ERP)

This is a stand-alone plan, which has been completed in response to the Bioterrorism Preparedness and Response Act of 2002, and can be found on CR Water's J Drive (*J Drive/C. Operations/21.0 Emergency Planning and Response/21.8 Planning/Emergency Response Plan*). The ERP addresses response actions to major events including credible threats, acts or indications of terrorism, natural disasters, or catastrophic incidents that leave high levels of damage severely affecting the population, infrastructure, environment, etc. The goals of the plan are to minimize the loss of life and property, and the loss of control of the water, wastewater, and stormwater systems, and to restore function to these systems during and after a major event.

The organization of a response for major events is according to the framework of the Incident Command System (ICS). All Castle Rock Water employees have an awareness level of familiarity with the ERP, and have received training to the ICS via the training section of the FEMA website.





## 5.2 Castle Rock Water Emergency Action Plan (EAP)

The EAP is a procedural plan within the CR Water Health and Safety Manual, and can be found [here](#) (*J Drive/D. Business and Admin/33.0 Health and Safety Mgmt/EHS Manual/Programs/Emergency Action Plan/CRWater\_EAP*). The function of the EAP is to establish procedures, and prepare employees for all emergency situations that may be reasonably expected in Castle Rock. Training of employees to the content of the plan is according to the Health and Safety Manual training schedule, and drills occur annually.



## Chapter 6 – Roles, Responsibilities and Authorities

### 6.1 Leadership Team

CR Water's Leadership Team consists of the Director, Assistant Director and five Division Managers. This team is the management team for the department and defines roles and responsibilities within the organization. Overall job responsibilities for each position within the organization are described in detail in written job descriptions available to all employees through the Town's [intranet site](#), "The Depot". The department's organizational structure also is available through this same website, as well as Chapter 1 of this EMS plan. The Department Director has the overall responsibility and authority for ensuring the Environmental Management System is established, implemented and maintained, and the Leadership Team functions as an extension of the Director in this regard. The responsibilities for this team include:

- Communicate importance of the Environmental Management System throughout the organization.
- Exercise due diligence in preventing Castle Rock Water from breaching environmental laws.
- Ensure that resources are available so the Environmental Management System can be implemented, maintained and improved which include Human Resources, organizational structure, financial resources, and technological resources.

Responsibilities related to the EMS for all other positions within the department and contractors working for the department are described on the following pages.

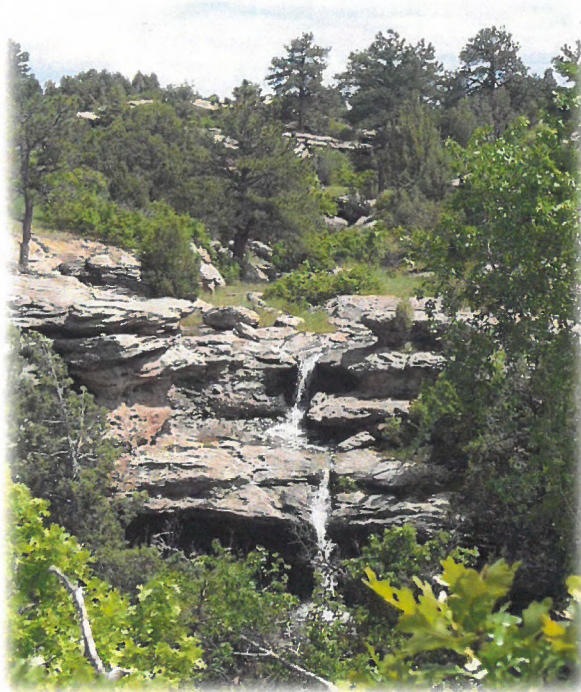




## 6.2 Environmental, Health and Safety Program Manager

The EHS Program Manager is responsible for managing the environmental, health and safety program for the department. Specific responsibilities include:

- Accountable for management of all matters relating to the environment and those affected by Castle Rock Water's operations.
- Ensure that an adequate program of training for environmental management is established.
- Must comply with any license, permit, notice or order from regulators.
- Tracks the performance of the Environmental Management System and reports it to top management for review.



### **6.3 Supervisory Staff**

Superintendents and supervisors have responsibility for their direct reports and holding them accountable. To aid in this effort, supervisory staff are expected to:

- Provide knowledge of environmental aspects of operations to their employees.
- Communicate and support training for new employees.

### **6.4 All Employees**

All employees will be held accountable for meeting the standards established in the EMS. Responsibilities include:

- Responsible for complying with all environmental regulations set forth by regulatory agencies.
- Know that all employees must immediately report all environmental issues or concerns to their supervisor.
- Should promote environmental considerations within his or her area of activity.
- Be receptive to new information and carefully consider its significance.

### **6.5 Contractors/Subcontractors**

Contractors and subcontractors working for the department will be held to the same environmental standards as employees, and this includes the following:

- **Shall be responsible to ensure that all contractor employees and subcontractors' employees are familiar, and comply with, applicable standards and regulations pertaining to the environment.**
- Must adhere to these requirements at all times while on Town properties.
- Violations of any of the regulations may result in removal of the contractor from Town properties.



## Chapter 7 – Operational Controls

### 7.1 Operational Planning and Control

Castle Rock Water has established, implemented, controlled, and maintained the processes needed to meet Environmental Management System requirements, and to implement the actions identified to effectively implement risks, opportunities, and environmental objectives by:

- Establishing operating criteria for processes
- Implementing control of processes in accordance with the operating criteria

CR Water will control planned changes and review the consequences of unintended changes, taking action to mitigate any adverse effects, as necessary. CR Water will ensure that outsourced processes are controlled or influenced. Consistent with a life cycle perspective, CR Water has:

- Established controls, as appropriate, to ensure that its environmental requirements are addressed in the design and development process for the product or service, considering each life cycle stage
- Determined its environmental requirements for the procurement of products and services, as appropriate
- Communicated its relevant environmental requirements to external providers, including contractors
- Considered the need to provide information about potential significant environmental impacts associated with the transportation or delivery, use, end-of-life treatment and final disposal of its products and services

CR Water has maintained documented information to the extent necessary to have confidence that the processes have been carried out as planned.



## Chapter 8 – Competence, Training and Awareness

CR Water has committed to ensure that all employees and contractors, whose work may have a significant impact on the environment, are competent on the basis of appropriate education, training and/or experience. The records associated with competency will be retained.

CR Water will ensure that all employees and contractors have had an appropriate assessment for their potential to cause a significant environmental impact and the associated competence required.

CR Water will establish, implement and maintain procedures to identify the training needs associated with the environmental aspects of the EMS, and develop programs to ensure awareness and competence, at each relevant function and level, by addressing:

- The roles and responsibilities in achieving conformity with the environmental management system
- The importance of conformity with the environmental policy, the procedures and the requirements of the structured EMS
- The significant environmental aspects and related actual or potential impacts associated from their work activities and the environmental benefits of improved personal performance
- The potential consequences of departure from specified operating procedures





## Chapter 9 - Communication

The mission of CR Water to provide our community with exceptional service that protects public health and balances social, environmental and fiscal responsibilities in a sustainable manner is an apparent and predominant cornerstone of the organization. At the core of the mission is the strong communication culture within the organization to fully engage staff, stakeholders and the community in understanding the value of water, including the commitment to environmental stewardship. There are policies and procedures in place which provide effective communication internally across management levels as well as soliciting, documenting and responding to external communication. Castle Rock Water has established, implemented and maintained the processes needed for internal and external communications relevant to the Environmental Management System (EMS).

### 9.1 Internal Communication

Castle Rock Water emphasizes strong communication within the organization with a variety of channels to communicate within and across departments. Reports, changes **to procedures and notable activities are regularly presented through the director's** monthly report, monthly staff meetings or department meetings. Through these channels, employees and supervisors stay informed and involved with environmental management, understand the environmental policy and are provided with a consistent message of commitment to environmental performance. As staff is regularly presenting in these settings, the Water Quality Program Analyst and EHS Program Manager are known to be the primary contacts for the EMS.

Staff is encouraged to send department-wide emails for call to action activities. In addition to the distribution of **the EMS policy and the organization's environmental objectives**, one goal of the EMS, recycling efforts, is regularly communicated in this manner. The Town of Castle Rock also has a town-wide efficiency program, Project Green, which provides monthly education and campaigns for office recycling and efficiency efforts. An EMS summary and the EMS policy statement have been emailed to all staff, and the EMS Plan has been presented at a monthly staff meeting.

Procedural changes are handled within the specific department and brought to the management leadership team for review and notification to respective departments. Key audit dates or other relevant events are communicated to employees from the Leadership Team.

Castle Rock Water also maintains an extensive online network drive for record keeping, which is **accessible to and consistently used by staff**. The 'J Drive' contains project scopes, contacts and policy, as well as correspondence and reports. The EMS policy and corresponding reporting is maintained in this network drive.



Additionally, all employees are responsible for reporting to management items like incident reports, near miss reports and spill reports to assure these events receive proper attention. Monthly staff meetings are frequently used to encourage reporting and educate staff on outcomes. While employees are trained to immediately report incidents to supervisors, there is also an online reporting form which is maintained by the Safety Committee that allows for anonymous reporting. The Emergency, Health and Safety Program Manager has a hands-on manual for emergency procedures and regularly trains staff via safety moments, safety fairs and emergency drills.

## **9.2 External Communication**

The organization uses a number of mechanisms to ensure effective communication with various audiences. These mechanisms include regulatory filings and informal discussions with regulators. Business leaders, elected officials and other stakeholders are informed of Castle Rock Water activities through formal and informal presentations. Residents of the community are regularly outreached through bills inserts, social media, email, website, and direct mail. Environmental stewardship is one topic covered, including the annual reporting of the consumer confidence report on water quality. The Environmental Management Policy, along with the Environmental Leadership Program award, is available on the Town's website.

Castle Rock Water has a seven-member, voluntary commission (the Castle Rock Water Commission) comprised of residents who meet monthly to review projects and policies. High profile projects are presented to the Town Council for review and approval. Both of these meetings are open to the public.

To solicit the views of interested parties, the organization uses surveys, open houses and traditional community outreach. For example, an open house was conducted in February 2018 introducing a new source water protection plan, which provided for community response. This plan also has further outreach measures. Additionally, the **Town's website has a 'Report a Concern' feature. Stakeholder input, concerns and action taken is either tracked on this feature or in the project folder. The log allows for documentation of date and source of the communication, whether any issues raised need action or a formal response, and the resolution of the issue.**

For project notification, a communication policy is in place that clearly identifies communication avenues and timelines which includes the use of door tags, phone calls, letters, email, social media, and news releases. These forms of communication are used to educate residents on the scope of the project, and when appropriate, safety and environmental impacts.

Construction contracts, especially for stormwater projects, regularly contain conditions for environmental impact. The conditions commonly include accommodations for endangered species and (re)vegetation efforts.



### **9.3 Environmental Community Events**

Castle Rock Water also hosts or co-hosts annual cleanup along our waterways (Spring Up the Creek), and chemical collection events for the community (Household Chemical Roundup). The importance of environmental stewardship is apparent through these and additional community campaigns.

### *Spring Up the Creek*

Spring Up the Creek is an annual community event, held each May, to preserve our waterways by removing trash that collects along stream banks. Recent events have included participation by CR Water staff and almost 200 volunteers, as well as collection of approximately 100 bags of waste. Participants walk or are shuttled to approximately seven locations throughout town, where they enjoy exercise on the trails while collecting trash along stream banks. Before the event, volunteers are treated to breakfast and coffee donated by local vendors. The children enjoy a variety of fun activities, and all participants receive a complimentary event t-shirt. CR Water hosts this event with assistance from several sponsors and partners.





## *Household Chemical Roundup*

The Household Chemical Roundup is organized by the Tri County Health Department, and held at Castle Rock Water each September (one of three locations). CR Water staff and volunteers assist Tri County in collecting unused chemicals, oil-based paint, mercury thermometers, gas, degreasers, lawn chemicals, etc. brought by residents to the event. The unwanted chemicals are then properly disposed of so they do not end up harming sanitation workers, creating problems in sewage treatment plants and landfills, or polluting the water supply. Hundreds of thousands of pounds of household hazardous waste is collected annually from the three events.





## Chapter 10 – Control of Records and Documents

Castle Rock Water has a dedicated network drive, accessible to authorized employees, that houses project documentation, standard operating procedures and all primary reports. To ensure appropriate access, retrieval and use, the Environmental Management System (EMS) has its own folder. Within the document, is a matrix which also provides the corresponding report locations on this network drive. As most of these processes are a normal part of doing business, these reports are updated at least annually or as the processes are performed. The responsible employee updates these reports and review by supervisor or committee is standard practice. Obsolete documents are archived in dated network drive folders and kept indefinitely for historical review.



## Chapter 11 – Monitoring and Measurement

Monitoring and measuring Castle Rock Water's progress in meeting its objectives and targets, and assessing compliance toward meeting regulatory requirements, is a key part of the EMS.

Following this section are the individual check-sheets for each of the significant aspects that the utility wishes to monitor. Each month, the EMS Committee will convene and track the performance of the significant aspects to determine if CR Water is on-track with its targets. If not on-track, the EMS Committee will discuss reasons why, and communicate findings to the Leadership Team and the divisions responsible for the work related to each aspect





## Chapter 12 – Management Review

The EMS Team reviews CR Water's Environmental Management System, on an annual basis at a minimum, to ensure its continuing suitability, adequacy and effectiveness.

The Management Review includes consideration of:

- The status of actions from previous management reviews;
- Changes in:
  - External and internal issues that are relevant to the Environmental Management System
  - Needs and expectations of interested parties, including compliance obligations
  - Its significant environmental aspects
  - Risks and opportunities
- The extent to which environmental objectives have been achieved;
- Information on the organization's environmental performance, including trends in:
  - Nonconformities and corrective actions
  - Monitoring and measurement results
  - Fulfilment of its compliance obligations
  - Audit results
- Adequacy of resources
- Relevant communication(s) from interested parties, including complaints
- Opportunities for continual improvement

The outputs of the management review include:

- Conclusions on the continuing suitability, adequacy and effectiveness of the Environmental Management System
- Decisions related to continual improvement opportunities
- Decisions related to any need for changes to the Environmental Management System, including resources

- Actions, if needed, when environmental objectives have not been achieved
- Opportunities to improve integration of the Environmental Management System with other business processes, if needed
- Any implications for the strategic direction of the organization

CR Water retains documented information as evidence of the results of management reviews.





## Chapter 13 – Audits

In order to verify the effectiveness of Castle Rock Water's working EMS, an audit is used as a tool to review and improve existing processes. Audits support the plan, do, check, act cycle of an EMS. The purpose of an EMS audit is to check that CR Water conforms to its own Environmental Management System requirements, Environmental Leadership Program requirements for an EMS, ISO 14001 requirements, as well as that the working EMS is effectively implemented and maintained.

### 13.1 Internal Audits

Castle Rock Water will conduct an internal audit annually through an Internal Audit Committee. The Environmental Health and Safety Program Manager will serve as the EMS Lead Auditor and head of the committee. The Internal Audit Committee will be comprised of representatives from each division within Castle Rock Water.

This eight member committee will include members from the following CR Water divisions:

- Environmental Health & Safety
- Engineering
- Field Services/Water Distribution
- Business Solutions
- Meters
- Water Resources
- Field Services/Wastewater Collections
- Plant Operations

### 13.2 Third Party Audits

As Castle Rock Water strives to be an environmental leader throughout the community, third party audits allow for additional support of continual process improvement from an outside perspective. By conducting third-party audits at least annually, CR Water will be able to register for third-party certification as well as ISO 14001 certification.

## Chapter 14 – Nonconformity, Corrective Actions, and Previous Actions

### 14.1 Nonconformity and Corrective Actions

Following an audit, Castle Rock Water determines opportunities for improvement and implements necessary actions to achieve the intended outcomes of its Environmental Management System.

When a nonconformity occurs, Castle Rock water:

- Reacts to the nonconformity and, as applicable:
  - Takes action to contain, control and correct it
  - Deals with the consequences, including mitigating adverse environmental impacts
- Evaluates the need for action to eliminate the causes of the nonconformity, in order that it does not recur or occur elsewhere, by:
  - Reviewing the nonconformity
  - Determining the causes of the nonconformity
  - Determining if similar nonconformities exist, or could potentially occur
- Implements any action needed
- Reviews the effectiveness of any corrective action taken
- Makes changes to the Environmental Management System, if necessary

Corrective actions are initiated appropriate to the significance of the effects of the nonconformities encountered, including the environmental impact(s) by using Corrective Action Report (CAR) forms for tracking (Appendix A). CR Water retains documented information as evidence of the nature of the nonconformities and any subsequent actions taken, the results on effectiveness of any corrective action, and the task(s) assigned to correct the nonconformity.





## 14.2 Continual Improvement

CR Water continually improves the suitability, adequacy, and effectiveness of the Environmental Management System to enhance environmental performance. In addition to quarterly management review and annual internal/external audits, the EMS Team will meet quarterly to review and update EMS program elements.



## **Appendices**

Appendix A – Corrective Action Report

Appendix B – Corrective Action Log

Appendix C – Revision Log

Appendix D – Regulatory Matrix



**CR Water - Corrective Action Report (CAR) / Preventative Action Request**

A. CAR #	
B. Area/Department:	
Audit Date:	Auditor(s):
Auditee(s):	Date:
C. Description of Non-Conformance:	D. Root Cause Analysis:
Audit Criteria: Applicable ISO 14001 Element:	
E. Corrective Action:	
Date of Implementation:	
F. Preventative Action:	
Date of Implementation:	
G. Verification of Completion:	
Date of Verification:	
Auditor (signed):	Date:

**These forms are maintained at: J-Drive/C. OPERATIONS/23.0 Regulatory & Water Quality Compliance/Environmental Leadership Program/EMS**

## CR Water - Corrective Action Log

[illegible]

**These forms are maintained at:** *J-Drive/C. OPERATIONS/23.0 Regulatory & Water Quality Compliance/Environmental Leadership Program/EMS*



## CR Water - Revision Log

[illegible]

**These forms are maintained at:** *J-Drive/C. OPERATIONS/23.0 Regulatory & Water Quality Compliance/Environmental Leadership Program/EMS*



The table below lists the Federal, State, County, and Local regulatory requirements that apply to Castle Rock Water.

**Castle Rock Water Regulatory Matrix**

Division	Agency	Regulation	Section	How Castle Rock Water Complies	Location of Documents on J-drive
Plant Operations	CDPHE	Regulation 11 - Colorado Primary Drinking Water Regulations	11.5 Monitoring Plan Rule	Updates Drinking Water Monitoring Plan at least annually, and as major changes occur.	J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\Monitoring Plan
			11.8 Surface Water Treatment Rule (SWTR)	Submit Monthly Operating Report (MOR) for PCWPF Plant once a month by the 10th of every month.	J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\WQ Results & Documentation by Year\2017\Reports\MOR Reports
			11.9 SWTR: Filter Backwash Recycle Rule		J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\Regulatory Documents
			11.10 SWTR: Enhanced Treatment for Cryptosporidium	Monthly Sampling at PCWPF (LT2)	J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\Sampling\LT2
			11.11 Groundwater Rule	Groundwater Treatment plants maintain minimum disinfection requirements	J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\Monitoring Plan
			11.16 Revised Total Coliform Rule (RTCR)	70 Samples per month throughout distribution (bacti's)	J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\WQ Results & Documentation by Year\2017\Bacteriological Results
			11.18 Nitrite and Nitrate	Sampling at treatment plants as per the monitoring schedule	J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\WQ Results & Documentation by Year
			11.19 Inorganics Chemicals Rule	Sampling at treatment plants as per the monitoring schedule	J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\WQ Results & Documentation by Year
			11.21 Organic Chemicals Rule	Sampling at treatment plants as per the monitoring schedule	J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\WQ Results & Documentation by Year



Division	Agency	Regulation	Section	How Castle Rock Water Complies	Location of Documents on J-drive
			11.22 Radionuclides Rule	Sampling at treatment plants as per the monitoring schedule	J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\WQ Results & Documentation by Year
			11.23 Maximum Residual Disinfectant Levels Rule	Monitoring RAA (running annual average) of disinfectant to ensure it stays below the MCL	J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\Monitoring Plan
			11.24 Disinfection Byproduct (DBP) Precursor Rule		J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\WQ Results & Documentation By Year\2017\Water Quality Results\DBP Precursors
			11.25 DBP Rule	Quarterly Sampling in distribution (as per monitoring schedule)	J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\WQ Results & Documentation By Year\2017\Water Quality Results\DBPs
			11.26 Lead and Copper Rule	60 Samples every six months from tier I homes in town	J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\WQ Results & Documentation By Year\2017\Lead and Copper 2017
			11.28 Storage Tank Rule	Bi-monthly inspections on each tank	J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\Sampling\Tank Inspections
			11.34 CCR Rule	Provide the annual CCR (Consumer Confidence Report) to all residents by July 1st	J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\WQ Results & Documentation By Year\2017\Reports\CCR
			11.35 General Reporting Rule	Reporting all required information to the State within the defined timeframe(s)	J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\Regulatory Documents
			11.36 Recordkeeping Requirements Rule	Maintain all records defined in the Rule, as well as make water quality and operations information available to the public upon request.	J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\Regulatory Documents



Division	Agency	Regulation	Section	How Castle Rock Water Complies	Location of Documents on J-drive
			11.37 Cross Connection Control Rule		J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\Bulk Water and Cross Connection Control
			11.38 Sanitary Survey Rule	CDPHE Conducts an on-site evaluation of the entire system every 3 years.	J:\C. OPERATIONS\25.0 Water Treatment O&M\25.12 Regulatory
			11.39 Backflow Prevention and Cross-Connection Control Rule	Develop, implement and maintain a written backflow prevention and cross-connection control program that meets all the requirements outlined in the rule.	J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\Regulatory Documents
			11.46 Analytical Requirements and Laboratory Certification Rule	All WQ laboratories Used by CR Water meet the testing and analytical requirements in this rule.	J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\Emergency Management
			11.47 UCMR	Adhere to EPA mandates and schedules as they surface (every five years).	J:\C. OPERATIONS\23.0 Regulatory & Water Quality Compliance\UCMR
			Regulation 100	Maintaining operator licenses - valid for three years. Ensuring that ORC has appropriate levels of certification for treatment and distribution classifications	
Plant Operations	EPA	RCRA	CDPHE Haz Mat Unit	Spent Media Disposal	
Stormwater	CDPHE	Clean Water Act	MS4 - State		J:\B. PLAN & ENG\16.0 WS Mgmt\16.12 MS4\0.5 Permit Compliance
	EPA		NPDES	PCRWA Compliance	
	EPA		Local ordinances		



Division		Agency	Regulation	Section	How Castle Rock Water Complies	Location of Documents on J-drive
Water Resources		CDWR		Withdrawals from Groundwater		
Water Resources		EPA	Safe Drinking Water Act	EPA Underground Injection Control (UIC)	ASR Permit	J:\B. PLAN & ENG\15.0 WR and Conservation Mgmt\15.1. Water Resources\15.1.9. Projects\ASR Pilot Project
EHS		EPA	TENORM			J:\B. PLAN & ENG\15.0 WR and Conservation Mgmt\15.1. Water Resources\15.1.9. Projects\PCWPF\Treatment\Residuals Mgmt\TENORM
EHS		EPA	EPA Oil Spill Prevention Program	Spill Prevention Control and Countermeasure Plan (SPCC) & Facility Response Plan (FRP)		
EHS			Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)	Endangered Species Act & Rodent Control		
EHS		EPA	Emergency Planning and Community Right-to-Know Act (EPCRA)	Superfund Amendments and Reauthorization Act (SARA) - Title III		
EHS		FWS	Endangered Species Act	Threatened and Endangered Species	Preble Meadow Jumping Mouse Protection	
EHS		CDPHE	Clean Air Act	Odor Control		
EHS		CDPHE		Collection System Rules		
EHS		CIRSA		CIRSA Safety Requirements	Annual Training Program	