

Dallas Creek Water Company Source Water Protection Plan

Ouray County, Colorado

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The cover photo is a view of Dallas Creek where we have our infiltration gallery and pump station. The beautiful mountain range in the background is the San Juan Mountain Range.

This Source Water Protection Plan is a planning document and there is **no legal requirement to implement the recommendations herein**. Actions on public lands will be subject to federal, state, and county policies and procedures. Action on private land may require compliance with county land use codes, building codes, local covenants, and permission from the landowner. This SWPP for the Dallas Creek Water Company was developed using version 16.01.04 of the Colorado Rural Water Association's Source Water Protection Plan Template.

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INDEX OF REVISIONS:

1. December 16, 2016:
 - Changed Colorado Rural Water Association’s logo on front cover to reflect updated version.
 - Changed text page 11-12 – **Water Supply Demand Analysis**

Original text:

However, based on the demand estimates above, the Dallas Creek Water Company has determined that if Dallas Creek would become disabled for an extended period of time due to contamination, Dallas Creek Water Company may not be able to meet the average daily demand of its customers. And in the event that Dallas Creek would become disabled for an extended period of time, Dallas Creek Water Company may not be able to meet the average peak daily demand of its customers.

Revised text:

However, based on the demand estimates above, the Dallas Creek Water Company has determined that if Dallas Creek would become disabled for an extended period of time due to contamination, Dallas Creek Water Company may not be able to meet **the average daily demand and/or the average daily peak demand of its customers.**

New Text Added: **As a component of this Source Water Protection Plan, we researched alternate sources of temporary emergency water. The nearest source of treated water is Tri-County Water Conservancy District. Both parties are open to the possibility of an emergency connection but the configuration and cost has not been determined. We are not actively pursuing this source because we continue to believe the risk of being unable to restore water service beyond our storage capacity is highly unlikely. However, Tri County has agreed to work with Dallas Creek in an extreme emergency and be considered a possible alternative supply as part of this Source Water Protection Plan.**

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COMMON ACRONYMS

BMP	Best Management Practice
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CDWR	Colorado Division of Water Resources
CRWA	Colorado Rural Water Association
CSFS	Colorado State Forest Service
CWCB	Colorado Water Conservation Board
CWPP	Community Wildfire Protection Plan
DCWC	Dallas Creek Water Company, Inc.
GIS	Geographic Information System
ISDS	Individual Sewerage Disposal Systems
MGD	Million Gallons per Day
NOAA	National Oceanic Atmospheric Administration
NRCS	Natural Resource Conservation Service
OWTS	Onsite Wastewater Treatment System
PSOC	Potential Source of Contamination
SWAA	Source Water Assessment Area
SWAP	Source Water Assessment and Protection
SWPA	Source Water Protection Area
SWPP	Source Water Protection Plan
TCW	Tri County Water Conservancy District
USFS	United States Forest Service

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EXECUTIVE SUMMARY

There is a growing effort in Colorado to protect community drinking water sources from potential contamination. Many communities are taking a proactive approach to preventing the pollution of their drinking water sources by developing a source water protection plan. A source water protection plan identifies a source water protection area, lists potential contaminant sources and outlines best management practices to reduce risks to the water source. Implementation of a source water protection plan provides an additional layer of protection at the local level beyond drinking water regulations.

Dallas Creek Water Company values a clean, high quality drinking water supply and decided to work collaboratively with area stakeholders to develop a Source Water Protection Plan. The source water protection planning effort consisted of public planning meetings with stakeholders including local citizens and landowners, private businesses, water operators, local and state governments, and agency representatives during the months of October 2015 through January 2016, at the 4H Events Center in Ridgway, CO. Colorado Rural Water Association was instrumental in this effort by providing technical assistance in the development of this Source Water Protection Plan.

Dallas Creek Water Company obtains their drinking water from one surface water intake in the Dallas Creek Watershed, which includes the Beaver Creek-Dallas Creek, Pleasant Creek, and West Fork Dallas Creek Watersheds. The Source Water Protection Area for this water source is comprised of the Beaver Creek-Dallas Creek, Pleasant Creek, & West Fork Dallas Creek watershed boundaries. This Source Water Protection Area is the area that Dallas Creek Water Company has chosen to focus its source water protection measures to reduce source water susceptibility to contamination. The Steering Committee conducted an inventory of potential contaminant sources and identified other issues of concern within the Source Water Protection Area.

The Steering Committee developed several best management practices to reduce the risks from the potential contaminant sources and other issues of concern. The best management practices are centered on the themes of building partnerships with community members, businesses, and local decision makers; raising awareness of the value of protecting community drinking water supplies; and empowering local communities to become stewards of their drinking water supplies by taking actions to protect their water sources.

The following list highlights the highest priority potential contaminant sources and/or issues of concern and their associated best management practices.

Sediment/ Turbidity – High Priority

1. Identify areas of Dallas Creek watershed that have high erosion
2. Work w/ National Resource Conservation Service (NRCS) or other funding entities such as Trout Unlimited, Colorado Division of Water Resources (CDWR), Colorado Water Conservation Board (CWCB) and private landowners to identify funding opportunities for erosion mitigation strategies
3. Perform streambank erosion mitigation.

Spills/Accidents & on Highway 62 – High Priority

1. Share copies of Dallas Creek Water Company’s Source Water Protection Plan (SWPP), GIS shapefiles and maps of the Source Water Protection Assessment (SWPA) with CDOT, Ouray County Sheriff Dept., Colorado State Patrol, Ouray County Office of Emergency Management, Ouray County Road & Bridge and other emergency responders.
2. Gather contact information and create a mailing list for distribution;
3. Utilize CRWA’s “SWPP Distribution Letter” template to develop a cover letter for SWPP distribution.
4. Print or make CD copies of the SWPP and print CDs with SWPA GIS shapefiles for distribution.
5. Mail SWPP Distribution Cover Letter along with copy of Dallas Creek Water Co. SWPP and SWPA GIS shapefiles to stakeholders and other interested persons.

Flooding / Runoff – High Priority

1. Enroll in Code Red using treatment facility and pump station addresses.
2. Monitor weather forecasts and other hazardous weather outlooks from NOAA.
3. Explore opportunities for watershed health improvement grant funding; Such as Colorado State Forest Service (CSFS) Health Forest Restoration Grant.

Wildfire / Storm Aftermath – High Priority

1. Explore opportunities for watershed health improvement grant funding- (CSFS – Health Forest Restoration Grant., etc.
2. Share a copy of the SWPP and GIS shapefiles of the SWPA with Ouray County, USFS, CSFS and West Region Wildfire Council
 - a. Work with USFS, CSFS, West Region Wildfire Council, and Ouray County to educate homeowners about creating and maintaining defensible space on private lands.
3. Share a copy of the SWPP with Ouray County Sheriff’s Department as it pertains to fire bans and restrictions. Encourage collaboration with Sheriff’s office in reviewing fire prevention measures.
4. Evaluate fuels conditions to develop fuels mitigation or treatment projects and fire response plans for the Source Water Protection Area with USFS, CSFS, Division of Fire Prevention and Control (DFPC), Log Hill Fire Protection District and Ridgway Fire Protection District.

The Steering Committee recognizes that the usefulness of this Source Water Protection Plan lies in its implementation and will begin to execute these best management practices upon completion of this Plan.

This Plan is a living document that is meant to be updated to address any changes that will inevitably come. The Steering Committee will review this Plan at a frequency of once every 2-4 year or if circumstances change resulting in the development of new water sources and source water protection areas, or if new risks are identified.

INTRODUCTION

Source water protection is a proactive approach to preventing the pollution of lakes, rivers, streams, and groundwater that serve as sources of drinking water. For generations water quality was taken for granted, and still today many people assume that their water is naturally protected. However, as water moves through and over the ground, contaminants may be picked up and carried to a drinking water supply.

While a single catastrophic event may wipe out a drinking water source, the cumulative impact of minor contaminant releases over time can also result in the degradation of a drinking water source. Contamination can occur via discrete (point source) and dispersed (nonpoint source) sources. A discrete source contaminant originates from a single point, while a dispersed source contaminant originates from diffuse sources over a broader area. According to the US Environmental Protection Agency, nonpoint source pollution is the leading cause of water quality degradation (Ground Water Protection Council, 2007).

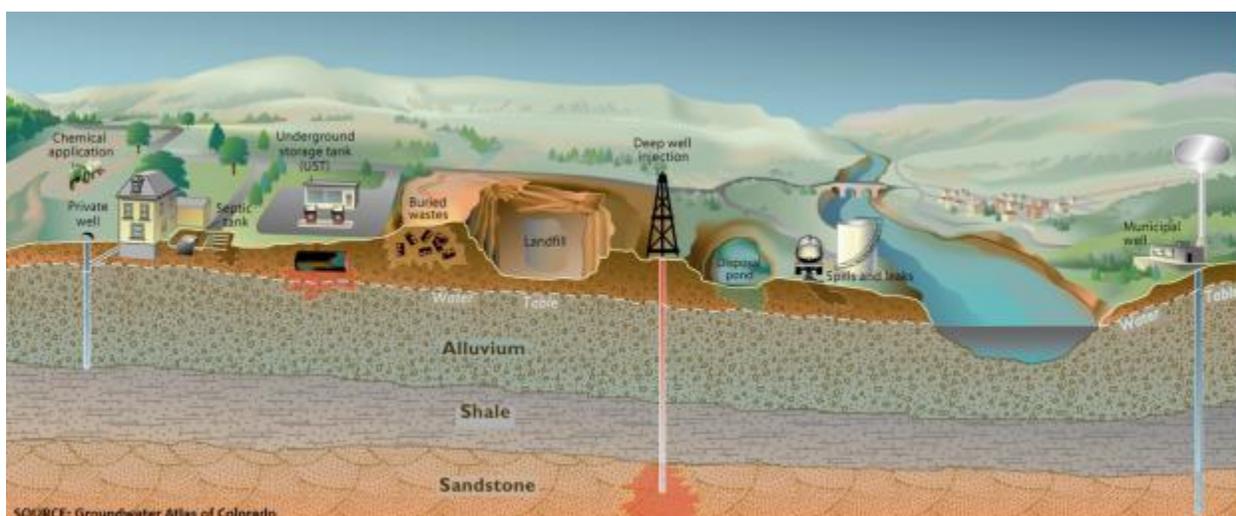


Figure 1: Schematic drawing of the potential source of contamination to surface and groundwater

Dallas Creek Water Company recognizes the potential for contamination of their drinking water source, and realizes that the development of this Source Water Protection Plan is the first step in protecting this valuable resource. Proactive planning is essential to protect the long-term integrity of the drinking water supply and to limit costs and liabilities. This SWPP demonstrates the Dallas Creek Water Company's commitment to reducing risks to their drinking water supply.

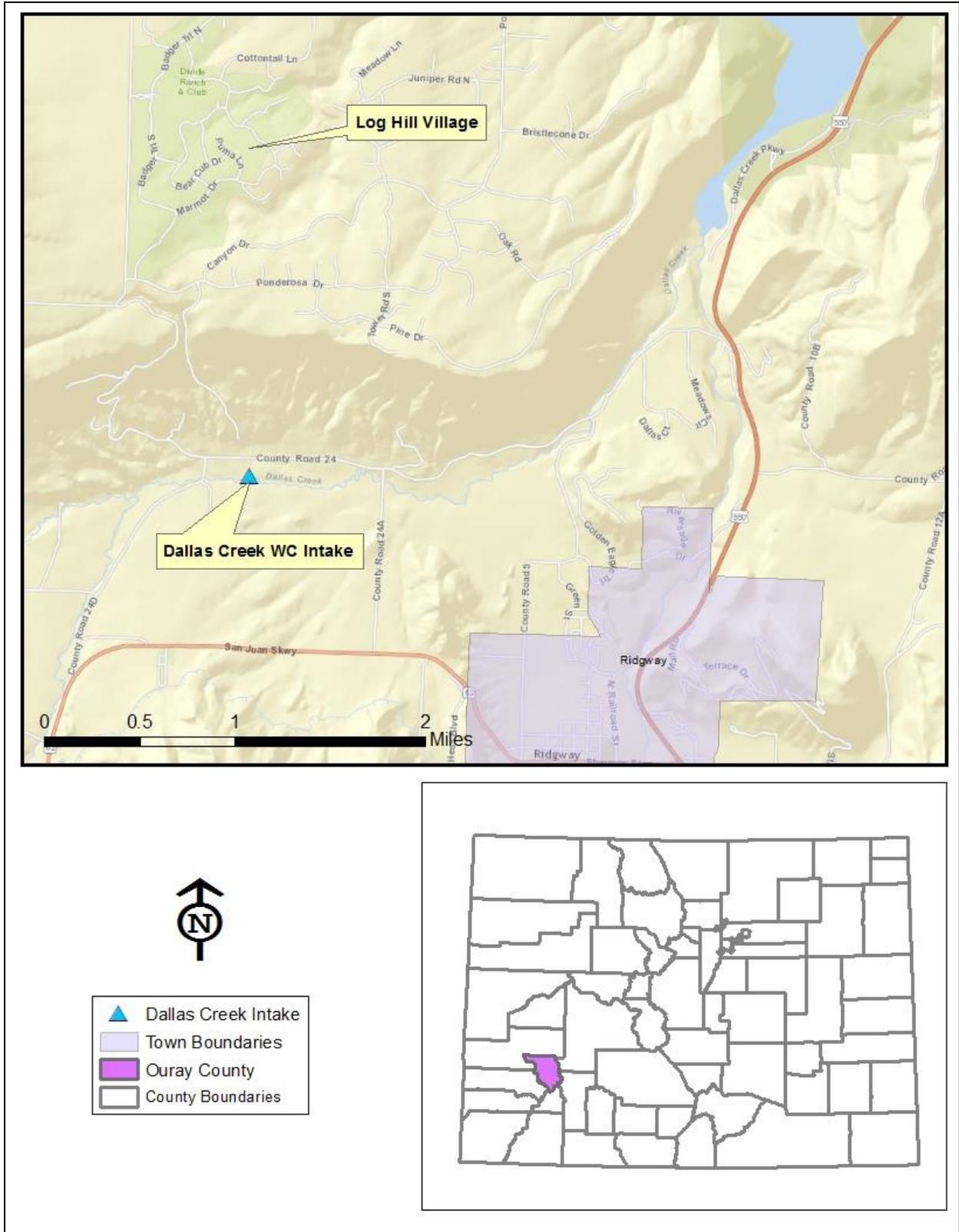


Figure 2: Location of Dallas Creek WC within Oury County, Colorado

Purpose of the Source Water Protection Plan

The Source Water Protection Plan (SWPP) is a tool for the Dallas Creek Water Company to ensure clean and high quality drinking water sources for current and future generations. This Source Water Protection Plan is designed to:

- Create an awareness of the community’s drinking water sources and the potential risks to surface water and/or groundwater quality within the watershed;
- Encourage education and voluntary solutions to alleviate pollution risks;
- Promote management practices to protect and enhance the drinking water supply;
- Provide for a comprehensive action plan in case of an emergency that threatens or disrupts the community water supply.

Developing and implementing source water protection measures at the local level (i.e. county and municipal) will complement existing regulatory protection measures implemented at the state and federal governmental levels by filling protection gaps that can only be addressed at the local level.

Background of Colorado’s SWAP Program

Source water assessment and protection came into existence in 1996 as a result of Congressional reauthorization and amendment of the Safe Drinking Water Act. These amendments required each state to develop a source water assessment and protection (SWAP) program. The Water Quality Control Division, an agency of the Colorado Department of Public Health and Environment (CDPHE), assumed the responsibility of developing Colorado’s SWAP program and integrated it with the Colorado Wellhead Protection Program.

Colorado’s SWAP program is an iterative, two-phased process designed to assist public water systems in preventing potential contamination of their untreated drinking water supplies. The two phases include the Assessment Phase and the Protection Phase as depicted in the upper and lower portions of Figure 3, respectively.



Source: CDPHE - WQCD

Figure 3: Source Water Assessment and Protection Phases

Source Water Assessment Phase

The Assessment Phase for all public water systems was completed in 2004 and consisted of four primary elements:

1. Delineating the source water assessment area for each of the drinking water sources;
2. Conducting a contaminant source inventory to identify potential sources of contamination within each of the source water assessment areas;
3. Conducting a susceptibility analysis to determine the potential susceptibility of each public drinking water source to the different sources of contamination;
4. Reporting the results of the source water assessment to the public water systems and the general public.

A Source Water Assessment Report (Appendix A) was provided to each public water system in Colorado in 2004 that outlines the results of this Assessment Phase.

Source Water Protection Phase

The Protection Phase is a non-regulatory, ongoing process in which all public water systems have been encouraged to voluntarily employ preventative measures to protect their water supply from the potential sources of contamination to which it may be most susceptible. The Protection Phase can be used to take action to avoid unnecessary treatment or replacement costs associated with potential

contamination of the untreated water supply. Source water protection begins when local decision makers use the source water assessment results and other pertinent information as a starting point to develop a protection plan. As depicted in the lower portion of Figure 3 on page 9, the source water protection phase for all public water systems consists of four primary elements:

1. Involving local stakeholders in the planning process;
2. Developing a comprehensive protection plan for all of their drinking water sources;
3. Implementing the protection plan on a continuous basis to reduce the risk of potential contamination of the drinking water sources; and
4. Monitoring the effectiveness of the protection plan and updating it accordingly as future assessment results indicate.

The water system and the community recognize that the Safe Drinking Water Act grants no statutory authority to the Colorado Department of Public Health and Environment or to any other state or federal agency to force the adoption or implementation of source water protection measures. This authority rests solely with local communities and local governments.

The source water protection phase is an ongoing process as indicated in Figure 3. The evolution of the SWAP program is to incorporate any new assessment information provided by the public water supply systems and update the protection plan accordingly.

SOURCE WATER SETTING

Location and Description

Dallas Creek Water Company is a privately owned public water system that provides drinking water to users on Loghill Mesa near Ridgway, Colorado. Their drinking water source is a surface water intake off the Dallas Creek. The source waters for this intake, which includes the Dallas Creek watershed, lie within both public and private lands. The private land includes within the unincorporated areas of Ouray County. The public lands include Grand Mesa, Uncompahgre and Gunnison (GMUG) National Forest Lands, managed by the Ouray Ranger District. Land use on private land consists of agricultural and rural residential development.

The source water area includes two distinct Common Resource Areas (CRA); Southern Rocky Mountains, characterized by steep high mountain ranges and associated mountain valleys, and Southwestern Plateaus, Mesas, and Foothills characterized by higher elevation mesas and foothills that represent a transition to the Southern Rocky Mountains. Vegetation ranges from alpine, subalpine, tundra and coniferous and mixed forests in the higher elevations to grass dominated and irrigated agriculture in the lower elevations of the source water area. The climate varies widely within the source water area. Average annual rainfall ranges from 38 inches in the highest elevations to 19 inches per year at lower elevations. (USDA Natural Resource Conservation Service, December 2009).

Hydrologic Setting

Dallas Creek is the principal source of drinking water for Dallas Creek Water Company. Pleasant Creek, West Fork Dallas Creek and Beaver Creek all drain into Dallas Creek, which eventually makes its way to the Uncompahgre River. The EPA Watershed Quality Assessment Report for the Uncompahgre Watershed Basin does not list any stream segments that feed into Dallas Creek as impaired (United States Environmental Protection Agency, 2012).

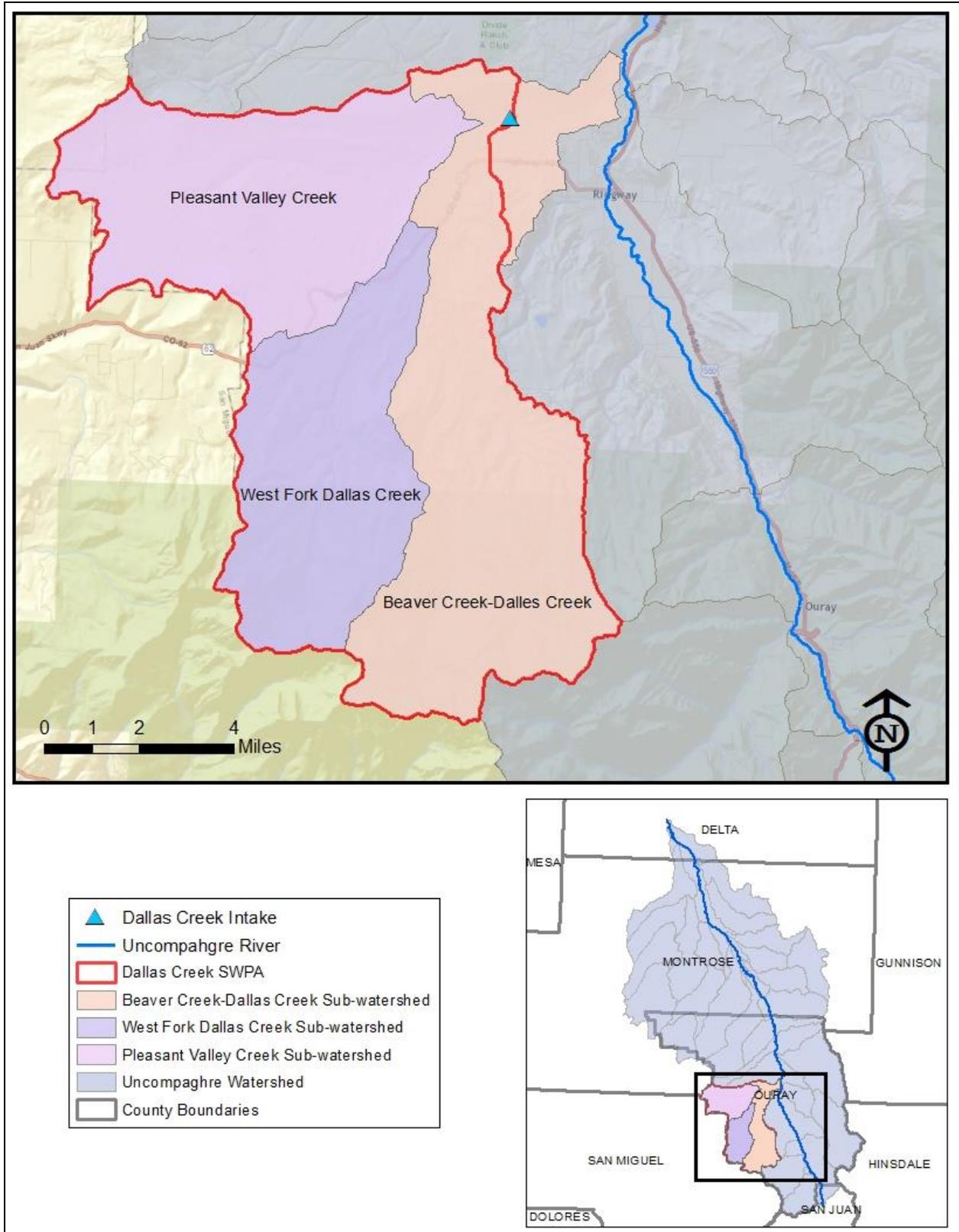


Figure 4: Beaver Creek-Dallas Creek, Pleasant Creek, & West Fork Dallas Creek Sub-watersheds within the Uncompahgre Basin

DRINKING WATER SUPPLY OPERATIONS

Water Supply and Infrastructure

Dallas Creek Water Company operates a community water supply system that supplies drinking water to 764 residents located within Ouray County, Colorado. The Dallas Creek Water Company obtains their drinking water from one surface water intake in the Dallas Creek Watershed.

Dallas Creek Water Company's source water supply comes from Dallas Creek and its tributaries; East & West Fork(s) of Dallas Creek, Beaver Creek and Pleasant Creek. Stream water is diverted through a head gate structure located approximately 300' W/NW of Pump Station 1 (38 degrees 10' 20.28" N, latitude and -107 degrees 47' 28.60" W longitude at elevation of 7131 ft). Two adjacent settling basins allow for natural sedimentation of debris and sediment prior to raw water pumping. Raw water flows from the settling basins through a 6" PVC pipe and self-cleaning intake screen. Optional subsurface flow is through a washed gravel infiltration gallery before filling a raw water vault beneath Pump Station 1.

Raw water travels through two pump stations and 3875' of 6" diameter ductile iron pipe in the 1000' ascent to Log Hill Mesa. Water can be dual-stage pumped at a max flow rate of 750 GPM utilizing Simflo vertical turbine pumps equipped with 75 Hp Variable Frequency Drive (VFD) motors and Supervisory Control and Data Acquisition (SCADA) controls. Raw water is deposited into a 1.2 MG settling pond at the top of the mesa that supplies the treatment plant. Supply can also be diverted ahead of the settling pond to Pump Station 3 where it can be used to supplement local golf course irrigation needs.

Dallas Creek Water Company's current 0.35 MGD (0.7 MGD max) treatment plant utilizes conventional filtration. The plant is operated in both manual and automated modes, with the aid of SCADA controls and computer software. Plant instrumentation includes both raw and finished online turbid meters, an online chlorine analyzer, and auto-dialer to alert the operator of specific alarm conditions.

Raw water entering the treatment plant is flash mixed with a Nalco 8157 polymer for coagulation, then passes through a 3-stage flocculation basin before sedimentation (utilizing inclined plate settlers), and is filtered through a dual-media sand filter. Filtered water is disinfected with 10% sodium hypochlorite, metered, pumped into 2' x 440' PVC contact chamber to meet contact time (CT) requirements, and continues into the distribution system where it supplements demand while also filling two steel water storage tanks. The storage tanks (on the hill above Inspiration Point) provide 430K gallons of treated water storage. An older smaller tank (refurbished in 2015) has a capacity of 150K gallons, while a newer larger tank constructed in 2003 has a capacity of 280K gallons.

The distribution system consists of 25 miles of ductile iron and PVC pipe and includes diameters of 4", 6", 8", & 10". Eleven Pressure Reduction Vaults (PRV's) are located throughout the distribution system to reduce and moderate higher pressure zones.

Table 1: Surface Water Supply Information

Water System Facility Name	Water System Facility Number	Surface Water Source	Constructed Date
Dallas Creek Intake	0146485	Dallas Creek	1979



Figure 5: Pump Station No. 1 on Infiltration Gallery Pond (Left); Intake Head Gate on Dallas Creek (Right)

Water Supply Demand Analysis

The Dallas Creek Water Company serves 406 connections and approximately 764 residents and other users in the service area annually. The water system has the current capacity to produce 350,000 gallons per day. Current estimates indicate that the average daily demand is approximately 70,000 gallons per day, and that the average peak daily demand is approximately 100,000 gallons per day. Using these estimates, the water system has a surplus average daily demand capacity of 280,000 gallons per day and a surplus average peak daily demand capacity of 250,000 gallons per day.

The ability of Dallas Creek Water Company to meet either of these demands for an extended period of time is also affected by the amount of treated water the water system has in storage at the time the water source(s) becomes disabled. Our current storage capacity of treated water is 430,000 gallons held in two storage tanks on Tower Road. Based upon average demand this would provide 6 days of demand without implementing any water use restrictions. Based upon peak demand of 100,000 per day, the 430,000 gallons of stored treated water would provide 4.3 days of demand without implementing water use restrictions.

In addition to the 430,000 gallons of treated water storage, we have 1.2 M gallons of raw water at the water treatment plant at the top of Loghill Mesa. This water has passed all of the pumping stations and is available for treatment even if the pumps were not operating. This increases average demand capability to 23.8 days and peak demand to capability to 16.4 days in the event Dallas Creek Water Company supply is disabled. We are confident that any emergency situation could be resolved within this timeframe.

However, based on the demand estimates above, the Dallas Creek Water Company has determined that if Dallas Creek would become disabled for an extended period of time due to contamination, Dallas

Creek Water Company may not be able to meet the average daily demand and/or the average daily peak demand of its customers.

The potential financial and water supply risks related to the long-term disablement of one or more of the community's water sources are a concern to the Steering Committee. As a result, the Steering Committee believes the development and implementation of a source water protection plan for Dallas Creek Water Company can help to reduce the risks posed by potential contamination of its water source(s).

As a component of this Source Water Protection Plan, we researched alternate sources of temporary emergency water. The nearest source of treated water is Tri-County Water Conservancy District. Both parties are open to the possibility of an emergency connection but the configuration and cost has not been determined. We are not actively pursuing this source because we continue to believe the risk of being unable to restore water service beyond our storage capacity is highly unlikely. However, Tri County has agreed to work with Dallas Creek in an extreme emergency and be considered a possible alternative supply as part of this Source Water Protection Plan.

Additionally, Dallas Creek Water Company has developed an emergency notification plan (Appendix B: Emergency Notification Plan) to coordinate rapid and effective notification of any emergency incident that threatens or disrupts the community water supply.

SOURCE WATER PROTECTION PLAN DEVELOPMENT

The Colorado Rural Water Association’s (CRWA) Source Water Protection Specialist, Kimberly Mihelich, helped facilitate the source water protection planning process. The goal of the CRWA’s Source Water Protection Program is to assist public water systems in minimizing or eliminating potential risks to drinking water supplies through the development and implementation of Source Water Protection Plans.

The source water protection planning effort consisted of a series of public planning meetings and individual meetings. Information discussed at the meetings helped the Dallas Creek Water Company develop an understanding of the issues affecting source water protection for the community. The Steering Committee then made recommendations for best management practices to be incorporated into the Source Water Protection Plan. In addition to the planning meetings, data and other information pertaining to Source Water Protection Area was gathered via public documents, internet research, phone calls, emails, and field trips to the protection area. A summary of the meetings is represented below.

Table 2: Planning Meetings

Date	Purpose of Meeting
9/14/2015	Ouray County Office of Emergency Management’s Tabletop Exercise – participate in Ouray County Office of Emergency Management’s Tabletop Exercise. Present Dallas Creek Water Company’s upcoming Source Water Protection Plan project.
10/28/2015	First Planning Meeting - Presentation on the process of developing a Source Water Protection Plan for the Dallas Creek Water Company. Review of the State’s Source Water Assessment for Dallas Creek Water Company. Identify potential sources of contamination.
12/07/2015	Second Planning Meeting – Discussion on potential sources of contamination – determine risk level and best management practices.
01/25/2016	Third Planning Meeting – Continue discussion on potential sources of contamination – determine risk level and best management practices.
7/27/2016	Fourth Planning Meeting – Finalize Source Water Protection Plan. Develop Action Plan for BMP Implementation.

Stakeholder Participation in the Planning Process

Local stakeholder participation is vitally important to the overall success of Colorado’s Source Water Assessment and Protection (SWAP) program. Source water protection was founded on the concept that informed citizens, equipped with fundamental knowledge about their drinking water source and the threats to it, will be the most effective advocates for protecting this valuable resource. Local support and acceptance of the Source Water Protection Plan is more likely when local stakeholders have actively participated in its development.

Dallas Creek Water Company’s source water protection planning process attracted interest and participation from 25 stakeholders including local citizens and landowners, water operators, local and

state governments, and agency representatives. During the months of October 2015 through January 2016, three planning meetings were held at the 4H Events Center in Ridgway, CO to encourage local stakeholder participation in the planning process. Stakeholders were notified of meetings via letters, emails, postcards, and phone calls.

A Steering Committee to help develop the source water protection plan was formed from the stakeholder group. The Steering Committee’s role in the source water protection planning process was to advise Dallas Creek Water Company in the identification and prioritization of potential contaminant sources as well as management approaches that can be voluntarily implemented to reduce the risks of potential contamination of the untreated source water. All Steering Committee members attended at least one meeting and contributed to planning efforts from their areas of experience and expertise. Their representation provided diversity and led to a thorough Source Water Protection Plan. Dallas Creek Water Company and Colorado Rural Water Association are very appreciative of the participation and expert input from the following participants.

Table 3: Stakeholders and Steering Committee Members

Stakeholder	Title	Affiliation	Steering Committee Member
Jim Willey	Owner	Dallas Creek Water Company	X
Joanne Fairchild	Administrator	Dallas Creek Water Company	X
Anthony Ramsey	Treatment Plant Operator/ORC	Dallas Creek Water Company	X
Tom Austin	Assistant Fire Chief	Log Hill Mesa Fire District	X
Elisabeth Lawaczeck	Director of Public Health	Ouray County	X
Ben Tisdell	County Commissioner	Ouray County	
Marti Whitmore	County Attorney	Ouray County	
Camille Price	Project Manager	Division of Natural Resources - Inactive Mine Reclamation Program	
Jeff Litteral	Project Manager	Division of Natural Resources - Inactive Mine Reclamation Program	
Tanya Ishikawa	Communications Coordinator	UWP	
Cyndi Szymanski	Acting District Ranger	US Forest Service	X
Liz Mauch	Lands & Mineral Staff	US Forest Service	X
Shane Wolford	Land Owner	Lone Pine Ranch	
Ken Wolford	Land Owner	Lone Pine Ranch	
Ion Spor	Manager- Ridgway Reservoir Dam	Tri-County Water Conservancy District	X
Jeff Bockes	IT Manager	Ouray County	
Dale Woodbury	District Conservationist	NRCS	
Bill Head	Engineering Technician	NRCS	
Mike Barry	General Manager	Tri-County Water Conservancy District	

Judi Chamberlin	Community Member	UWP	
Barry Zane	Citizen	Log Hill Village	
Cory William	Trooper	Colorado State Patrol	
Sean Brown	Ranger Staff	US Forest Service	
Jodi Rist	District Forester	Colorado State Forest Service	
Dick Kreutzen	President	Association of Dallas Creek Water Users	

Development and Implementation Grant

Dallas Creek Water Company has been awarded a \$5,000 Development and Implementation Grant from the Colorado Department of Public Health and Environment (CDPHE). This funding is available to public water systems and representative stakeholders committed to developing and implementing a source water protection plan. A one to one financial match (cash or in-kind) is required. Dallas Creek Water Company was approved for this grant in September 2015, and it expires on September 9, 2017. Dallas Creek Water Company intends to use the funds to implement management approaches that are identified in this Plan.

Source Water Assessment Report Review

Dallas Creek Water Company has reviewed the Source Water Assessment Report along with the Steering Committee. These assessment results were used as a starting point to guide the development of appropriate management approaches to protect the source water of Dallas Creek Water Company from potential contamination. A copy of the Source Water Assessment Report for Dallas Creek Water Company can be obtained by contacting Dallas Creek Water Company or by downloading a copy from the CDPHE's SWAP program website located at: <http://www.colorado.gov/cs/Satellite/CDPHE-WQ/CBON/1251596793639>.

Defining the Source Water Protection Area

A source water protection area is the surface and subsurface areas within which contaminants are reasonably likely to reach a water source. The purpose of delineating a source water protection area is to determine the recharge area that supplies water to a public water source. Delineation is the process used to identify and map the area around a pumping well that supplies water to the well or spring, or to identify and map the drainage basin that supplies water to a surface water intake. The size and shape of the area depends on the characteristics of the aquifer and the well, or the watershed. The source water assessment area that was delineated as part of Dallas Creek Water Company's Source Water Assessment Report provides the basis for understanding where the community's source water and potential contaminant threats originate, and where the community has chosen to implement its source water protection measures in an attempt to manage the susceptibility of their source water to potential contamination.

After carefully reviewing their Source Water Assessment Report and the CDPHE’s delineation of the Source Water Assessment Area for each of Dallas Creek Water Company’s sources, the Steering Committee chose to accept it as their Source Water Protection Area for this Source Water Protection Plan.

Dallas Creek Water Company’s Source Water Protection Area is defined as:

1. **Zone 1** is defined as a 1,000-foot-wide band on either side of the stream.
2. **Zone 2** extends 1/4 mile beyond each side of the boundary of zone 1 (2,320 feet from the stream).
3. **Zone 3** is made up by the remainder of the SWAA area up to the watershed boundaries (Beaver Creek-Dallas Creek, Pleasant Creek, & West Fork Dallas Creek Watersheds).

The Source Water Protection Area is illustrated in the following maps:

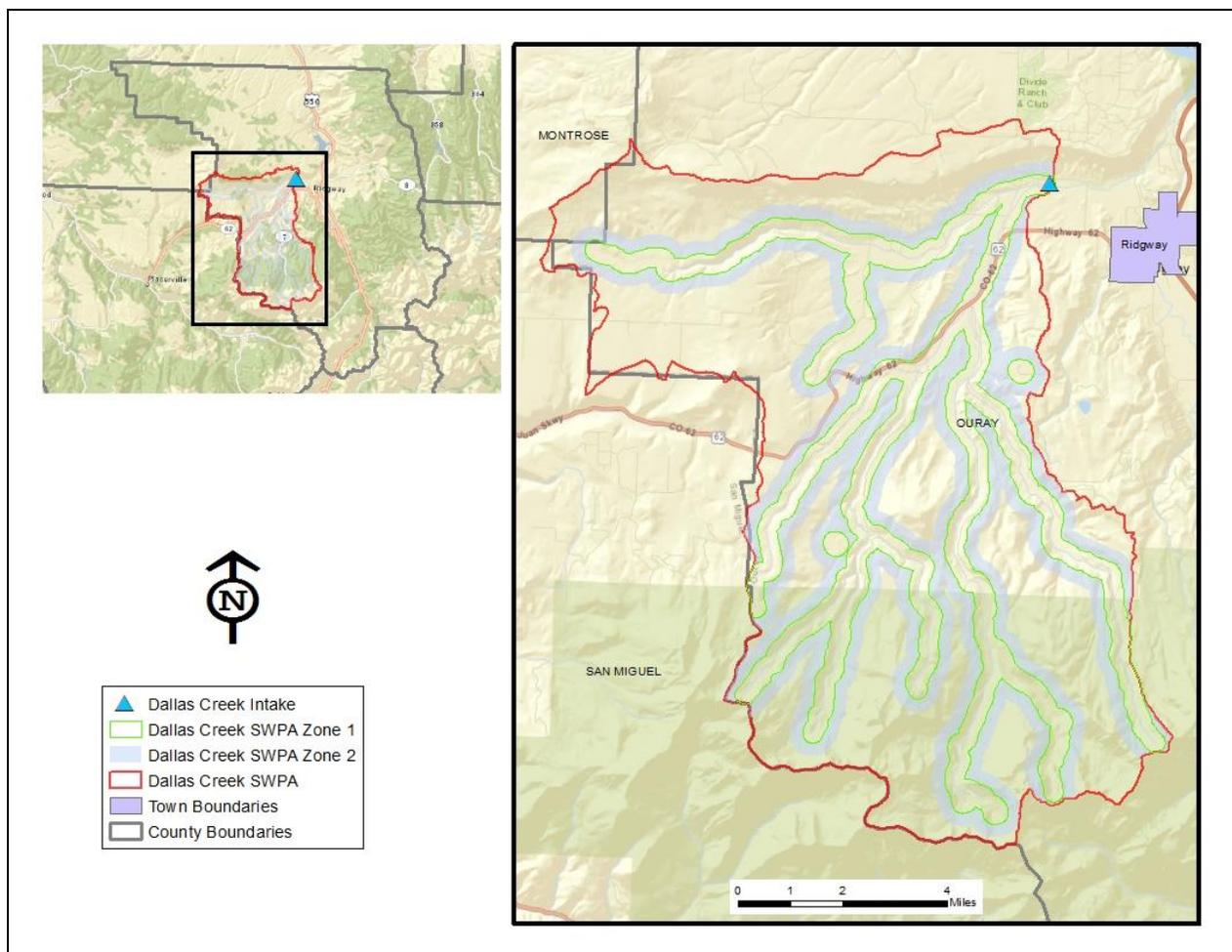


Figure 6: Dallas Creek Water Company Source Water Protection Area

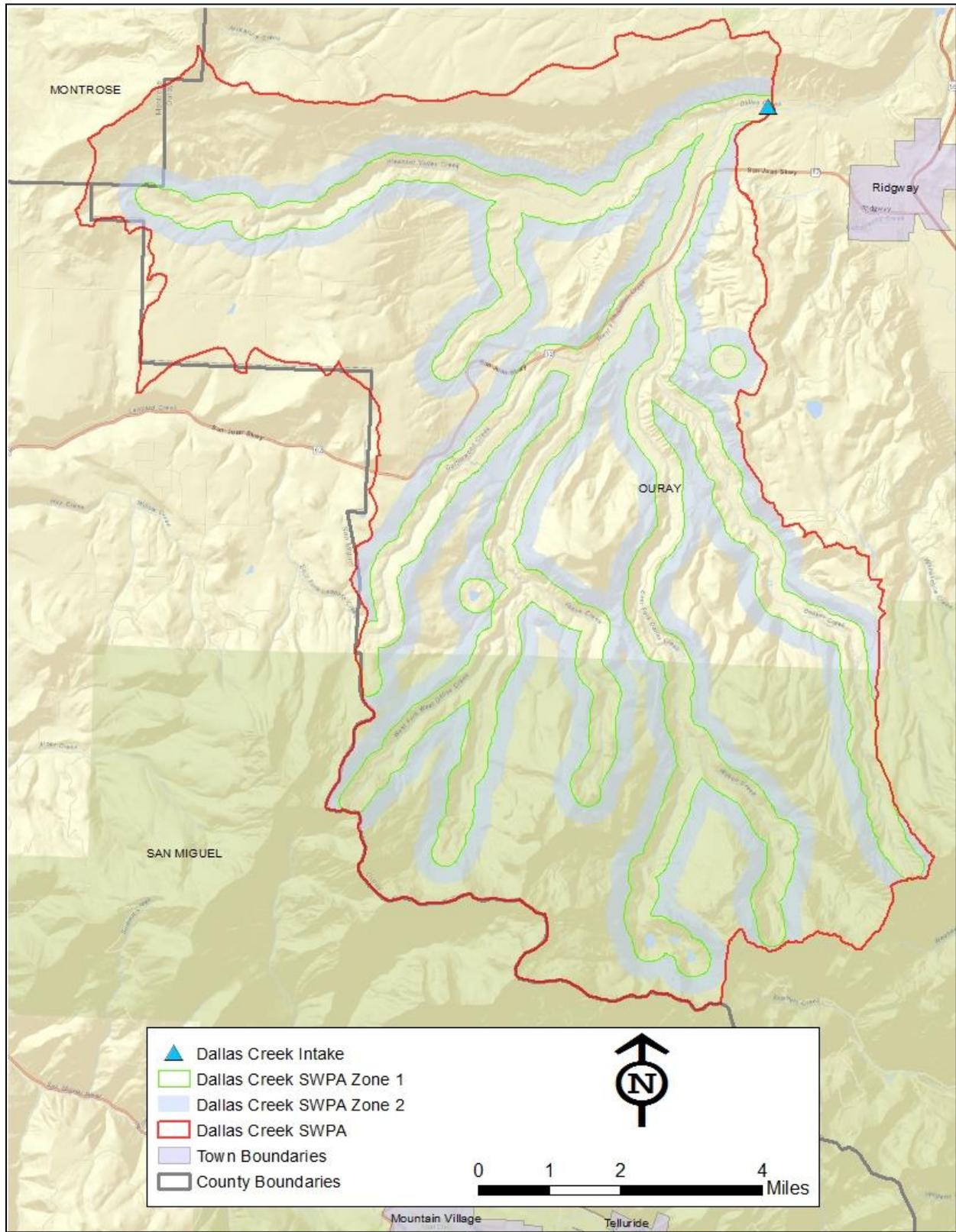


Figure 7: Dallas Creek Water Company Source Water Protection Area

Inventory of Potential Contaminant Sources and Other Issues of Concern

In 2001 – 2002, as part of the Source Water Assessment Report, a contaminant source inventory was conducted by the Colorado Department of Public Health and Environment to identify selected potential sources of contamination that might be present within the source water assessment areas. Discrete and dispersed contaminant sources were inventoried using selected state and federal regulatory databases, land use, land cover and transportation maps of Colorado. The contaminant inventory was completed by mapping the potential contaminant sources with the aid of a Geographic Information System (GIS).

Dallas Creek Water Company was asked by CDPHE to review the inventory information, field-verify selected information about existing and new contaminant sources and provide feedback on the accuracy of the inventory. Through this Source Water Protection Plan, Dallas Creek Water Company is reporting its findings to the CDPHE.

After much consideration, discussion and input from local stakeholders, Dallas Creek Water Company and the Steering Committee have developed a more accurate and current inventory of contaminant sources located within the Source Water Protection Area and other issues of concern that may impact Dallas Creek Water Company's drinking water source.¹ In addition to the discrete and dispersed contaminant sources identified in the contaminant source inventory, the Steering Committee has also identified other issues of concern that may impact Dallas Creek Water Company's drinking water source (see Table 4: Potential Sources of Contamination and Issues of Concern Prioritization Table- page 24). Upon completion of this contaminant source inventory, Dallas Creek Water Company has decided to adopt it in place of the original contaminant source inventory provided by the CDPHE.

Priority Strategy of Potential Contaminant Sources and Other Issues of Concern

After developing a contaminant source inventory and list of issues of concern that is more accurate, complete, and current, the Dallas Creek Water Company prioritized each item to guide the implementation of the best management practices outlined in this Source Water Protection Plan (see Table 5: Source Water Protection Best Management Practices, Page 35). The prioritization ranking of each potential contaminant source or other issue of concern factored in the following criteria (as described below): the level of risk, the water system control, and the best management practices associated with each item.

1. **Risk** – The level of risk for each contaminant source is a measure of the water source's potential exposure to contamination. When prioritizing, a water system may assign a higher priority ranking to a potential contaminant source that has a higher risk level than one of lower risk level. The Dallas Creek Water Company utilized CRWA's *SWAP Risk Assessment Matrix* (Figure 7), which calculates the level of risk by estimating the following:
 - **Impact to the Public Water System** – The risk to the source waters increases as the impact to the water system increases. The impact is determined by evaluating the

¹ The information contained in this Plan is limited to that available from public records and Dallas Creek Water Company at the time that the Plan was written. Other potential contaminant sites or threats to the water supply may exist in the Source Water Protection Area that are not identified in this Plan. Furthermore, identification of a site as a "potential contaminant site" should not be interpreted as one that will necessarily cause contamination of the water supply.

human health concerns and potential volume of the contaminant source. CDPHE developed information tables to assist with this evaluation (Appendices C-F). The following descriptions provide a framework to estimate the impact to the public water system.

- **Catastrophic** - irreversible damage to the water source(s). This could include the need for new treatment technologies and/or the replacement of existing water source(s).
- **Major** - substantial damage to the water source(s). This could include a loss of use for an extended period of time and/or the need for new treatment technologies.
- **Significant** - moderate damage to the water source(s). This could include a loss of use for an extended period of time and/or the need for increased monitoring and/or maintenance activities.
- **Minor** - minor damage resulting in minimal, recoverable, or localized efforts. This could include temporarily shutting off an intake or well and/or the issuance of a boil order.
- **Insignificant** - damage that may be too small or unimportant to be worth consideration, but may need to be observed for worsening conditions. This could include the development of administrative procedures to maintain awareness of changing conditions.

- **Probability of Impact** – The risk to the source waters increases as the relative probability of damage or loss increases. The probability of impact is determined by evaluating the number of contaminant sources, the migration potential or proximity to the water source, and the historical data. The following descriptions provide a framework to estimate the relative probability that damage or loss would occur within one to ten years.

- **Certain:** >95% probability of impact
- **Likely:** >70% to <95% probability of impact
- **Possible:** >30% to <70% probability of impact
- **Unlikely:** >5% to <30% probability of impact
- **Rare:** <5% probability of impact

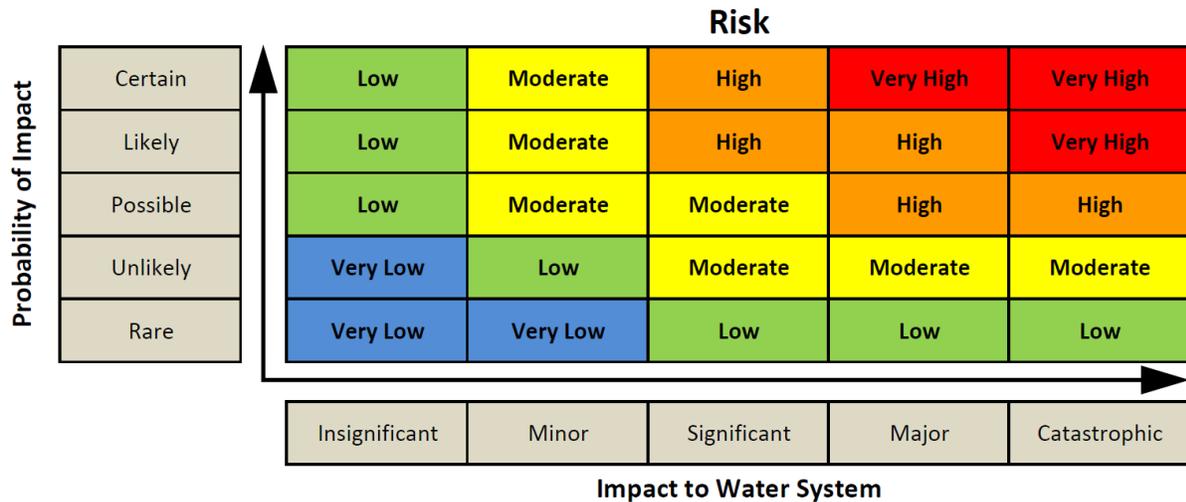


Figure 8: CRWA’s SWAP Risk Assessment Matrix

2. **Control** – The level of water system control describes the ability of the water system to take measures to prevent contamination or minimize impact. A potential contaminant source that falls within a water system’s jurisdiction (i.e. direct control), may be of higher priority since they can take direct measures to prevent contamination or minimize the impact.
 - **Direct Control** – The water system can take direct measures to prevent.
 - **Indirect Control** – The water system cannot directly control the issue, but can work with another person or entity to take measures to prevent.
 - **No Control** – The PSOC or issue of concern is outside the control of the public water system and other entities.

3. **Best Management Practices** – BMPs are the actions that can be taken within the Source Water Protection Area to help reduce the potential risks of contamination to the community’s source waters. The prioritization of the potential contaminant sources or issues of concern may be affected by the feasibility of implementing the BMPs that the Dallas Creek Water Company developed (Table 5: Source Water Protection Best Management Practices, Page 32).

Dallas Creek Water Company and Steering Committee ranked the potential contaminant source inventory and issues of concern in the following way:

Table 4: Potential Contaminant Sources and Issues of Concern Prioritization Table

Potential Contaminant Source or Issue of Concern	Proximity (SWPA Zone)	Impact to Water System (Insignificant, Minor, Significant, Major, Catastrophic)	Probability of Impact (Rare, Unlikely, Possible, Likely, Certain)	Risk (Very Low, Low, Intermediate, High, Very High)	Control (Direct, Indirect, No)	BMPs ²	Priority Ranking 3- Highest 2- Moderate 1 - Low
Sediment/Turbidity	1	Minor	Certain	Moderate	Unknown		3
Over-spraying Pesticides & Herbicides	1,2,3	Insignificant	Rare	Very Low	Indirect		1
Livestock & Wildlife Over-grazing	1,2,3	Insignificant	Rare	Very Low	Indirect		1
Accidents & Chemical Hazards on Highway 62	1	Major	Possible	Low	No		3
Road Maintenance	1	Significant	Unlikely	Moderate	Indirect		1
Abandoned Mines	3	Minor	Unlikely	Low	No		1
Recreation on US Forest System Lands	1,2,3	Insignificant	Unlikely	Very Low	No		1
Flooding/Runoff	1,2,3,	Minor	Possible	Moderate	No		3
Wildfire/Storms/aftermath	1,2,3	Major	Unlikely	Moderate	No		3
Septic Systems	1,2,3	Insignificant	Rare	Very Low	Direct		1
Security	1	Major	Unlikely	Moderate	Indirect		2

² The prioritization of the potential contaminant sources or issues of concern may be affected by the feasibility of implementing the BMPs that were developed. See Table 5: Source Water Protection Best Management Practices for details.

DISCUSSION OF POTENTIAL CONTAMINANT SOURCES AND ISSUES OF CONCERN

The following section provides a brief description of potential contaminant sources and issues of concern that have been identified in this plan, describes the way in which they threaten the water source(s) and outlines best management practices.

Sediment/Turbidity

Turbidity the measure of a liquid's relative clarity and can make water look cloudy or opaque. Materials such as clay, silt, inorganic or organic matter, algae, and other microscopic organisms can cause water to become turbid. In addition, during periods of high flows, when water velocities are fast and volume is higher, turbidity can increase by stirring up and suspending material from stream beds.

Excessive turbidity, or cloudiness, in drinking water is aesthetically unappealing, and may also represent a health concern. Turbidity can provide food and shelter for pathogens. If not removed, turbidity can promote regrowth of pathogens in the distribution system, leading to waterborne disease outbreaks, which have caused significant cases of gastroenteritis throughout the United States and the world. Although turbidity is not a direct indicator of health risk, numerous studies show a strong relationship between removal of turbidity and removal of protozoa. The particles of turbidity provide "shelter" for microbes by reducing their exposure to attack by disinfectants. Microbial attachment to particulate material has been considered to aid in microbe survival. Fortunately, traditional water treatment processes have the ability to effectively remove turbidity when operated properly (United States Geological Survey, 2015).

There are a few areas along Dallas Creek's streambanks within Dallas Creek Water Company's SWPA that have increased levels of degradation and are possibly contributing to high sediment and turbidity. Pleasant Valley Creek, which feeds Dallas Creek and is part of the Dallas Creek Water Company's Source Water Protection Area, contributes to most of the sediment downstream. Dallas Creek Water Company has settling ponds in place to help mitigate turbidity; however, preventing turbidity by mitigating erosion along streambanks could help decrease treatment costs. The Natural Resource Conservation Service (NRCS) reported that there are voluntary cost-sharing programs in place to help repair riparian areas and stabilize streambanks.

Sediment/Turbidity Best Management Practices Recommendations

1. Identify areas of Dallas Creek watershed that have high erosion
2. Work w/ NRCS or other funding entities (such as Trout Unlimited, Colorado Division of Water Resources, Colorado Water Conservation Board) and private landowners to identify funding opportunities for erosion mitigation strategies.
3. Perform streambank erosion mitigation.

Over-spraying Pesticides/Herbicides

Agriculture and ranching is a significant land use throughout Ouray County and in Dallas Creek Water Company's SWPA. Excess fertilizer use and poor application methods at these operations can cause fertilizer movement into surface and groundwater. If the land is over-irrigated, this can lead to excess

runoff of fertilizers as well. Fertilizers usually consist of nitrogen and phosphorus, the two compounds which are of greatest concern to drinking water supplies. The increased nutrient loads in water from these fertilizers can lead to changes in dissolved oxygen content and cause algal blooms to grow around intakes. Pesticides can also be harmful to both aquatic life and human health should they be allowed to enter the water supply.

Hay crops are the only crop farmed in Dallas Creek Water Company's SWPA and there are very little herbicides used and no pesticides used on those ranches. In addition, Ouray County sprays herbicides and pesticides along Ouray County-maintained roads in conjunction with the Ouray County as a Weed Management Plan. Anthony Ramsey (Dallas Creek Water Company) reported that Dallas Creek Water Company has only exceeded the CDPHE's regulated amount of herbicides and pesticides one-time, however this was not determined to be from farming/ranching.

Over-Spraying Pesticides/Herbicides Best Management Practices Recommendations

1. Share outreach material with private land owners that explains the importance of source water protection
 - a. Identify private landowners and areas in US Forest System lands within the SWPAs where grazing and/or agricultural practices occur.
 - b. Gather and develop outreach material as it pertains to livestock grazing, agricultural material practices. Work with CRWA or NRCS to find existing outreach material.
 - c. Mail outreach material to landowners and agricultural businesses in the SWPA.
2. Work with NRCS to educate farmers and ranchers on the programs NRCS offers.
3. Partner with Ouray County Land Use for future land use decisions. Request to be notified by Ouray County Land Use when making decisions about zoning or development in SWPA.

Livestock & Wildlife Over-Grazing

There are some private lands in the Source Water Protection Area where small amounts of livestock grazing occur. These include cattle, horses and other domestic livestock. Cyndi Szymonksi and Liz Mauch (USFS) reported that there are a few grazing allotments in US Forest Systems lands within the SWPA as well.

While grazing activity is a low concern to the Steering Committee, this activity can impact riparian health, stream-channel conditions and water quality. The most common water quality impacts include pathogen contamination, sedimentation and increased water temperatures from loss of vegetative stream coverage. Grazing activities with the highest potential for direct and indirect impacts to water resources include long-term concentrated grazing in riparian areas and trampling or trailing near water sources. Direct bank damage may add large amounts of sediment directly into streams, especially in wet meadow streams or erosive topography that is prone to gully formation.

Livestock & Wildlife Over-Grazing Best Management Practices Recommendations

1. Identify cattle grazing allotments on USFS lands in Dallas Creek Water Company SWPA.
2. Share outreach material with private land owners that explains the importance of source water protection. Solicit input from landowners on conditions or resources currently unidentified by the SWPP.

- a. Identify private landowners and areas in US Forest System lands within the SWPAs where grazing and/or agricultural practices occur.
 - b. Gather/develop outreach material as it pertains to livestock grazing and agricultural material. Work with CRWA or NRCS to find new or existing outreach material.
 - c. Mail outreach material.
3. Work with NRCS to educate farmers and ranchers about programs offered by the Natural Resource Conservation Service.

Accidents & Chemical Hazards on Highway 62

Colorado State Highway 62 runs parallel along Dallas Creek within Zone 1 of Dallas Creek Water Company's Source Water Protection Area. The highway is owned and maintained by the Colorado Department of Transportation (CDOT). Automobile accidents and other chemical hazards, such as road spills, are a concern to the Steering Committee.

Motor vehicles, roads, and parking facilities can be a major source of water pollution to both surface and groundwater. An estimated 46% of US vehicles leak hazardous fluids, including crankcase oil, transmission, hydraulic, and brake fluid, and antifreeze, as indicated by oil spots on roads and parking lots, and rainbow sheens of oil in puddles and roadside drainage ditches. An estimated 30-40% of the 1.4 billion gallons of lubricating oils used in automobiles are either burned in the engine or lost in drips and leaks, and another 180 million gallons are disposed of improperly onto the ground or into sewers. Runoff from roads and parking lots has a high concentration of toxic metals, suspended solids, and hydrocarbons, which originate largely from automobiles (Gowler & Sage, 2006). Vehicular spills may occur along the transportation route within the Source Water Protection Area from trucks that transport fuels, waste, and other chemicals that have a potential for contaminating the source water. Chemicals from accidental spills are often diluted with water, potentially washing the chemicals into the soil and infiltrating into the groundwater. Roadways are also frequently used for illegal dumping of hazardous or other potentially harmful wastes.

State Trooper, Cory R. Williams, reported that Highway 62 is not a designated hazardous materials route, and the only hazardous materials that should be transported on that route are fuels. The closest local response team for an accident resulting in the spill of a hazardous material is in Telluride, Colorado (approximately one hour away). Local response for spills and accidents is from the Colorado State Patrol, the local fire departments, Ouray County Sheriff's Department, Ouray County Road & Bridge Department and Ouray County Office of Emergency Management. Current best management practices in place for cleaning up spills include laying down absorbent material and damming off leaks and spills in an effort to not reach ditches and streambanks.

Accidents & Chemical Hazards on Highway 62 Best Management Practices Recommendations

1. Share copies of Dallas Creek Water Company's SWPP and GIS shapefiles and maps of the SWPA with CDOT, Ouray County Sheriff's Dept., Colorado State Patrol, Ouray County Office of Emergency Management, Ouray County Road & Bridge and other emergency responders.
 - a. Gather contact information and create mailing list for distribution.
 - b. Utilize CRWA's "SWPP Distribution Letter" template to develop a cover letter for SWPP distribution.
 - c. Print and make CD copies of SWPP. Print CDs with SWPA GIS shapefiles.

- d. Mail SWPP Distribution Cover Letter along with copy of Dallas Creek Water Company's SWPP and SWPA GIS shapefiles.
2. Request to be notified via WENS and Code Red in the event of spill or accident along Highway 62 within Source Water Protection Area.

Road Maintenance

Chemical Applications

During the winter season CDOT may apply a salt-sand mixture and deicer (magnesium chloride (MgCl), M1000, or Ice Slicer) to State Highway 62 along routes within the Source Water Protection Area. Surface and groundwater quality problems resulting from the use of road deicers can cause concern among federal, state, and local governments.

Salt contributes to increased chloride levels in groundwater through infiltration of runoff from roadways. Unlike other contaminants, such as heavy metals or hydrocarbons, chloride is not naturally removed from water as it travels through soil and sediments and moves towards the water table. Once in the groundwater, it may remain for a long time if groundwater velocity is slow and it is not flushed away. Chloride may also be discharged from groundwater into surface water and can account for elevated levels of chloride throughout the year, not just in winter. Thus, regardless of the path that the runoff takes, salt poses a water quality problem.

Dust Abatement on Roads

Dust abatement containing magnesium chloride may be applied to unpaved county roads within the Source Water Protection Areas. Dust suppressants abate dust by changing the physical properties of the road surface by creating a hard, compact surface that resists potholing, rutting, and loss of aggregate. The use of chemical dust suppressants prevents road particulates from becoming airborne.

Magnesium chloride, used in dust abatement, is highly soluble in water and has the potential to move through the soil with water. The movement is dependent on the rate and frequency of rainfall, the drainage characteristics, and soil type. If the soil surface is not bound together well or if the rain event is extreme, dust suppressant treated soil particles can be carried by overland flow into streams, rivers, and ditches. Potential water quality impacts include elevated chloride concentrations in streams downstream of application areas and shallow groundwater contamination (US Environmental Protection Agency, 2002).

Road Maintenance Best Management Practices Recommendations

1. Monitor Dallas Creek and provide input to Ouray County Road and Bridge about creek erosion of bridges on roads going over creeks.
2. Share copy of SWPP with Ouray County Road & Bridge Department.
3. Meet with Ouray County Road & Bridge Department to discuss application of MgCl and Cinders or other chemicals in sensitive areas of SWPA.

Flooding/Runoff

Flooding is one of the most common hazards in the United States, causing more damage than any other severe weather-related event. Impacts to drinking water and wastewater utilities can include loss of

power, damage to assets, and dangerous conditions for personnel. Often located in low lying areas, water and wastewater utilities are particularly vulnerable to flooding. Water and debris can inundate the facility, thereby damaging equipment and structures, and causing power outages. Such impacts can lead to various consequences including costly repairs, disruptions of services, and/or hazardous situations for personnel and public health advisories. (US Environmental Protection Agency, 2014).

Flooding depends on various factors including rainfall, topography, river-flow, drainage, and tidal-surge. The threat of flooding is based on the likelihood that such a flooding event will occur. The Federal Emergency Management Agency (FEMA) produces maps of a “100-year flood” (a flood event that has a one percent chance of occurring in a given year) and a more catastrophic “500-year flood” (a flood event that has a two tenths of a percent chance of occurring in a given year). (Federal Emergency Management Agency, 2015).

In 2002, there was a significant flood event (500-year flood) within the Dallas Creek watershed due to high rainfall. Dallas Creek Water Company was able to shut their pumps off and was back online within 24 hours and no damage was done to their infrastructure.

Flooding/Runoff Best Management Practices Recommendations

1. Enroll in Code Red using treatment facility and pump station addresses.
2. Monitor weather forecasts and other hazardous weather outlooks from NOAA.
3. Explore opportunities for watershed health improvement grant funding (CSFS – Health Forest Restoration Grant, etc.).

Wildfire/Storms/Aftermath

If a natural hazard event such as wildfire or major storm occurred within Dallas Creek Water Company’s SWPA, the aftermath could endanger the drinking water supply. A large, hot fire in the Source Water Protection Areas and surrounding lands can have an impact on source waters by removing vegetation and decreasing infiltration during rain events. This can result in soil erosion and sediment and ash pollution in drinking water. Large rain events can produce mudslides and debris flow capable of destroying water infrastructure and altering clarity and pH of the source waters.

Vegetation within Dallas Creek Water Company’s SWPA is comprised of spruce fir and juniper. Spruce fir has the potential for catastrophic burns. Wildfire is primarily caused by lightning strikes, but there is also the potential for an ignition due to agricultural burning. Wildfire is not considered to be a high risk on US Forest System lands within the SWPA. In the event of a wildfire or other storm event, Dallas Creek Water Company has the ability to shut off its water intakes and still meet the customer demand for up to three or four weeks depending on the volume of demand occurring at the time. (See Water Supply and Infrastructure- page 13).

Wildfire/Storms/Aftermath Best Management Practices Recommendations

1. Explore opportunities for watershed health improvement grant funding (CSFS – Health Forest Restoration Grant, etc.)
2. Share a copy of the SWPP and GIS shapefiles of the SWPA with the Ouray County, USFS, CSFS and West Region Wildfire Council.

- a. Work with USFS, CSFS, West Region Wildfire Council and Ouray County to educate homeowners about creating and maintaining defensible space on private lands (Ouray County CWPP).
3. Share a copy of the SWPP with Ouray County Sheriff's Department as it pertains to fire bans and restrictions. Encourage collaboration with Sheriff's office in reviewing fire prevention measures
4. Evaluate fuel conditions to develop fuel mitigation and treatment projects, and fire response plans for the Source Water Protection Area with USFS and CSFS, and DFPC (Division of Fire Prevention & Control), Log Hill Fire Protection District and Ridgway Fire Protection District.

Abandoned Mines

Mining practices during the early days allowed mine owners to simply abandon mines without consideration of the impact on streams, water quality, slope stability and safety. Many old mining properties contain abandoned mine workings, mine waste and/or mill tailings. Active and inactive mining operations have a potential to contaminate drinking water supplies from either point source discharges (i.e. mine drainage tunnels or flowing adits) or nonpoint source discharges from run-off over waste rock or tailing piles. Acidic, metal-laden water emanating from inactive mines and waste rock piles has a potential to impair aquatic life and to a lesser degree threaten human drinking water. Dallas Creek Water Company is not currently aware of any impairment to their drinking water sources but would like to work with other agencies to continue to observe and monitor for any potential contamination.

The Colorado Division of Reclamation, Mining, and Safety (DRMS) regulate mining and prospecting operations in the state of Colorado under the auspices of the Colorado Mined Land Reclamation Act and the Hard Rock/Metal Mining Rules and Regulations of the Mined Land Reclamation Board. The Division is responsible for mineral and energy development, policy, regulation and planning. One of their primary objectives is to review mining permit applications and to inspect mining operations to make sure that regulations are being followed. The USFS works closely with the Colorado Division of Reclamation and Mining Safety to monitor high-risk mine sites.

During the years 1991 through 1999, the Colorado Geological Survey completed an inventory of abandoned mine lands on National Forest System lands within Colorado (Colorado Geological Survey, n.d.). Within the Dallas Creek Water Company's SWPA, there are two mine inventory areas (see Figure 8 below).

The Blaine Basin is a well-known inventory area, containing a few mine openings. The USFS reported that there are no known draining adits at Blaine Basin, and these mines are considered to be very low risk.

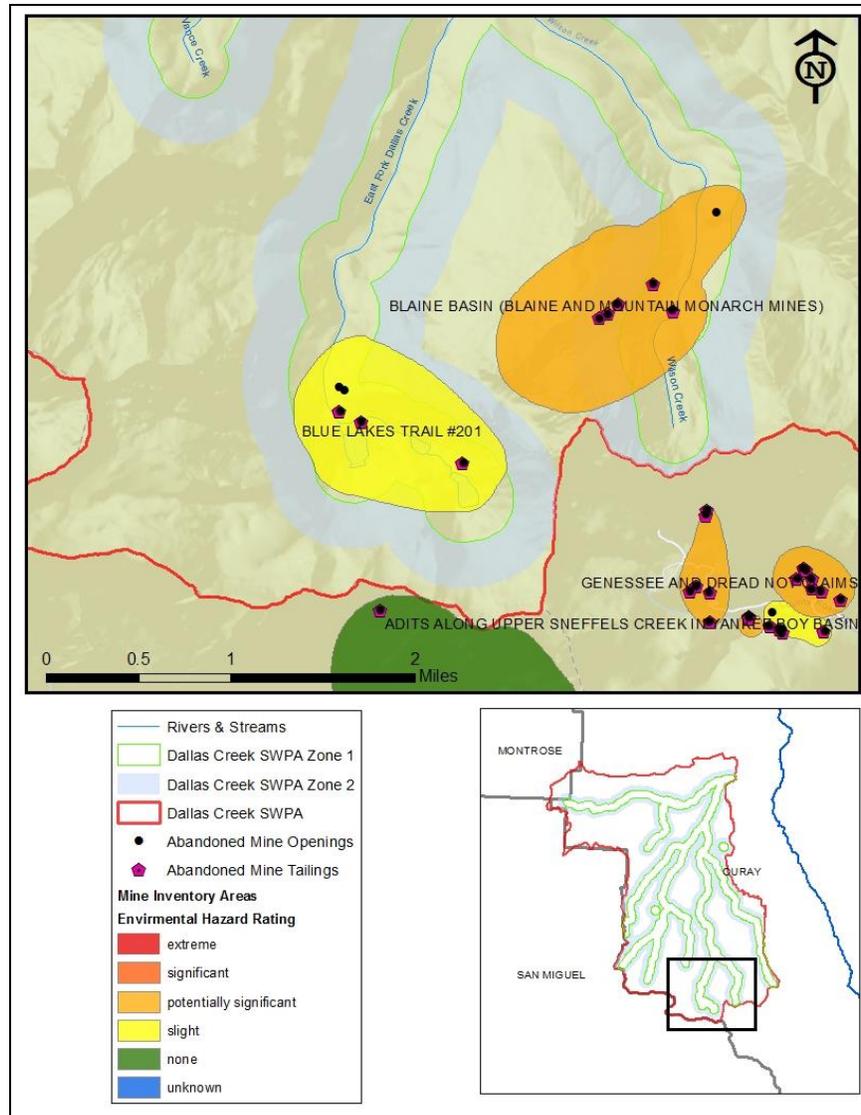


Figure 9: Historical mine openings and tailing piles within Dallas Creek WC's SWPA

Abandoned Mines Best Management Practices Recommendations

1. Share maps and shapefiles of Dallas Creek Water Company SWPA as well as Dallas Creek Water Company's contact information with CDPHE, CODRMS, CODNR, USFS and EPA and request to be notified of mine blowouts and spill events within SWPA in a timely manner.
2. Update Emergency Action Plan to include appropriate agencies as it pertains to abandoned mines.
 - a. Develop notification procedures with organizations that might first notice the problems (e.g. Ouray County Fire Department, USGS, USFS and/or private landowners).
 - b. Develop and maintain an effective contact list to report and collaborate on any issues that may arise.
 - c. Report any issues or threats that arise to the appropriate agencies.

Recreation on US Forest system lands

There are many types of recreation that occurs on US Forest System lands in Dallas Creek Water Company's SWPA. Backpacking occurs during summer through fall, hunting occurs at the West Dallas Box Factory Park, horseback riding occurs along the Dallas Trail, and there are ATVs allowed in Blaine Basin. Most of this recreation occurs in Zone 3 of Dallas Creek Water Company's SWPA, well above Dallas Creek Water Company's intake.

Some undesirable impacts include eroded soils, user-created unplanned roads, disrupted wetland ecosystems, as well as general habitat destruction and degraded water quality throughout forested lands. There has been no evidence of trail erosion, although sanitation could be a concern at outhouses at trailheads, such as the Blue Lake trailhead.

Recreation Best Management Practices Recommendations

1. Share a copy of Dallas Creek Water Company's SWPP and GIS shapefiles of their SWPA with the USFS.
2. Keep updated on permit requirements on USFS lands in SWPA.

Security

Dallas Creek Water Company has a settling pond near a highly-used path. The area is located in a residential neighborhood and the path is used mostly by homeowners in the area. Although there have been no major acts of vandalism to Dallas Creek Water Company's water supplies or a break-in to the settling pond, this is still a concern for the Steering Committee. While the potential for these acts to occur is low, this remains a concern, as the impacts could be huge. Water infrastructure could be targeted directly, or water can be contaminated through the introduction of poisonous chemicals or disease-causing biological agents (Gleick, 2006). Fencing the settling pond isn't feasible because Dallas Creek Water Company must regularly bring in large equipment to clear the pond of sediment. The Steering Committee recommends taking preventative measures by installing signage around storage tanks, treatment facilities, and intakes and requesting regular patrol by the Ouray County Sheriff's Department near the settling pond.

Security Best Management Practices Recommendations

1. Install signage around Dallas Creek Water Company's SWPA about source water protection.
 - a. Request Source Water Protection Road Signs from CDPHE.
 - b. Develop signage with local contact information to display below CDPHE's signs.
 - c. Install Source Water Protection Signs on roadways in the SWPA.
2. Request regular patrol by Ouray County Sheriff's Dept. near settling pond in Loghill Village.

Septic Systems

The majority of parcels within Dallas Creek Water Company's SWPA contain individual sewerage disposal systems (ISDS) or septic systems. A septic system is a type of onsite wastewater treatment system (OWTS) consisting of a septic tank that collects all the sewage and a leach field that disperses the liquid effluent onto a leach field for final treatment by the soil.

Unapproved, aging, and failing septic systems have a large impact on the quality and safety of the water supply. The failure to pump solids that accumulate in the septic tank will also eventually clog the lines and cause untreated wastewater to back up into the home, to surface on the ground, or to seep into groundwater. If managed improperly, these residential septic systems can contribute excessive nutrients, bacteria, pathogenic organisms, and chemicals to source waters.

Before 2014, Ouray County only permitted ISDS/OWTS systems. These systems were required to be designed and inspected by a state-licensed engineer. In 2014, due to changes in the State regulations, local counties took over the permitting *and* inspections for OWTS systems under 2000 gallons per day. Of the systems Ouray County has permitted/inspected since 2014, they have only done follow-up inspections (post final septic inspection & sign-off) if there is a report of a system failure. Since taking over the permitting/inspecting for OWTS systems, Ouray County has not had any reports of system failures. Elisabeth Lawaczeck, with Ouray County Public Health Department has been vigilant about follow up on reports of unpermitted or uninspected septic systems. Since 2014, she has only found one, which was outside of Dallas Creek WC's SWPA. In addition, Dallas Creek Water Company regularly monitors for fecal coliforms and are able to treat for such contaminants.

Septic Systems Best Management Practices Recommendations

1. Request notification by Ouray County Land Use/Public Health Dept. of septic system failures and/or unpermitted septic systems.

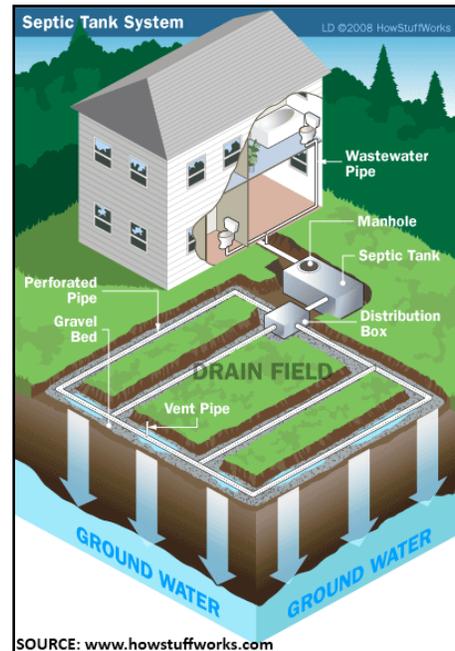


Figure 10: Schematic of a septic system

SOURCE WATER BEST MANAGEMENT PRACTICES

The Steering Committee reviewed and discussed several possible best management practices that could be implemented within the Source Water Protection Area to help reduce the potential risks of contamination to the community's source water. The Steering Committee established a "common sense" approach in identifying and selecting the most feasible source water management activities to implement locally. The best management practices were obtained from multiple sources including: Environmental Protection Agency, Colorado Department of Public Health and Environment, Natural Resources Conservation Service, and other source water protection plans.

The Steering Committee recommends the best management practices listed in the following table be considered for implementation.

Table 5: Source Water Protection Best Management Practices

Issues	Priority Ranking (3- Highest 2- Moderate 1 – Low)	Best Management Practices	Partners
Sediment/Turbidity	3	<ol style="list-style-type: none"> 1. Identify areas of Dallas Creek watershed that have high erosion 2. Work with Tri County Water, NRCS or other funding entities, such as Trout Unlimited, Colorado Division of Water Resources, Colorado Water Conservation Board and private landowners to identify funding opportunities for erosion mitigation strategies. 3. Perform streambank erosion mitigation. 	Dallas Creek WC; Private Landowners; Uncompahgre Watershed Partnership; NRCS; Tri-County Water
Agricultural Practices (over-spraying pesticides & herbicides)	1	<ol style="list-style-type: none"> 1. Share outreach material with private land owners that explains the importance of source water protection <ol style="list-style-type: none"> a. Identify private landowners and areas in US Forest System lands within the SWPAs where grazing and/or agricultural practices occur b. Gather/develop outreach material as it pertains to livestock grazing/agricultural material. Work with CRWA or NRCS to find outreach material. c. Mail outreach material 2. Work with NRCS to educate farmers & ranchers about programs offered by the Natural Resource Conservation Service. 3. Partner with Ouray County Land Use for future land use decisions. Request to be notified by Ouray County Land Use when making decisions about zoning or development in SWPA. 	Dallas Creek WC; NRCS; CRWA; Private Land Owners
Livestock & Wildlife Grazing	1	<ol style="list-style-type: none"> 1. Identify cattle grazing allotments on USFS lands in Dallas Creek Water Co. SWPA. 2. Share outreach material with private land owners that explains the importance of source water protection. <ol style="list-style-type: none"> a. Identify private landowners and areas in US Forest System lands within the SWPAs where grazing or agricultural practices occur. 	Dallas Creek WC; NRCS; CRWA; Private Land Owners

		<ul style="list-style-type: none"> b. Gather/develop outreach material as it pertains to livestock grazing/agricultural material. Work with CRWA or NRCS to find outreach material. c. Mail outreach material. <p>3. Work with NRCS to educate farmers & ranchers about programs offered by the Natural Resource Conservation Service.</p>	
Spills/Accidents & on Highway 62	3	<ul style="list-style-type: none"> 1. Share copies of the Dallas Creek Water Company’s SWPP, GIS shapefiles and maps of the SWPAs with CDOT, Ouray County Sheriff’s Dept., Colorado State Patrol, Ouray County Office of Emergency Management, Ouray County Road & Bridge and other emergency responders. <ul style="list-style-type: none"> a. Gather contact information and create mailing list for distribution. b. Utilize CRWA’s “SWPP Distribution Letter” template to develop a cover letter for SWPP distribution. c. Print paper and CD copies of SWP. Print CDs with SWPA GIS shapefiles. d. Mail SWPP Distribution Cover Letter along with copy of Dallas Creek Water Company’s SWPP and SWPA GIS shapefiles. 2. Enroll for notifications via WENS and Code Red in the event of spill or accident along Highway 62 within Source Water Protection Area. 	Dallas Creek WC; CDOT; Ouray County Sheriff’s Dept.; Colorado State Patrol; Ouray County Office of Emergency Management; other emergency responders; CRWA
Road Maintenance	1	<ul style="list-style-type: none"> 1. Monitor Dallas Creek and provide input to County Road & Bridge about creek erosion of bridges on roads going over creeks. 2. Share copy of SWPP with Ouray County Road & Bridge Department. 3. Meet with Ouray County Road & Bridge Department to discuss application of MgCl and Cinders or other chemicals in sensitive areas of SWPA. 	Dallas Creek WC; Ouray County Road & Bridge Department
Abandoned Mines / Mine Tailings	1	<ul style="list-style-type: none"> 1. Share maps and shapefiles of Dallas Creek Water Co. SWPA as well as Dallas Creek Water Company’s contact information with CDPHE, CODRMS, CODNR, USFS and EPA and request to be notified of mine blowouts and spill events within SWPA in a timely manner. 2. Update Emergency Action Plan to include appropriate agencies as it pertains to abandoned mines. <ul style="list-style-type: none"> a. Develop notification procedures with organizations that might first notice the problems (e.g. Ouray County, Fire Department, USGS, USFS, and private landowners). 	Dallas Creek WC; USFS;

		<ul style="list-style-type: none"> b. Develop and maintain an effective contact list to report and collaborate on any issues that may arise. c. Report any issues or threats that arise to the appropriate agencies. 	
Recreation on US Forest System Lands	1	<ul style="list-style-type: none"> 1. Share a copy of the SWPP and GIS shapefiles of the SWPA with the USFS. 2. Keep updated on permit requirements on USFS lands in SWPA. 	Dallas Creek WC; USFS
Security	2	<ul style="list-style-type: none"> 1. Install signage around Dallas Creek Water Company’s SWPA about source water protection. <ul style="list-style-type: none"> a. Request Source Water Protection Road Signs from CDPHE b. Develop signage with local contact info to display below CDPHE’s signs. c. Install Source Water Protection Road Signs. 2. Request regular patrol by Ouray County Sheriff’s Dept. near settling pond. 	Dallas Creek WC; CDPHE
Septic Systems	1	<ul style="list-style-type: none"> 1. Request notification by Ouray County Land Use, Ouray County Public Health Dept. of septic system failures and unpermitted septic systems. 	Dallas Creek WC
Flooding	3	<ul style="list-style-type: none"> 1. Enroll in Code Red using treatment facility and pump station addresses. 2. Monitor weather forecasts and other hazardous weather outlooks from NOAA. 3. Explore opportunities for watershed health improvement grant funding (CSFS – Health Forest Restoration Grant, etc.) 	Dallas Creek WC
Wildfire	3	<ul style="list-style-type: none"> 1. Explore opportunities for watershed health improvement grant funding (CSFS – Health Forest Restoration Grant, etc.) 2. Share a copy of the SWPP and GIS shapefiles of the SWPA with the Ouray County, USFS, CSFS and West Region Wildfire Council. <ul style="list-style-type: none"> a. Work with USFS, CSFS, West Region Wildfire Council and Ouray County to educate homeowners about creating and maintaining defensible space on private lands (Ouray County CWPP). b. Share a copy of the SWPP with Ouray County Sheriff’s Department as it pertains to fire bans and restrictions. Encourage collaboration with Sheriff’s office in reviewing fire prevention measures. 3. Evaluate fuels conditions to develop mitigation projects and fire response plans for the Source Water Protection Area with USFS and CSFS, Division of 	Dallas Creek WC; USFS; Ouray County Sheriff’s Department; Ouray County Office of Emergency Management; Log Hill Fire Protection District

		Fire Prevention & Control, Log Hill Fire Protection District and Ridgway Fire Protection. District.	
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EVALUATING EFFECTIVENESS OF SOURCE WATER PROTECTION PLAN

Dallas Creek Water Company is committed to evaluating the effectiveness of the various source water best management practices that have been implemented. The purpose of evaluating the effectiveness is to determine if the various source water best management practices are being achieved, and if not, what adjustments to the Source Water Protection Plan will be taken in order to achieve the intended outcomes. It is further recommended that this Plan be reviewed at a frequency of once every 2-4 years or if circumstances change resulting in the development of new water sources and source water protection areas, or if new risks are identified.

Dallas Creek Water Company is committed to a mutually beneficial partnership with the Colorado Department of Public Health and Environment in making future refinements to their source water assessment and to revise the Source Water Protection Plan accordingly based on any major refinements.

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APPENDICES³

- A. Source Water Assessment Report – <http://www.colorado.gov/cs/Satellite/CDPHE-WQ/CBON/1251596793639>.
- B. Dallas Creek Water Company Emergency Notification Plan
- C. Table A-1 Discrete Contaminant Types
- D. Table A-2 Discrete Contaminant Types (SIC Related)
- E. Table B-1 Dispersed Contaminant Types
- F. Table C-1 Contaminants Associated with Common PSOC's
- G. MOU Between CDPHE and U.S. Forest Service Rocky Mountain Region
- H. Ouray County Emergency Plan – <http://ouraycountyco.gov/documentcenter/view/4788>

³ All appendices are located on the CD version of this SWPP.

Appendix A – Dallas Creek Water Company Source Water Assessment Report

Dallas Creek Water Company Source Water Assessment Report:

<http://www.colorado.gov/cs/Satellite/CDPHE-WQ/CBON/1251596793639>

SOURCE WATER ASSESSMENT REPORT

**Surface Water Sources and
Ground Water Sources Under the Direct Influence of
Surface Water**

DALLAS CREEK WC

Public Water System ID: CO0146485

MONTROSE, CO

OURAY County

11/8/2004



**Colorado Department of Public Health and Environment
Water Quality Control Division
Source Water Assessment and Protection Program
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530**

- 1 -

[Click image to see full report](#)

Appendix B – Dallas Creek Water Company Emergency Notification Plan

Dallas Creek Water Company

Emergency Notification Plan

2010

Dallas Creek Water Company has developed the following customer contact plan in the event of each identified emergency or similar unidentified situations. This plan will be updated and more detail will be added as new information is available.

Dallas Creek Water Company Emergency Notification Plan

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DALLAS CREEK WATER COMPANY EMERGENCY NOTIFICATION PLAN DESIGN

Dallas Creek Water Company is a public water utility providing domestic water to residents and commercial customers in Log Hill Village and Fairway Pines subdivisions in Ridgway, Colorado. A map of the Public Utilities Commission approved Service Area is included with this plan to identify the boundaries for emergency notification. This plan is designed to provide immediate information needed by managers and other appointed officials to notify our customers of the proper actions they should follow during various emergencies. The plan is structured into two parts.

Part I - Urgent Notification section that will be used to notify all residential and commercial customers that are connected to the water distribution system through metered service of treated water as well as commercial customers that receive untreated irrigation water. These include:

Residential metered customers:	Homeowners within the Service Area.
Commercial Customers:	Divide Ranch & Golf Clubhouse and Golf Course
Public Service Companies:	Log Hill Mesa Fire Authority
Utility Companies:	Fairway Pines Sanitation District

The priority phone numbers and contact information provided by our customers is filed in the Urgent Notification Plan as a computer data base as well as alphabetically in a binder notebook to be used in the event power outage prevents computer access. This customer data base and notebook are kept separate from the Non-Urgent Notification customers.

Part II - Non-Urgent Notification to all residential, commercial and utility customers within our Service Area regardless of being connected to the water distribution system or not will be notified of the situations listed in the Non-Urgent Plan. Notification will include the same customers identified in the Urgent Notification section as well as residential standby customers who own a water tap on vacant lots within the Service Area.

SUMMARY

Dallas Creek Water Company has developed this Emergency Public Notification Plan to be followed in the event of each identified emergency or similar unidentified situations. This plan will be amended or modified as necessary and filed as an application with the Colorado Public Utilities Commission as required by Rule 5411 of the Code of Colorado Regulations.

URGENT NOTIFICATION PLAN

CONTAMINATION OF WATER in Dallas Creek or the Dallas Creek Water Company Storage Pond or in the water distributed into the system such as:

Chemical spills from roadway bridges or industries impacting Dallas Creek,

Vandalism or sabotage to Dallas Creek or Storage Pond,

Earthquake resulting in chemical contamination of Dallas Creek,

Treatment process failure that allows untreated water into the distribution line,

ACTION PLAN:

Water Operator:

Close intake valve at Pump Station #1 on Dallas Creek along County Rd. 24.

Close down Pump Station 2 and 3.

Shut down Water Treatment Plant.

URGENT NOTIFICATION- HIGHEST THREAT TO LIFE OR HEALTH. Any emergency involving contamination to the water of Dallas Creek Water source will require the following contact sequence:

NOTIFY OURAY COUNTY SHERIFF 970-252-4020 Montrose dispatch.

Or call 970-325-7272 (business hours) to authorize a reverse 911 call to the customers within the Dallas Creek Water Service Area. Choose the call boundaries according to the map provided to the Sheriff's office and the Montrose Dispatch Office.

NOTIFY COMMUNITY EMERGENCY PERSONNEL as necessary:

- | | | |
|----|--|--------------------------------|
| 1. | Log Hill Mesa Fire Protection- John Rogers, Chief-
249-4212 | 970- |
| 2. | Ouray County Emergency Medical Services- | 970-325-7275 |
| 3. | Ouray County Public Health | 970-325-4670 |
| 4. | Montrose Memorial Hospital | 970-249-2211 |
| 5. | Colorado Dept. of Public Health & Environment- 24 Hr.
Business Office Hours- Jocelyn Mullen | 1-877-518-5608
970-248-7153 |
| 6. | Ouray County Plaindealer Newspaper
Plaindealer@ouraynews.com | 970-325-4412 |
| 7. | Ridgway Sun Newspaper
ridgwaysun@ouraynews.com | 970-626-5100 |

NOTIFY ALL CUSTOMERS by email or phone. If power is out, use the Circuit Rider Notification Plan in this book.

POST NOTICE ON MAILBOX BULLETIN BOARD with instructions for the emergency and provide a supply of notices for residents to take home.

CIRCUIT RIDER NOTIFICATION IN THE EVENT OF POWER FAILURE. Notices have been pre-printed with instruction options listed in a Check Off format. This will facilitate hand prepared forms in the event power is not available to print notices. These forms completed by hand with a simple check mark will be sufficient for initial instructions to residents. A sample of the Notice to Customers form is found on page seven of this plan. A pre-printed supply will be stored at the water treatment plant and other local sites such as the Log Hill Village Fire Department on Ponderosa and the Divide Ranch Clubhouse on South Badger Rd.

NON-URGENT NOTIFICATION PLAN

Identification of a water related emergency that DOES NOT CAUSE AN IMMEDIATE HEALTH RISK such as:

- Power failure to pumps and plant
- Failure of water source – Dallas Creek runs dry or water rights are reduced
- Failure of the distribution system- broken main lines
- Severe and sudden blizzard preventing access to the treatment plant.
- Flooding of Dallas Creek causing destruction of the creek intake pump.
- Severe fires surrounding treatment plant, storage tanks, or pump stations.

URGENT BUT NON-HEALTH RELATED emergencies involving all metered property owners as well as vacant land owners within the DCWC Service Area.

Water Operator will report or verify the emergency condition by calling the Ouray County Sheriff at 325-7272 or the Montrose Dispatch center 24/7 at 252-4020.

The following Community emergency personnel will also be notified:

- | | |
|---|----------------|
| 1. Ouray County Sheriff Office- Montrose dispatch anytime | 970-252-4020 |
| - Ouray Office business hours | 970-325-7272 |
| 2. Log Hill Mesa Fire Protection- John Rogers, Chief-- | 970-249-4212 |
| 3. Ouray County Emergency Medical Services-- | 970-325-7275 |
| 4. Ouray County Public Health | 970-325-4670 |
| 5. Montrose Memorial Hospital | 970-249-2211 |
| 5. Colorado Dept. of Public Health & Environment- 24 Hr. | 1-877-518-5608 |
| Business Office Hours- Jocelyn Mullen | 970-248-7153 |

Durango Department of Transportation- Kim	970-385-1441
Colorado Department of Transportation	970-249-5285
Colorado State Patrol- Montrose	970-249-4392

Code of Colorado Regulations- 4 CCR 723-5

5411 (a) - Every utility shall have in effect a Commission –approved emergency notification plan that details how the utility will inform its customers and the community of emergency enforcement actions and/or corrective measures required by the Colorado Department of Public Health and Environment

--SAMPLE FORM DISTRIBUTED TO CUSTOMERS--
EMERGENCY NOTIFICATION TO CUSTOMERS AND LOCAL AREA
RESIDENTS

Dallas Creek Water Company

The following HEALTH RISK emergency has occurred:

X- Checked instructions below are to be followed.

Water contamination has been detected in the Dallas Creek Water Co. domestic water supply.

DO NOT USE ANY WATER FROM YOUR TAP.

BOIL WATER BEFORE DRINKING OR WASHING DISHES.

ONLY BOTTLED WATER SHOULD BE USED FOR DRINKING OR COOKING.

The following **NON-HEALTH RISK** water condition has occurred:

X- Checked instructions below are to be followed.

Water contamination of Dallas Creek has been advised. Pumping from Dallas Creek has been terminated. Water stored prior to this condition will continue to be supplied to customers. No health risk exists at this time.

CONTINUE TO USE WATER FROM YOUR TAP FOR DRINKING AND BATHING..

The following water CONSERVATION mandate is in effect. Water distribution is now limited to 430,000 storage capacity. Conservation will allow Dallas Creek Water to distribute water longer.

X- Checked instructions are to be followed.

RESTRICT WATER USE TO DRINKING, COOKING AND BATHING.

NO OUTSIDE IRRIGATION USE IS ALLOWED.

Reduce water use to conservative and necessary use. Outside irrigation use should be limited and only used if necessary.

This report is being supplied by Circuit Rider or placed at the mailbox for mass distribution due to power outage or other delivery restrictions. Please check the newspaper, bulletin boards or radio for more updates. YOUR COOPERATION IS GREATLY APPRECIATED.

Dallas Creek Water Company 970-240-8123 Office, 970-686-3889 Plant, Emergency 970-209-4358

EMERGENCY NOTIFICATION PLAN
CIRCUIT RIDER VOLUNTEERS NEEDED

As part of our Emergency Notification Plan we have identified a need that could be filled by year round residents in our Service Area. We are seeking residents who would be willing to assist in notifying neighbors of emergency water conditions during a total power outage that would prevent telephone and email notification,

If a water emergency exists during a power failure, the Circuit Rider volunteers will be contacted by a designated person and instructed to come to the water treatment plant or other suitable location to receive the information about the emergency. You would then be asked to go to the homes on your assigned street and communicate the instruction verbally and/or leave a posted warning of the current emergency with instructions to be followed.

If you are interested in volunteering in this capacity, please call Joanne Fairchild at Dallas Creek Water Company, 970-240-8123 to discuss your level of commitment to this plan. Any service you can provide would be appreciated.

This letter will be mailed to customers residing in the Dallas Creek Water Company service area after the plan has been approved by the Colorado Public Utilities Commission. Volunteers will be solicited and a list of final volunteers will be provided to the PUC to supplement this plan.

SAMPLE FORM SENT TO CUSTOMERS IN APRIL 2010
75% OF CUSTOMERS HAVE RESPONDED TO DATE

Dallas Creek Water Company
Emergency Notification Plan
April 2010

To comply with the Colorado Public Utilities Commission Regulation 5411 (a) effective June 1, 2010, we are collecting information necessary to contact you in the event of a Colorado Department of Public Health and Environment declared emergency. Notice will be attempted at all numbers and addresses you provide. Please return this information in the enclosed envelope, by fax 970-249-9040 or by return email to administrator@dallascreekwater.com.

Customer Name: _____

Billing Address _____

Telephone Numbers:

Priority #

_____ Home: ()

_____ Work ()

_____ Cell ()

_____ Email _____

Alternate Emergency Contact:

Name: _____

Phone: _____ Cell: _____

Address: _____

Other Emergency Information you want to provide:

--2015 SAMPLE FORM UPDATE --

DALLAS CREEK WATER CO.
MONTROSE, CO 81401

334 S. 5TH STREET

To:

Account No.

Dallas Creek Water Company Emergency Notification Plan – Contact Information Update 2015

Service Address:

To comply with the Colorado Public Utilities Commission Regulation 5411 (a) effective June 1, 2010, we collected information necessary to contact you in the event of a Colorado Department of Public Health and Environment declared emergency. We use the information on file to attempt notification to all numbers and addresses you provide in the event of water service outages as well.

Code of Colorado Regulations- 4 CCR 723-5

5411 (a) -Every utility shall have in effect a Commission approved emergency notification plan that details how the utility will inform its customers and the community of emergency enforcement actions and/or corrective measures required by the Colorado Department of Public Health and Environment.

Include this form with your payment or Fax to 970-249-9040 or Email or scan information to administrator@dallascreekwater.com.

Customer Name:

Account No.

Priority Contact Information

_____ Phone: _____
_____ Cell: _____ Name _____
_____ Cell: _____ Name _____
_____ Email: _____
_____ Check if Email is for Emergency Use Only

Alternate Contact: This will NOT be a priority contact unless listed above.

Name: _____
Phone: _____ Cell: _____
Address: _____

Other Emergency Information you want to provide:

