

Source Water Protection Plan

For

**Town of Sanford
PWSID # CO0111900
Groundwater Source**

Conejos County, Colorado

**Tim Crowther, Operator in Responsible Charge
390 Greenleaf St.
Sanford, CO 81151**

October 1, 2011

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EXECUTIVE SUMMARY

The financial and water supply risks related to the potential contamination of the Town of Sanford's water source are not a concern to the Town of Sanford Steering Committee (Steering Committee). However, the Steering Committee believes the development and implementation of a source water protection plan for the Town of Sanford can help to reduce risks posed by potential contamination sources. This source water protection plan was developed to establish protection zones, prioritize source water protection concerns and identify local source water management approaches that can be implemented to protect the source water. A source water assessment report (SWAP report) was completed by the Colorado Department of Public Health and Environment (CDPHE) in 2004, and the results were used as a starting point in developing this source water protection plan.

The Steering Committee recommended adopting drinking water supply protection zones that are larger than the source water protection area originally defined in the SWAP report. These drinking water supply protection zones were re-delineated (redefined) from the SWAP report through discussion, on-site observation, and the use of historical data, involving stakeholders and experts. The drinking water supply protection zones define the region where Sanford has chosen to implement its source water protection measures in an attempt to manage the susceptibility of their source water to potential contamination.

The Steering Committee reviewed and discussed several possible source water management approaches that could be implemented within the drinking water supply protection zones. These management approaches may help reduce potential risks of contamination from potential contaminant sources. The purpose of voluntarily implementing source water management approaches is to apply additional levels of protection to the drinking water supply through preventative action. The Steering Committee established certain acceptance criteria as part of identifying and selecting the most feasible source water management approaches to implement locally and recommends the following list of source water management tools to be implemented by Sanford and Conejos County, where applicable in the drinking water supply protection zones:

- Educate the public via source water protection outreach materials.
- Promote proper management of private wells located within the Town of Sanford.
- Raise public awareness about possible contamination risks associated with water system breaks and backflows.
- Be notified of oil and gas exploration permit applications in the San Luis Valley/Upper Rio Grande area.

The Steering Committee estimates that it will cost approximately \$2500 in time and materials to implement these management approaches. Funding to cover these costs will come from Colorado's SWAP grant program and as a time donation from Sanford's Operator in Responsible Charge (ORC.) Implementation of these management approaches is expected to begin in December and will be ongoing following their establishment. The protection plan includes voluntary commitments by Sanford to apply source water assessment and protection principles to citing new water sources.

INTRODUCTION

Purpose of Source Water Protection Plan Development

Sanford recognizes the potential financial and water supply risks related to the contamination of **any** community's water source and would like to raise awareness about the importance of protecting drinking water sources in general and for the benefit of individuals and other communities. In an effort to address potential issues that could affect any untreated water source, Sanford, with guidance from Colorado Rural Water Association (CRWA), appointed a Steering Committee. The Steering Committee then identified, considered, and advised on local source water management approaches that can be voluntarily implemented by Town of Sanford residents and public water system customers in general to reduce the risks of potential contamination of untreated source waters.

The primary reason for developing and implementing source water management approaches is to apply additional levels of protection to drinking water supplies. Preventive measures at the local level (i.e., county and municipal level) may aid in the protection of source water. These preventive measures are intended to 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.

The source water protection plan process first seeks to assemble a group of stakeholders interested in protecting community drinking water sources. These stakeholders in turn identify their community's drinking water supply protection zones and recognize any potential sources of contamination that may be known within those zones. Next, the stakeholder group addresses source water protection management approaches and their associated tasks. Finally, in an effort to improve the overall source water management effort, a contingency plan is developed by each water provider. This contingency plan lays out a coordinated plan for responding rapidly, effectively, and efficiently to any emergency incident that may threaten or disrupt a community's water supply.

Public Participation and Steering Committee Establishment

Public participation has been important to the overall success of Colorado's 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 the protection of this valuable resource.

The CDPHE recommended that the public water supplier or any other well-suited local interest group take the lead in organizing public participation in the local source water protection planning effort. Effective public participation requires a well-organized effort to raise public awareness, to identify groups and individuals interested in helping, and to define and implement the necessary planning tasks. The Steering Committee adopted this public participation principle and encouraged the involvement of all types of stakeholders – individuals, groups, organizations and local decision-makers affected by or concerned with the community's drinking water – in the local source water protection planning and implementation effort. The Steering Committee believes that local support and acceptance of the plan is more likely where local stakeholders have been actively recruited and encouraged to participate in the development and implementation of the protection plan.

Protection Plan Development Process

The source water protection planning effort consisted of a structured process of Steering Committee work group meetings and public meetings. The Steering Committee's recommendations were developed from these work group meetings. Ultimately, the Steering Committee's recommendations

were incorporated into a draft source water protection plan and presented at one public meeting for comment and discussion.

The general public was notified of this public meeting; location, date, and time via a posting of the meeting at the three legal locations in the community, and on the Sanford web page. Also, a direct invitation to attend and participate in this public meeting was extended to the entire community, commercial property owners within Sanford, and others as well as, local, state, and federal officials.

In developing Sanford’s source water protection plan, Sanford held the following stakeholder and steering committee, work group meetings:

Date	Meeting	Discussion
6/27/2011	Stakeholder Meeting	Review of SWAP program
8/16/2011	Stakeholder Meeting	Review draft SWPP, protection zones
10/11/2011	Steering Committee Meeting	Review Draft/Psocs/Maps

* Psocs = potential sources of contamination

Steering Committee Participants

The Sanford Steering Committee was self appointed to advise on the design and development of Sanford’s source water protection plan. The table below lists the members of Sanford’s Steering Committee.

Steering Committee

Name	Title	Affiliation
Tim Crowther	Operator in Responsible Charge	Town of Sanford
Marlin Reed	Town Trustee	Town of Sanford
Kim Miller		Sanford Resident
Tom Stewart	Deputy Water Commissioner	Div of Water Resources
Jeff Weaver		Sanford Resident
Michael Hostetter	Town Trustee	Town of Sanford
Matt Feier	Source Water Specialist	CRWA

Other Participants

The source water protection planning process attracted interest and participation from a few other key entities. Input by these entities was greatly appreciated and was instrumental in developing the SWPP. These participants included:

FEDERAL	NAME
USDA Forest Service/USDOJ Bureau of Land Management	Phil Reinholtz
STATE	
Colorado Geological Survey	Pete Barkmann
Division of Water Resources	Aaron Holman
CITY	
Town of La Jara	Keith Martinez
Town of Romeo	Lorraine Sandoval
OTHER	

Area Business Owner	Scott Kreps
Sanford Resident	Gerald Creery

The following lists others who were invited to participate in the planning process but did not or could not attend meetings:

Conejos County Commissioner’s Office
Conejos County Land Use Office
Conejos County Road and Bridge Department
Conejos Water Conservancy District
Colorado Department of Agriculture
USDA Natural Resources Conservation Service
San Luis Valley Water Conservancy District
Rio Grande Water Conservation District
Sanford Public School District J6
Adams State College, Earth Sciences Program
Colorado Department of Transportation
San Luis Valley Irrigation Well Owners Inc.

WATER SUPPLY SETTING

Sanford was originally settled in 1885 about two miles south of its present location. It was a poorly drained swampy area. When it was discovered that an irrigation canal could be run up onto a bench to the north, the town was then relocated. Sanford sits on a bench from 10 to 30 feet high on the east and west sides. The land tapers to the north and northeast, so the town has excellent drainage, as was the intent. Water was a key issue from day one. The early pioneers engineered canals—seemingly uphill onto this bench for irrigation, and the blessing of artesian water was a key issue in the survival of this settlement. Historically, everyone (over 600 people within three years) had a domestic well for their home and another for their corrals, gardens, and outbuildings. Wells were typically drilled 40 to 60 feet deep with only one 20 foot section of actual casing pounded into the ground, and often sticking out of the ground 2 to 3 feet. “Outhouses” were the norm for many years. When indoor toilets were installed, the usual disposal method was into “cesspools” (covered lagoons), often only a few feet from the drinking water supply. There is no history of sickness or disease resulting from this situation at all. This was the scenario for about 90 years. It is very likely these circumstances could have carried on indefinitely without any health problems whatsoever. Most of the outlying ranches are still proof of this today. Sanford is still off the beaten track, in a rural setting. Most residents work in other communities and commute to their place of employment. However, a few still rely largely on agriculture and its spinoff. There is a considerable amount of trucking. Sanford has had moderate steady growth and it appears this trend will continue.

To continue the history, a water and sewer system was started in Sanford in 1974. The deep wells were dug and infrastructure was put in to service most existing homes. There have been approximately 37 years of use on this system with very few problems. What few problems that have arisen have pretty much been mechanical involving broken lines, pumps, etc.—not problems causing the public to get sick. They have been dealt with in a routine professional manner by town employees (without any outside overseers). Sanford is very fortunate to be located in an artesian belt—artesian water has been found as shallow as 15 feet. It is an awesome sight to watch a big well, partially closed, spew water out 20 to 30 feet and realize the pressure required to move it hundreds of feet upward. (A bug attempting to swim

downward 1000 feet to invade the aquifer would be sadly disappointed.) Sanford has two town wells located roughly in the northwest and southwest center of town. One well is 1000 feet deep and the other 1001 feet deep. The log on these wells is attached (see Appendix, page 17.) The top 350 to 400 feet of each well is sand, pea gravel, and boulders—great cleansing and filtering agents. There is then a layer of clay or solid rock 500 to 600 feet thick. The water source is defined as the “Confined Rio Grande Aquifer,” one of the most envied and valuable underground water resources in the United States. A few years ago, though a very extensive effort and process, the town board (involving some Steering Committee members), acquired the water rights to a nearby deep well. Much time and effort was involved in this process. Over about a four year period, countless meetings were held with state water board officials, water engineers, and lawyers. It was very educational from many aspects. The end result was that Sanford’s water supply was officially legalized and a new, much larger decree granted. The Town of Sanford now has legal access to a very large, abundant supply, although over a yearly period, they use only a small portion of the wells’ capabilities or the decreed amount. The wells are capable of producing considerably more than they are decreed for. The original intent was that one would service the town under normal conditions, and the other be used for backup. Therefore, from the outset, there was a built in contingency plan. The town’s only water storage is the confined Rio Grande Aquifer (trillions of gallons—replenished annually). The depth, rock and clay layers, and artesian pressure protecting this resource are the town’s primary source water protections.

Also, The Town of Sanford has continually been told by various water experts that our water resource comes from the high mountains to the west of us, the Wolf Creek and Cumbres Pass areas, which routinely have some of the heaviest snow pack in Colorado and the nation. Sanford is located in a high altitude desert with very little rainfall. It is very unlikely that the rain and snow the town gets on nearby lands is able to penetrate over a few inches on its own accord or has anything whatsoever to do with the confined Rio Grande Aquifer 1000 feet below us. Sanford’s opinion along with the experts is that the town relies on the high mountain snowpack for its water supply. The town has also been told that it is a fact that the underground water and natural drainage runs or migrates through the ground in a northeasterly direction (as Mr. Stewart attested to at the August meeting). The Sanford Steering Committee can accept these ideas as there is no evidence to the contrary, and apparently there are studies substantiating these claims. Therefore, the Steering Committee’s specific comments and recommendations regarding Sanford’s source water protection plan are based largely on these premises, along with some historic facts and common sense observations.

Drinking Water Supply Operation

The water system is operated by employees of the Town of Sanford. The water supply consists of two ground water wells which are located roughly in the northwest and southwest portions of Sanford. Please see Figure 1, Service Area Boundaries.



Figure 1, Service Area Boundaries

Raw water diverted from the ground water wells is sent directly into the distribution system for service to water system customers. Sanford has no regular disinfection system in place at this time. Also, Sanford does not have a water storage system in place at this time.

Water Supply and Demand Analysis

The Sanford water system serves an estimated 385 connections and approximately 850 residents and other users in the service area annually. The water system currently has the capacity of meeting a peak (i.e., maximum) daily demand of 2,160,000 gallons per day. Current estimates by Sanford indicate that the average daily demand by system customers is approximately 200,000 gallons per day, and that the average peak daily demand is approximately 1,000,000 gallons per day. Using these estimates, Sanford has a surplus average daily demand capacity of 1,960,000 gallons per day and a surplus average peak daily demand capacity of 1,160,000 gallons per day.

Using the surplus estimates above, Sanford has evaluated its ability to meet the average daily demand and the average peak daily demand of its customers in the event the water supply from one or more of its

water sources becomes disabled for an extended period of time due to potential contamination. The evaluation indicated that Sanford may not be able to meet the average or peak daily demand of its customers if both of their wells became disabled for an extended period of time.

The Steering Committee recognizes that, while highly unlikely, contamination of its ground water source could result in having to treat the ground water and/or abandon the water source if treatment proves to be ineffective or too costly. To understand the potential financial costs associated with such an accident, the Steering Committee evaluated what it might cost to replace one of its water sources (i.e., replacement of the intake structure and the associated infrastructure) if this occurs. The evaluation did not attempt to estimate treatment costs, which can be variable depending on the type of contaminants that need to be treated.

Land Use Projections

Currently, Sanford estimates that approximately 50% of the land area within the outermost Steering Committee defined drinking water supply protection zone is undeveloped. This undeveloped land is currently not under any zoning regulations as it all lies within Sanford's town boundaries. Sanford estimates the breakdown of land ownership within the outermost proposed drinking water supply protection zone as follows:

- Private ownership 95%
- City ownership 5%

Because all of the land identified for assessment in this protection plan is located within the Town of Sanford's boundaries, significant future residential and commercial developments within the Town of Sanford could, theoretically, impact Sanford's water source.

OVERVIEW 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. The 1996 amendments required each state to develop a source water assessment and protection (SWAP) program. The Water Quality Control Division, an agency of the CDPHE, assumed the responsibility of developing Colorado's SWAP program. The SWAP program protection plan will be integrated with the existing Colorado Wellhead Protection Program that was established in amendments made to the federal Safe Drinking Water Act (SDWA, Section 1428) in 1986. Wellhead protection is a preventative concept that aims to protect public groundwater wells from contamination. The Wellhead Protection Program and the SWAP program have similar goals and will combine protection efforts in one merged program plan.

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 Figure 2, below.

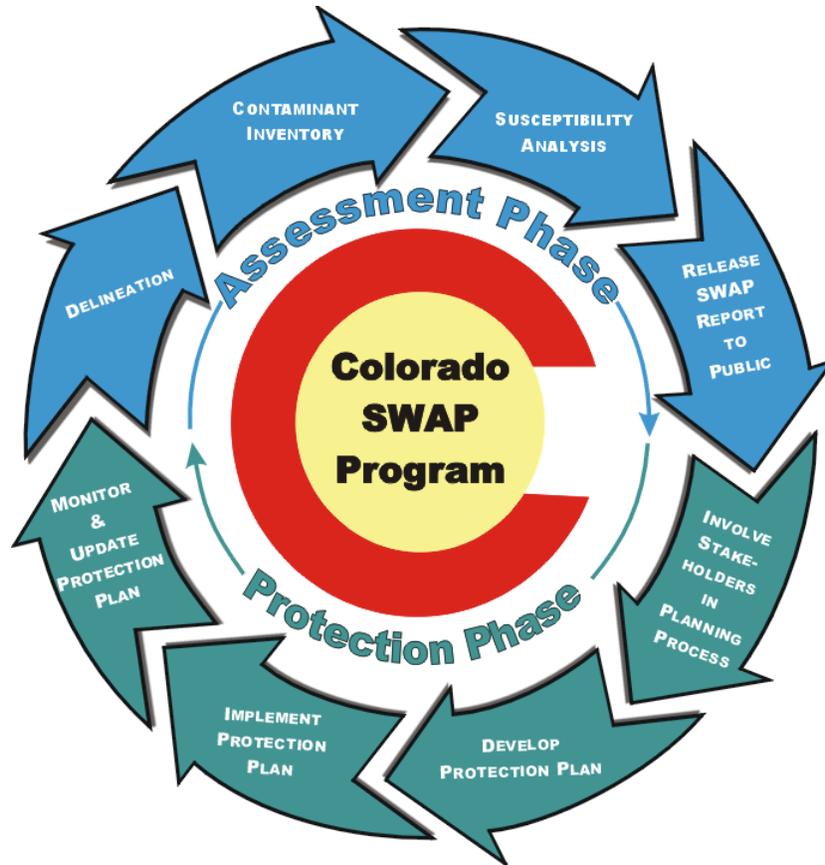


Figure 2, SWAP Diagram

Source Water Assessment Phase

As depicted in the upper portion of the above Figure, the Assessment Phase for all public water systems consists of four primary elements.

1. Delineating the source water assessment area for each drinking water source.
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.

The Assessment Phase involves understanding where Sanford’s source water comes from, what contaminant sources potentially threaten the water source, and how susceptible each water source is to potential contamination. The susceptibility of an individual water source is analyzed by examining the properties of its physical setting and potential contaminant source threats. The resulting analysis calculations are used to report an estimate of how susceptible each water source is to potential contamination.

Source Water Protection Phase

The Protection Phase is a voluntary, ongoing process in which Sanford has been encouraged to voluntarily employ preventive measures to protect their water supply from potential sources of contamination. 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 the above Figure 2, 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 drinking water sources.
3. Implementing the protection plan on a continuous basis to reduce the risk of potential contamination of drinking water sources.
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 CDPHE 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 governments. The source water protection phase is an iterative process as indicated in Figure 2. 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 ASSESSMENT RESULTS

The CDPHE assumed the lead role in conducting the source water assessments for public water systems in Colorado. Sanford received their source water assessment report in November of 2004 and has reviewed the report. Sanford and the Steering Committee used these assessment results as a starting point in the plan development process. The Steering Committee then further analyzed and refined the state's assessment in order to guide the development of appropriate management approaches to protect the source water of Sanford from potential contamination. A copy of the State's source water assessment summary report for Sanford can be obtained by contacting Sanford or by downloading a copy from the CDPHE's SWAP program web site located at: www.cdphe.state.co.us/wq/sw/swaphom.html.

Source Water Protection Zones Delineation

The source water protection zones define the surface area overlying Sanford's two groundwater intakes, which draw waters from the Rio Grande confined Aquifer System. Sanford's source water protection zones were recreated from the original source water assessment by conducting an onsite survey of land uses in the area, and topographic mapping. Sanford's protection zones are divided into two concentric zones, each defined by differing management approaches. Please see Figures 3 and 4.



Figure 3, Primary Protection Zones

Sanford's Primary Protection Zones (outlined in red) represent the areas of highest source water protection priority, where the Steering Committee's focus is on mitigating potential source water contamination concerns and preventing future potential contamination threats. These zones are together approximately 63.3 square acres in size, and each cover an area of greater than 500 feet from Sanford's two well heads. Land use within these zones is low intensity residential.



Figure 4, Secondary Protection Zone

The Secondary Protection Zone (outlined in yellow) is approximately 921.69 square acres in size. This zone encompasses the Town of Sanford’s boundaries and all water users within the municipal water system. Land use within the Secondary Protection Zone is largely low intensity residential. The Secondary Protection Zone generally represents an area of source water awareness, education, and prevention, and the Steering Committee wishes to focus outreach and education efforts on residences and individuals living and/or working in this area.

Contaminant Source Inventory

The information contained in this plan is limited to that available from public records and the water supplier. Other potential contaminant sites or threats to the water supply may exist that are not identified in this plan. Identification of a site as a potential contaminant site should not be interpreted as one that will necessarily cause contamination of the water supply.

The contaminant source inventory was conducted to identify whether or not selected potential sources of contamination might be present within the source water protection zones. The CDPHE inventoried discrete contaminant sources using selected state and federal regulatory databases. Dispersed contaminant sources were inventoried using recent land use/ land cover and transportation maps, along with selected state regulatory databases. The CDPHE provided Sanford with a draft map and a summary of the discrete and dispersed contaminant sources mapped. Sanford was asked to voluntarily

review the inventory information, field verify potential existing and new discrete and dispersed contaminant sources, and provide feedback on the accuracy of the inventory. Through this report, Sanford is reporting to the CDPHE its findings and how it would proceed in the event of contamination of its water source.

Potential Discrete Sources of Contamination

No Discrete Sources Found.

Potential Dispersed Sources of Contamination

Sanford's inventory of potential dispersed sources of contamination identified the following potential sources within the redelineated drinking water supply protection zones. However, the Sanford Steering Committee does not recognize these potential contaminant sources as currently viable potential threats to Sanford's water supply:

Land Uses:

- Low Intensity Residential
- Urban Recreational Grasses
- Pasture / Hay
- Potential Future Oil and Gas Exploration and Development

Other Types:

- Road Miles
- Potential Future Water Distribution System Malfunctions

Source Water Protection Susceptibility Analysis

The original source water assessment included a susceptibility analysis for each of Sanford's water sources. This susceptibility analysis was designed to provide a screening-level evaluation of the likelihood that a potential contamination problem could occur rather than an indication that a potential contamination problem has or will occur. Susceptibility analysis is NOT a reflection of current source water quality and IS subjective by nature.

The original subjective susceptibility analysis was reviewed and updated by Sanford to help identify how susceptible their untreated water source could be to contamination from inventoried potential sources of contamination. The Steering Committee, upon reviewing the original source water assessment, determined that the total susceptibility rating for their two ground water sources was very low and that their system's physical setting vulnerability rating was also very low. Because both categories were determined to be very low, no specific actions or prioritizations were deemed necessary.

SOURCE WATER PROTECTION MEASURES

Source Water Protection Strategy

The Steering Committee established certain acceptance criteria as part of identifying and selecting the most feasible source water management approaches to implement locally. The primary acceptance criteria were that any source water protection measures:

- Effectively address the potential contamination concerns.
- Be of low cost to the community.
- Be non-regulatory in nature.
- Not put any undue burdens on any individual community members or businesses.

Following these guidelines, the Steering Committee will focus their source water protection measures in each source water protection zone on the prevalence of, and threats from, those contaminants that exist in that zone, and upon their physical, legal, and financial abilities to address those identified potential contaminant threats.

The Steering Committee further recommends focusing source water protection measures on those dispersed potential contaminant sources which can be addressed through community wide public education campaigns.

Discussion of Issues

Primary Issues

1. Residential Practices/Public Education

The implementation of Best Management Practices (BMPs) to reduce polluted runoff requires education, public involvement, and people motivated to help in the effort. Educating the Sanford community is an important part of this protection plan. Public education will help people understand the potential threats to drinking water sources and motivate them to participate as responsible citizens to protect valuable resources. The Steering Committee recommends developing a public education plan for Sanford on ways community members can help to prevent potential contamination of drinking water resources.

2. Service Line Contamination

Water system service lines often lie in near surface, concealed locations and are comprised of a network of connections. A crack, leak, break, or improper backflow in a service line can create an opportunity for the potential contamination of a community's drinking water supply. While the proper management of Sanford's distribution system is addressed in a separate distribution system protection plan, the Steering Committee also wishes to promote proper ground water and water system management in this plan. The Steering Committee therefore recommends the creation and distribution of educational materials that promote proper chemical and waste management protocols (in order to minimize near surface contamination opportunities) and promote the installation, maintenance, and repair of appropriate backflow prevention devices.

Secondary Issues

1. Individual Wells

Individual residential wells can be found in locations throughout Sanford's protection zones. These wells, by their nature, can provide a conduit for rapid potential contamination of ground water if improperly managed and/or improperly capped. The Steering Committee recommends providing the Sanford community with educational materials highlighting proper well management and capping techniques.

2. Oil and Gas Exploration and Development

Oil and gas exploration and development often consists of drilling deep wells then pumping water and specific chemicals into these wells under high pressure in order to release subterranean oil and gas reservoirs for extraction. This type of drilling and pressurized fluid introduction could affect the integrity of Sanford's confined aquifer water source. While there are not currently any oil and gas developments in the San Luis Valley, oil and gas activities are occurring in other areas of Colorado and New Mexico. The Steering Committee is concerned that such activities could affect their source waters, and wishes to be notified whenever an oil and gas exploration permit has been applied for in Conejos, Costilla, Alamosa, or Rio Grande county Colorado.

Management Approaches

The Steering Committee recommends the following table of specific management approaches to be implemented by Sanford in the source water protection zones.

Primary Issues	Management Approaches	Implementer
Residential Practices	1. Conduct public education through the utility bill mailings and postings at Town Hall and on Sanford's website to encourage practices that will protect drinking water resources.	Steering Committee
Public Education	2. Have Sanford's ORC develop and present a series of board presentations addressing and promoting Source Water Protection within the community.	Sanford ORC
Service Line Contamination	1. Sanford water system customers will be encouraged to install and maintain proper backflow devices where appropriate, via educational handouts dispensed by the ORC.	Sanford ORC
	2. Sanford community members will be encouraged to reduce the possibility of service line contamination risks by practicing proper chemical and waste storage and use protocols. Educational information will be included in utility bill mailings.	Steering Committee

Secondary Issues	Management Approach	Implementer
Wells	1. Sanford community members will be encouraged to identify and properly manage and/or cap wells via public outreach inserts in utility bills.	Steering Committee/ORC
Oil and Gas Exploration and Development	1. ORC will be notified when an oil or gas exploration permit has been applied for within Conejos, Costilla, Alamosa, or Rio Grande Counties, Colorado.	Steering Committee

Source Water Protection Plan Additional Commitment

Sanford is voluntarily committed to applying source water assessment and protection principles to siting and protecting new water sources in the future. This is part of the larger ongoing commitment to providing the highest quality drinking water to Sanford consumers.

APPENDIX

Sanford Well Logs

NRJ-28-75

THIS FORM MUST BE SUBMITTED WITHIN 60 DAYS OF COMPLETION OF THE WORK DESCRIBED HEREON. TYPE OR PRINT IN BLACK INK.

COLORADO DIVISION OF WATER RESOURCES
101 Columbine Bldg., 1845 Sherman St.
Denver, Colorado 80203

RECEIVED
DEC 01 1975
WATER RESOURCES
STATE ENGINEER
ORIG.

WELL COMPLETION AND PUMP INSTALLATION REPORT
PERMIT NUMBER 018731-F

WELL OWNER Town of Sanford SE 1/4 of the NW 1/4 of Sec. 20

ADDRESS Sanford, Colorado 81151 T. 35 R. 10 E. 7 N. 4 P.M.

DATE COMPLETED November 18, 19 74

WELL LOG

From	To	Type and Color of Material	Water Loc.
0'	92'	Sand and gravel	
92'	205'	Gravel and boulders	
205'	350'	Rock boulders	
350'	500'	Brown Clay	
500'	550'	Rock	
550'	900'	Black Malpais Rock	
900'	970'	Gravel & Brown Clay Streaks	
970'	1000'	Sand	

HOLE DIAMETER
1 1/4" in. from 0 to 550 ft.
1 1/2" in. from 550 to 900 ft.
8 1/2" in. from 900 to 1000 ft.

CASING RECORD: Plain Casing
Size 1 1/2" & kind Steel from 0 to 550 ft.
Size 1 3/4" kind Steel from 550 to 900 ft.
Size _____ & kind _____ from _____ to _____ ft.

Perforated Casing
Size 1 3/4" kind Mill slot from 550 to 900 ft.
Size _____ & kind _____ from _____ to _____ ft.
Size _____ & kind _____ from _____ to _____ ft.

GROUTING RECORD
Material 300% sacks cement
Intervals 0' - 550' circulated
Placement Method Pumping by Halliburton Co.

GRAVEL PACK: Size None
Interval _____

TEST DATA
Date Tested November 22, 19 74
Static Water Level Prior to Test Flowing ft.
Type of Test Pump Turbine
Length of Test 48 Hours
Sustained Yield (Metered) 2400- G. P. M.
Final Pumping Water Level 7.50' B. D.

TOTAL DEPTH 1000'
Use additional pages necessary to complete log.

3

WR-3308

THIS FORM MUST BE SUBMITTED
WITHIN 60 DAYS OF COMPLETION
OF THE WORK DESCRIBED HERE-
ON. TYPE OR PRINT IN BLACK
INK.

COLORADO DIVISION OF WATER RESOURCES

101 Columbine Bldg., 1645 Sherman St.
Denver, Colorado 80203

WELL COMPLETION AND PUMP INSTALLATION REPORT

PERMIT NUMBER 018752-F

RECEIVED

DEC 01 1975

WATER RESOURCES
STATE ENGINEER
CO. 2.

WELL OWNER Town of Sanford NE 1/4 of the NW 1/4 of Sec. 29
ADDRESS Sanford, Colorado 81151 T. 35 R. 10 E. 1 N. 11 P.M.
DATE COMPLETED December 5, 19 74

WELL LOG

From	To	Type and Color of Material	Water Loc.
0'	120'	Pea gravel and Brown Clay	
120'	439'	Sand and Pea gravel	
439'	505'	Malpais hard rock	
505'	963'	Solid Malpais black rock	
963'	1001'	Sand & gravel (Water)	

TOTAL DEPTH 1001'

Use additional pages necessary to complete log.

HOLE DIAMETER

18 1/2 in. from 0 to 505' ft.
13" in. from 505 to 891 ft.
8 1/2 in. from 891 to 1001 ft.

CASING RECORD: Plain Casing

Size 14" & kind Steel from 0 to 300 ft.
Size 10 3/4" kind Steel from 423 to 891 ft.
Size _____ & kind _____ from _____ to _____ ft.

Perforated Casing

Size 10 3/4" kind Mill slot from 505 to 891 ft.
Size _____ & kind _____ from _____ to _____ ft.
Size _____ & kind _____ from _____ to _____ ft.

GROUTING RECORD

Material 300 sacks cement
Intervals 0' to 505' circulated
Placement Method pumping by Halliburton Co.

GRAVEL PACK: Size _____
Interval _____

TEST DATA

Date Tested December 8, 19 74
Static Water Level Prior to Test Flowing ft.
Type of Test Pump Turbine
Length of Test 48 Hours
Sustained Yield (Metered) 2300 G. P. H.
Final Pumping Water Level 80' - D. D.

Contingency Plan

Source Water Protection Contingency Plan for Providing Alternative Drinking Water Supplies For

Town of Sanford
Public Water System

PWSID# CO0111900

Tim Crowther

Primary Contact

(See Section 6 for additional contacts)

Water System Operator in Responsible Charge

Title

390 Green Leaf Street

Address

Sanford, CO 81151

719-274-4024

Work Phone

719-580-0988

Cell Phone

10/1/2011

Date of Plan

Review and Update Annually

Date Reviewed	Reviewer	Changes or Comments

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Section 1	Purpose and Authority for the Contingency Plan
Section 2	Description of the Water System
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Section 1

Purpose and Authority for the Contingency Plan

The purpose of this contingency plan is to establish and to keep up to date the procedures necessary to utilize alternative water supply sources in the event of the contamination or loss of the existing sources.

The plan was produced as part of the five step planning process as developed by the Environmental Protection Agency, Colorado Department of Public Health and Environment, and Colorado Rural Water Association under the Source Water Protection Program of the Safe Drinking Water Act.

A Comprehensive Source Water Protection Plan includes the following 5 steps:

- | | |
|--------|--|
| Step 1 | Select a planning team |
| Step 2 | Define the source water protection area |
| Step 3 | Identify sources of contamination |
| Step 4 | Develop Best Management Practices |
| Step 5 | Plan for the future and develop a contingency plan |

This plan is designed to meet the requirements as specified in Step 5. It is not designed to fulfill the requirements of a more comprehensive public water supply emergency operating plan that would be designed to deal with a wide array of emergencies beyond the contamination of existing sources.

Section 2 Description of the Water System

Name of System Town of Sanford

Population Served 850

Number of Service Connections 385

Average Daily Demand 200,000 Maximum Daily Demand 1,000,000

Sources of Supply Rio Grande Basin Confined Aquifer System

Wells or Springs:

Name of Well/Spring	North Well	South Well
Depth (ft.)	1000	1000
Diameter (in.)	10.75	10.75
Latitude	37*15'40.66"N	37*15'11.70"N
Longitude	105*54'5.57"W	105*54'06.45"W
Capacity in gpm	900	600
Treatment	None	none

Surface:

Name	None
Capacity	None

Interconnections with other Public Water Systems

None

Storage of Finished Water:

Name of Storage Facility	None
Location	None
Capacity in Gallons	None

Sources of Power: Normal Grid Electric Emergency Propane
(S. Well)

Actual Location of System Maps and Records Town Hall

Section 3

Spill Response

- A. Spill Response Activities
 - Call 911 to Report Incident and Initiate Response

 - Call HAZMAT Hotline 1-877-518-5608

 - Manage Water Resources As Necessary

Section 4

Alternative Water Supply Options

A. Procedure for Evaluating Alternative Water Supply Options:

Operator In Responsible Charge Must Consult The Board In Evaluating Alternative Water Supply Options And Must Receive A Majority Consensus Before Proceeding

B. Alternative Water Supply Options:

X

Existing System Sources
South Well Is Considered The Backup Well and Is Used In Summer

X

Conservation
Mandatory and Voluntary Conservation Measures May Be Enacted

X

Emergency Treatment
Emergency Chlorination Equipment Exists in Both Well Houses

X

Boiled Water
Boiled Water Ordinances May Be Enacted

X

Bottled Water
Bottled Water May Be Purchased and Distributed

X

Tank Trucks
Tank Trucks May Be Acquired

Section 5

Priority Water Users and Conservation Measures

A. List major water users and sensitive water users and assign a priority to their use of water.

Schools	<u>Sanford Public Schools, 3rd Priority</u>
Fire Department	<u>Northeast Conejos Fire Protection District, 2nd Priority</u>
Residential	<u>1st Priority</u>
Commercial	<u>4th Priority</u>

B. Select conservation measures to be implemented in the event of the need to reduce demand.

- Curtail use by larger users
Large Users May Be Required to Reduce Use

- Reduce pressure
Pressure Can Be Reduced at the Wellheads

- Mandatory water conservation measures
Mandatory Water Ordinances May Be Enacted

- Public education
Public Education Programs Can Be Developed

Section 6

**Notification Roster, Phone Numbers,
and Plan Distribution**

Organization	Contact Person	Received Copy of Plan Y/N*	Home Phone	Work Phone	24 Hour Emergency Phone
Water System Management and Employees	Tim Crowther		7192744019	7192744024	719-580-0988
Community Offices and Officials	Gary Bailey		7192744382	7192744024	
Police	Greg Brown			7192744040	719-580-0538
Fire	Mike McCarrol		7192743511		7195892503
CDPHE	Joey Talbott				719-545-4650x21
Dispatch Office				7195892503	
County Officials	Rodney King			7193765772	
County Officials	Don Martinez		7198435980	7193762014	719-580-7761
Schools	Kevin Edgar			7192745167	
Power Company	Excel				800-895-1999
Telephone Company	Century Link				877-348-9007
Water Supplier	Monte Vista Water			7198520919	
Pump Supplier	Valley Pump&Drill			7198523405	
EPA				3033126312	800-227-8917
FEMA					800-621-3362
Hospital	Conejos County				719-274-5121
Ambulance	Rodney King				719-274-5121
State Rural Water				7195456748	
Div of Water	Division 3 Office			7195896683	
Nearby Water Systems	La Jara		7195807790	7192740533	719-580-9797
Others	Emergency Locates				800-922-1987

Chain of Command List

In the event of an emergency in the water department contact:

Contact Name/Title	Address	Day and Night	Alternative Communication Source
Tim Crowther	315 Driftwood St	719-580-0988	sanfordpw@centurytel.net
Gary Bailey	370 First St	719-274-4382	719-274-4024
Michael Peterson	215 9th St	719-480-1615	Mpetersonp@yahoo.com

Section 7

Public Education / Media Relations

A. Primary spokesperson for the media and public comment in the event of a contamination incident.

Name Jack Miller

Title Town Trustee

Address 980 Kalmia St Sanford, CO 81151

Home Phone 274-0151 Cell Phone 588-2947

B. Information checklist to be conveyed to the public and media

Name of water system Town of Sanford

Contaminant of concern and date _____

Source of contamination _____

Public health hazard _____

Steps the public can take _____

Steps the water system is taking _____

Other information _____

C. Media Contacts

Newspaper Name Alamosa Valley Courier
Address 2205 State St. Alamosa, CO 81101
Phone 719-589-2553

Television Name KOAA Chanel 12
Address 2200 7th Ave. Pueblo, CO 81003
Phone 719-544-5781

Radio Name KALQ FM 93.5/KGIW AM 1450
Address 292 Santa Fe Ave. Alamosa, CO 81101
Phone 719-589-6644

Radio	Name	<u>KRZA FM 88.7</u>
	Address	<u>258 9th St. Alamosa, CO 81101</u>
	Phone	<u>719-589-8844</u>

Other (list)	<u>Reverse 911</u>
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Section 8

Event and Action Log

Type of Event to be Logged

Date _____

Time _____

Action Taken _____

Evaluation _____

Costs (*system's own forces*)

- Labor _____
- Equipment _____
- Materials _____

Contract Services _____