Community Source Water Protection Plan

Public Water Systems in Lincoln County, Nevada



Alamo Sewer and Water District City of Caliente Public Works Lincoln County Conservation District Lincoln County Emergency Management Lincoln County Planning Department Lincoln County Water District NDEP Bureau of Safe Drinking Water, ISWPP Coordinator Nevada Rural Water Association Panaca Farmstead Association Pioche Public Utilities Resource Concepts, Inc., ISWPP Contractor *Contains sensitive information.*

January 2024

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2023 Acknowledgements

The community source water protection partners in Lincoln County appreciate the meeting accommodations offered by the City of Caliente and the Lincoln County Water District during the planning process, as well as the technical and funding assistance provided by the Nevada Division of Environmental Protection (NDEP), Resource Concepts, Inc., and the Nevada Rural Water Association. The Local Planning Team wishes to recognize the following organizations whose involvement made the development of this document possible.

Organizations	
Utilities	
Alamo Sewer and Water District	
City of Caliente Public Works	
Lincoln County Water District	
Panaca Farmstead Association	
Pioche Public Utilities	
Source Water Protection Partners	
Lincoln County Conservation District	
Lincoln County Emergency Management	
Lincoln County Planning Department	
Technical Resources	
NDEP Bureau of Safe Drinking Water	
Nevada Rural Water Association	
 Resource Concepts, Inc., ISWPP Contractor 	

Contact one of the utilities listed above or the Lincoln County Planning Department for more information about the Community Source Water Protection Plan in your area. For general information, reach out the Coordinator of Nevada's Integrated Source Water Protection Program at the NDEP, Bureau of Safe Drinking Water.

Acronyms

Acronym	Definition
CSWP Plan	Community Source Water Protection Plan
ISWPP	Integrated Source Water Protection Program
NDEP	Nevada Division of Environmental Protection
RCI	Resource Concepts, Inc.
Team	Local Planning Team

Executive Summary

The Community Source Water Protection Plan (CSWP Plan) for Public Water Systems in Lincoln County outlines measures that each community has identified to safeguard public drinking water sources from contamination. Source water in Nevada is defined as untreated water from streams, rivers, lakes, springs, or underground aquifers that is used for public water supplies. Source water protection is the first line of defense to ensure clean and safe drinking water to sustain communities in Lincoln County.

The Nevada Division of Environmental Protection (NDEP), Bureau of Safe Drinking Water administers the Integrated Source Water Protection Program (ISWPP), a voluntary program aimed at preventing the contamination of public drinking water supplies. In 2021, the Lincoln County Board of Commissioners authorized participation in the program (Appendix B); public water systems within the county collaborated to complete this community-driven plan in 2023.

The Local Planning Team (Team), comprised of representatives from public water systems in Lincoln County, local stakeholders, and local government, held regular meetings to assess community needs throughout the development of the CSWP Plan. The group identified four goals to steer the CSWP Plan development:

Goal 1: Ensure ongoing protection of drinking water for present and future generations.

Goal 2: Foster community-wide education and involvement in source water protection.

Goal 3: Equip stakeholders with tools for informed decision-making.

Goal 4: Promote county-wide coordination.

Public water systems in Lincoln County are distributed across nine hydrographic areas and rely on groundwater and springs as their sources of drinking water. A comprehensive assessment (Appendix C) was conducted to estimate groundwater flow rates, directions, and recharge areas. An inventory was then compiled of potential contaminant sources, facilities, or activities that might pose a risk of releasing pollutants near water supplies (Appendix D). This detailed information was then evaluated by the Team to map "Source Water Protection Areas" (Appendix A) and develop strategies for accomplishing source water protection in their communities:

- Education and outreach,
- Collaborate with local and regional partners,
- Include source water protection in local plans and policies,
- Address wellhead and spring vulnerability,
- Consider watersheds in future planning, and
- > Plan for future land uses.

To guide implementation of these strategies, specific activities are outlined in an Action Plan (Appendix E) and in a stand-alone community-based Education & Outreach Plan (Appendix F). These voluntary measures can be implemented as technical and financial resources become available.

To ensure its continued effectiveness, this CSWP Plan will be reviewed periodically to address changing conditions. This document serves as a valuable tool to foster collaboration between water purveyors, local and regional partners, and community members - all contributing to the protection of water quality for sources of public drinking water throughout Lincoln County.

Revision History

Revision Date	Description
January 2024	Added January documentation to Appendix B, incorporated comments in Appendix E

Table of Contents

2023 Acknowledgementsi
Acronymsii
Executive Summaryiii
Revision Historyiv
1.0 Introduction1
1.1 Source Water Protection1
1.2 CSWP Plan Purpose and Goals
1.3 Team Formation Summary
1.4 Description of Planning Area2
2.0 Existing Plans and Studies
2.1 Lincoln County4
2.2 City of Caliente
2.3 Existing Wellhead Protection Plans5
2.4 Vulnerability Assessment & Source Water Assessment Programs5
3.0 Plan Development
3.1 Existing Source Water Protection Measures
3.2 Source Water Protection Area Development6
3.3 Source Water Protection Area Characteristics8
3.4 Contingency Measures for Water Sources
3.5 Source Water Protection Management Strategies
4.0 Plan Implementation12
4.1 Action Plan12
4.2 Community Source Water Protection Plan Updates12
5.0 Public Participation
5.1 Stakeholder Participation13
5.2 Source Water Protection Educational Message13
6.0 References

Tables

Table 1-1. Local Planning Team	2
Table 2-1. Lincoln County Plans	4
Table 2-2. City of Caliente Master Plan	5
Table 3-1. Water Source Summary	7
Table 3-2. Source Water Protection Area Summary	9
Table 3-3. Required Contingency Measures	10
Table 3-4. Management Strategies	11

Figures

Figure 1. Multi Barrier Approach to Provide Clean Drinking Water	1
Figure 2. Location Map	. 3
Figure 3. 2-, 5-, 10-, and 20-year Time-of-Travel Capture Zones	• 7
Figure 4. Potential Drinking Water Contamination	.8

Appendices (Provided as Separate PDF Files)

Appendix A.	Source Water Protection Area Maps
Appendix B.	Meeting and Public Participation Documentation
Appendix C.	Capture Zone Evaluation Report (Contains Sensitive Information*)
Appendix D.	Potential Contaminant Source Summary (Contains Sensitive Information*)
Appendix E.	Action Plan
Appendix F.	Public Education and Outreach Plan

* Contact the Lincoln County Planning Department, City of Caliente or your local public water system for review.

1.0 Introduction

Clean water is a precious and important resource for any community to survive and thrive. In Nevada, one of the driest landscapes in the Western United States, sustainable sources of clean drinking water are limited in quantity and quality. Source water is used to define drinking water in the natural environment (surface or groundwater) before it is withdrawn, treated, and distributed to the public by a regulated public water system. Protecting the quality of drinking water sources, whether groundwater, lakes, streams, or springs, is a critical first step in safeguarding the health and future of communities in Lincoln County.

1.1 Source Water Protection

Source water protection in Nevada is a voluntary program which strives to protect drinking water sources by promoting community planning and voluntary measures to prevent contamination caused by human activities. Developing and implementing a Community Source Water Protection Plan (CSWP Plan) unites local water purveyors, stakeholders, and the public in the longterm commitment to preserve water quality for future generations. Moreover, the CSWP Plan serves as a valuable tool for local representatives to effectively communicate the importance of building each community around clean drinking water sources.

In the multi-barrier approach to provide clean drinking water (Figure 1), source water protection is the first line of defense for a community to reduce the chance that contaminants will end up in their drinking water. Source Water Protection Areas represent areas where a community has established a precautionary boundary to safeguard their drinking water sources and protect water quality. Within these boundaries, education, monitoring, and land use planning can be employed to comprehensively manage surface water and groundwater resources. Communities and public water systems can utilize these boundaries to develop specific management strategies that will protect their water supply from contamination. Source Water Protection Area maps are provided in Appendix A.



Figure 1. Multi Barrier Approach to Provide Clean Drinking Water

1.2 CSWP Plan Purpose and Goals

Source water protection planning is a voluntary, community-led process. A Local Planning Team (Team), consisting of representatives from public water systems and various stakeholders, conducted an assessment to determine the necessity of source water protection in Lincoln County. As a result, a long-term vision was established to ensure clean and safe drinking water supplies, with four overarching goals:

Goal 1: Ensure ongoing protection of drinking water for present and future generations.

Goal 2: Foster community-wide education and involvement in source water protection.

Goal 3: Equip stakeholders with tools for informed decision-making.

Goal 4: Promote county-wide coordination.

The goals are numbered for reference and ease of use and do not imply priority. The goals envisioned

by the Team guide the selection of management strategies and development of an action plan to achieve source water protection in Lincoln County.

The "Nevada Integrated Source Water Protection Program" (ISWPP) guidance document, issued by the Nevada Division of Environmental Protection (NDEP) in 2010, serves as an update to the 1994 State Wellhead Protection Program. This document provides a fundamental framework for the local plan development process and outlines the criteria that must be met for a CSWP Plan to obtain State endorsement. By obtaining State endorsement, the local community becomes eligible for additional technical support from NDEP to facilitate the implementation of management strategies outlined in the CSWP Plan. The development of this CSWP Plan has been undertaken with the objective of achieving State endorsement.

1.3 Team Formation Summary

On November 15, 2021, Resource Concepts, Inc. (RCI), the technical assistance provider for the ISWPP, presented the CSWP Plan development process and assistance opportunities to the Lincoln County Board of Commissioners. As a result of the presentation, the Lincoln County Board of Commissioners issued a signed letter to the State, formally requesting participation in the program. Subsequently, RCI extended formal invitations to community public water systems and other local stakeholders, encouraging their involvement in the program. An invitation to join the Team was extended to the Nevada State Parks who declined but participated in facilitating data collection.

Once the Team was formed, a "kick-off" meeting was held on January 27, 2022, hosted by the City of Caliente at City Hall. Team meetings were held throughout the CSWP Plan development process to review technical information and develop community-specific strategies for source water protection; invitations to these meetings were provided at least one week in advance via email and phone call. Meeting agendas and notes and relevant working documents were shared with the Team by email, in print, and on OneDrive. Meeting information is provided in Appendix B. The Team, described in Table 1-1, was formed early in the planning process to develop this CSWP Plan. All Team members provided technical and planning information regarding their water system or specific area of expertise.

Table 1-1. Local Planning Team

Organization	Title	Contact Information
Pioche Public Utilities	Water System Manager	(775) 962-5840
Alamo Sewer & Water General Improvement District	System Manager	(775) 725-3377
City of Caliente	Public Works Manager	(775) 726-3131
Lincoln County	Planning Department	(775) 962-8071
Lincoln County Conservation District	Conservation District Program Manager	(775) 537-4423
Lincoln County Fire Protection District	Fire Chief / Emergency Manager	(775) 962-8077
Lincoln County Water District	General Manager	(775) 962-8068
Nevada Division of Environmental Protection – Bureau of Safe Drinking Water	Integrated Source Water Protection Program Coordinator	(775) 687-4670
Nevada Rural Water Association	Source Water Protection Specialist	(775) 841-4222
Panaca Farmstead Association	Water System Manager	(775) 728-4282
Resource Concepts, Inc.	ISWPP Technical Assistance	(775) 883-1600

1.4 Description of Planning Area

1.4.1 Location and Setting

Lincoln County encompasses 10,633 square miles in Southeastern Nevada (Figure 2). White Pine County is situated to the north, Nye County to the west, and Clark County to the south. It is bordered by Utah and a small part of Arizona to the east. The 2020 U.S. Census estimates the county population at 4,499 citizens. This county-wide CSWP Plan considers 16 active public water systems across Lincoln County that manage 22 active wells and two springs. The majority of the population served by these public water systems reside in Alamo, the City of Caliente, Panaca, and Pioche (Figure 2). For purpose of this CSWP Plan, the term "community" collectively refers to the public water systems, residents, and local government located within areas of Lincoln County.



Figure 2. Location Map

1.4.2 Public Water Systems

A public water system is defined by Nevada Revised Statutes (NRS) 445A.235 as "a system, regardless of ownership, which provides the public with water for human consumption through pipes or other constructed conveyances, if the system has 15 or more service connections, as defined in NRS 445A.843, or regularly serves 25 or more persons." There are two types of public water systems in Lincoln County that are regulated by the State of Nevada: Community and Non-Transient Non-Community. <u>Community Water System</u> – Has at least 15 service connections used by year-round residents of the area served by the water system or regularly serves at least 25 yearround residents of the area served by the water system (NRS 445A.808), e.g., municipal water systems operated by a county, town, or mobile home parks.

<u>Transient Non-Community Water System</u> – Does not regularly serve at least 25 of the same persons (i.e., transient) for more than six months of the year (NRS 445A.848), e.g., convenience stores, restaurants, parks, campgrounds, or gas stations.

This CSWP Plan encompasses a total of 19 public water systems (16 active and three inactive in 2023), consisting of five "Community" systems and 14 "Transient Non-Community" systems. The public water systems rely on various water sources, including the following:

- Community Water Systems: 11 active wells, 10 inactive wells, and one active spring.
- Transient Non-Community Water Systems: 12 active wells, one active spring, six inactive wells, and two inactive springs.

During the planning process, future water sources were taken into consideration as potential means of water supply to support community growth or supplement existing sources. These future water sources were particularly relevant to Pioche Public Utilities, Pioche Public Utilities Castleton, and the Lincoln County Water District.



2.0 Existing Plans and Studies

During the development of this CSWP Plan, an array of local and county-wide plans, as well as water source investigations, were reviewed. From each of these sources, key policies and pertinent information regarding source water protection were highlighted for consideration by the Team. To be successful, this CSWP Plan must fit into the existing planning framework in the community.

2.1 Lincoln County

Lincoln County has developed several strategic documents that outline long-term goals and policies

that guide county decisions, investments, and improvements towards achieving the overall vision for the county. In relation to source water protection, key goals and policies from various plans within Lincoln County have been compiled and presented in Table 2-1. This table provides a consolidated overview of the important objectives and guidelines for safeguarding source water within the county, aligning with the broader vision of sustainable water management.

Table 2-1. Lincoln County Plans

Lincoln County Master Plan (2007):		
Guides the county's growth, management of natural resources, provision of public services and facilities and the protection of the public's health, safety and welfare.		
Goal CNR-1: Mitigate environmental impacts related to growth	Policy CNR-1G: Proposed development should be designed to be compatible with riparian areas and playas to protect wildlife habitat, floodways, water quality and quantity and scenic values. New development should be consistent with adopted guidelines.	
Goal PSF-1: Maintain adequate levels of county services and infrastructure as the county grows in population.	Policy PSF-1F: Require commercial and industrial development to be connected to community water and sewer systems unless it can be demonstrated to the County Engineer that alternative services are adequate.	

Goal AL-CN-1:

Conserve natural areas of the Pahranagat Valley

Lincoln County Public Lands Policy Plan (2015):

Provides policies on the use and management of public lands as natural, recreational, and cultural resources.

Policy 2-1:

Support the concept of Multiple Use Management as an overriding philosophy for management of the public lands based on multiple use and sustainable yield concepts, and in a way that will conserve and enhance our natural resources.

Policy 14-3:

Support a coordinated effort to protect wellhead protection areas and municipal watersheds from undue degradation through proactive zoning and development controls, pursuant to, and by developing a Wellhead Protection Ordinance in consultation with community water providers. Lands identified for disposal within wellhead areas should be conserved through the Recreation and Public Purposes Act (R&PP) process or direct disposal to the County to protect community water resources.

2.2 City of Caliente

The City of Caliente Master Plan (Envision Caliente, 2011) offers goals and policies to ensure adequate services (water, wastewater, power, access) are available for existing and future development in the Caliente. Protection of water quality for ground and surface water is specifically addressed by the elements as outlined in Table 2-2. Flood mitigation is a special concern for Caliente because public water system wells have previously been damaged by flooding (Envision Caliente, Section 11.2.1), requiring both well rehabilitation and replacement.

2.3 Existing Wellhead Protection Plans

A Wellhead Protection Plan is a pollution prevention and management plan used to help public water systems protect underground sources of drinking water. Nevada's prior wellhead protection program has been replaced by the current ISWPP. In the development of this CSWP Plan, the information contained in the existing Wellhead Protection Plans was thoroughly reviewed. This involved examining the previously identified potential contaminant management strategies, sources, and the delineation of wellhead protection areas. Notably, three community water systems in Lincoln County have prior approved Wellhead Protection Plans:

- 1) City of Caliente (January 2004)
- 2) Pioche Public Utilities (July 2002, revised July 2004)
- Alamo Sewer and Water General Improvement District (September 2005)

The insights and information derived from these existing Wellhead Protection Plans were incorporated into the development of the CSWP Plan, ensuring a comprehensive approach to protecting source water throughout the county.

2.4 Vulnerability Assessment & Source Water Assessment Programs

The Vulnerability Assessment Program and Source Water Assessment Program are programs administered by the NDEP Bureau of Safe Drinking Water. These NDEP programs play a critical role in assessing the vulnerability of water systems to categories of contaminants. More information about the NDEP programs can be accessed at http://ndep.nv.gov/bsdw/. The data compiled by NDEP was considered by the Team during the locally driven source water protection planning effort. Water source and potential contaminant source information (e.g., well locations, well construction, aquifer properties, and past locations of potential contaminants) was reviewed and used during individual water system investigations.

Table 2-2. City of Caliente Master Plan

Envision Caliente, Master Plan, City of Caliente, Nevada		
Goal 2: Protect Caliente's natural resources, mitigate environmental impacts of new development, protect life and property.	Policy 2-4: New development will safeguard the quantity and quality of ground water supplies. Policy 2-6:	
	Development near riparian areas, wetlands, and playas should be designed to protect wildlife habitats, floodways, water quality and quantity, and scenic values.	

3.0 Plan Development

3.1 Existing Source Water Protection Measures

In Lincoln County, there are already some measures in place to accomplish the goals of this plan and protect sources of drinking water for local communities. These include:

- Wellhead Protection Plans for three of the "Community" public water systems in Lincoln County.
- Lincoln County and City of Caliente Master Plan goals and policies.
- > Lincoln County Public Land Policy.
- Ordinances for ensuring adequate water and sewer services to existing and proposed development.
- Lincoln County & City of Caliente Hazard Mitigation Plan.
- Operations and maintenance and emergency response plans for individual public water systems.

However, some of these measures need updating to reflect water sources currently in use by the public water systems and some need additional detail to inform communities about potential vulnerabilities of their drinking water sources to contamination. In response, local representatives engaged in the ISWPP county-wide planning process to consider a comprehensive scope of strategies for source water protection.

3.2 Source Water Protection Area Development

Source Water Protection Areas represent the land surrounding water supply sources where a community chooses to manage activities to protect against contamination. Several steps were taken by the Team to consider where these precautionary boundaries should be established; this led to the development of the Source Water Protection Areas mapped in Appendix A.

3.2.1 Water Source Inventory

Public water systems in Lincoln County rely primarily on groundwater as their primary source of drinking water. These water sources are distributed across nine State-identified hydrographic areas. Source water protection planning considered all active and key inactive public water systems, as well as planned future public water supplies in Lincoln County.



Comprehensive information on each well and spring, including active, inactive, and future sites, are described in Appendix C, the Capture Zone Evaluation Report. Discussions with the Team enabled a comprehensive assessment of each water source, resulting in the development of Source Water Protection Areas and management strategies for the water systems, as listed in Table 3-1. Active systems (as of August 2023), except for those managed solely by and for the Nevada State Parks, are included in this plan.

3.2.2 Capture Zone Calculations

Capture zones are useful for delineating and visualizing the portion of an aquifer that contributes water to a well or spring within a certain period of time. Capture zones can be determined using simple or complex numerical methods to estimate "time-of-travel" for a contaminant to reach a well or spring.

Public Water System Number and Name	Number of Wells and/or Springs	Water System Type
NV0000005: Alamo Sewer & Water GID	5	Community
NV0000013: Caliente Public Utilities	6	Community
NV0000077: Alien Cowpoke (Inactive)	1	Transient Non-Community
NV0000185: Panaca Farmstead Association	5	Community
NV0000186: Pioche Public Utilities	6	Community
NV0000187: Pioche Public Utilities Castleton	2	Community
NV0000188: Eagle Valley Resort	2	Transient Non-Community
NV0000399: LCWS Ranch	1	Transient Non-Community
NV0000876: Narconon Nevada Rainbow Canyon (Inactive)	1	Transient Non-Community
NV0000898: UNR 4H Camp and Learning Center	2	Transient Non-Community
NV0002119: Green Valley Grocery	1	Transient Non-Community
NV0002192: Little A Le Inn	1	Transient Non-Community
NV0002563: Camp Frias Frontier	2	Transient Non-Community
NV0004106: Pahranagat National Wildlife Refuge FWS	1	Transient Non-Community
Lincoln County Water District	3	Future water supply

Table 3-1. Water Source Summary

Note: The water system numbers, names and status are from the Bureau of Safe Drinking Water (NDWIS, August 2023).

Calculation of capture zones was based on ISWPP guidelines and considered: aquifer properties, well construction (drillers logs), water levels, well pumping rates, and topography. A combination of three methods was utilized to map capture zones:

- Analytical method (WhEAM 2000) calculating 2-, 5-, 10-, and 20-year time-oftravel (Figure 3),
- 2) Fixed radius with 1,200-foot and 100-foot criteria, and
- Hydrogeologic mapping (suitable for springs and wells in confined canyons characteristic of several of the water systems in Lincoln County).

Calculation methods, individual well parameters, and pertinent aquifer lithology are presented in Appendix C of this CSWP Plan.



Figure 3. 2-, 5-, 10-, and 20-year Time-of-Travel Capture Zones

3.2.3 Potential Contaminant Source Inventory and Evaluation

Many types of human activities have the potential to release contaminants into the environment that will travel to our drinking water supplies (Figure 4). An inventory of potential contaminant sources was developed to assist the Team in designing strategies to reduce the risk of future contamination. It was compiled and mapped using existing documents (Section 2.0), multiple on-line databases, meetings with water system operators, and field surveys in the communities.

Comprehensive descriptions of the data sources, methods, and results of the inventory are presented in Appendix D of this CSWP Plan.



Figure 4. Potential Drinking Water Contamination

3.3 Source Water Protection Area Characteristics

Designation of Source Water Protection Area boundaries is a planning tool which can help the community protect and conserve their drinking water sources and maintain water quality for future generations. Development of Source Water Protection Areas involved a systematic process that incorporated Geographic Information System mapping, hydrologic analysis, and Team discussions. In addition to capture zone mapping, the Team reviewed land-use and zoning, land management practices, jurisdictional boundaries, anticipated future development, and the inventory of potential contaminant sources. A combination of these factors was used to delineate the management area boundaries surrounding wells and springs.

Two levels of management areas were developed for source water protection by the Team in Lincoln County: "Source Water Protection Areas" and "100foot Buffers".

<u>"Source Water Protection Areas"</u> represent areas where each community has established a precautionary boundary to safeguard the water quality of its drinking water sources, typically considering the 10 or 20-year time-of-travel estimate. Within this boundary, education, communication, and land use planning can provide more comprehensive management of aquifers and surface waters vulnerable to human activity.

<u>"100-foot Source Water Protection Buffers"</u> represent the land immediately surrounding an individual well or spring where contamination from human activity is more likely to reach the drinking water supply system. Within this boundary, the public water system can focus on controlling activities and improving security to protect their water supply from becoming contaminated.

Descriptions of the priorities identified by each community are presented in Table 3-2, with accompanying maps provided in Appendix A. The naming of the Source Water Protection Areas is based on their relative locations, allowing for easy reference, and does not necessarily correspond to an individual public water system name.



SWPA Name / Public Water Systems included in SWPA	Source Water Protection Priorities
Alamo GID SWPA Alamo Sewer and Water GID	 Industrial wastewater disposal for desired future development, Inactive wells, Flood hazard areas near active and inactive wells, Accidental fuel spills at gas stations or along the highway, Commercial and automotive PCSs within the town of Alamo, and Agricultural PCSs in the Pahranagat Valley.
Alamo North SWPA Alamo Sewer and Water GID Camp Frias Frontier UNR 4H Camp & Learning Center LCWS Ranch	 On-site sewage disposal systems (septic systems), Inactive wells, Agricultural PCSs in the Pahranagat, and Accidental fuel spills at gas stations or along the highway.
Caliente SWPA Caliente Public Utilities	 Accidental spills from the railroad, which parallels Clover Creek upstream of Caliente for over 30 miles, Wildland fire in the Clover Creek watershed destabilizing soils and hydrology, Agricultural PCSs in the Meadow Valley Wash and Clover Creek watersheds, Inactive wells, Accidental fuel spills at gas stations or along the highway, and PCSs near active wells (rail yard, fuel storage, vehicle storage, etc.).
Pioche 1 SWPA Pioche 2 SWPA Pioche Public Utilities	 Wastewater storage and disposal is upgradient of supply wells, including both Pioche Public Utilities wastewater treatment plant and increasing numbers of on-site disposal systems (septic systems), Planning for future wastewater treatment and disposal facilities, Individual PCSs upgradient of wells (fuel storage, past mining, etc.), and, Establishing a buffer around proposed future well locations.
Castleton* 1 SWPA Castleton* 2 SWPA Pioche Public Utilities Castleton	 Risk to the spring development and hydrology from wildland fire, and Contingency planning for water quality and quantity impairment under low flow drought conditions.
Panaca 1 SWPA Panaca 2 SWPA Panaca Farmstead Association	 Inactive shallow wells, Flooding hazards near active and inactive wells, and Agricultural PCSs in the Panaca area.
Rainbow Canyon SWPA Narconon Nevada	On site sewage disposal systems, andWatershed based concerns similar to the Caliente SWPA.
Rachel SWPA Alien Cowpoke Little A Le Inn	 On site sewage disposal systems, and Accidental fuel spills at gas stations or along the highway.
Eagle Valley SWPA Eagle Valley Resort	 Dispersed recreation dumping waste, On site sewage disposal systems, and Flooding hazard for active or inactive wells.
Ash Springs SWPA Green Valley Grocery	 Waste dumping and potential vandalism in the spring area, and On-site sewage disposal systems (septic systems).
Pahranagat NWR SWPA Pahranagat NWR FWS	 Administrative facilities: fuel and chemical storage, equipment maintenance, chemical mixing (pesticides/herbicides), and on-site sewage disposal systems.
LCWD 1, 2, and 3 SWPAs Lincoln County Water District	 Vandalism, and Establishing precautionary boundaries around future water sources.

Table 3-2. Source Water Protection Area Summary

 $* Spelling is \ Caselton \ for \ the \ town \ on \ Nevada \ maps, \ however \ BSDW \ databases \ use \ ``Pioche \ Public \ Utilities \ Castleton.''$

3.4 Contingency Measures for Water Sources

This CSWP Plan incorporates contingency planning to provide local communities and community public water systems with guidance and direction in the event of significant contamination to their drinking water sources, be it an aquifer or spring. The contingency planning process considers factors such as the timeframes required for a public water system to transition to an alternative water source, the quantity and quality of available alternate water sources, and the utilization of local resources.

Contingency plans may encompass a range of measures designed to address different scenarios,

such as implementing conservation strategies to extend the use and availability of water supplies, groundwater remediation, additional treatment infrastructure, or the development of new water sources. Public water systems are required to have both short-term and long-term plans in place as outlined in Table 3-3.

In addition to the requirements shown in Table 3.3, the "Community" public water systems in Lincoln and northeastern Clark County have formal and informal agreements of support during emergencies (interviews with water system operators). The "Lincoln County & City of Caliente Hazard Mitigation Plan" also outlines hazards (drought, fire, flood) to public water supplies and identifies mitigation measures.

Table 3-3. Required Contingency Measures

Emergency Plan:		
Short-term solutions to an immediate shutdown (i.e., response to quantity problems, contaminant threat, or natural disaster).	 PWSs coordinate with Nevada Division of Emergency Management through County emergency management representatives for: spill response/emergency notification, distribution systems, available resources, and pump stations and storage tanks. 	 Short-term solutions to an immediate shutdown: Operational Adjustments Boiled Water Bottled Water or Portable Water Trucks Water Conservation and Rationing Backup Generators Long-Term solutions: Water supplies supplemented by a new source, requiring an agreement with an adjacent water system or a new replacement well.
Operation and Maintenance Manual:		
Provides information on the purpose, function, operation, and interaction of system facilities.	Each PWS is required to maintain an Operations and Maintenance Manual under NAC 445A, 6667, for use by operators and facility personnel.	 Establishes the capabilities and limitations of the system. Outlines procedures to control system processes.
Water Conservation Plan:		
Outlines procedures to follow during water shortages due to drought, overuse, or contamination.	Defines water conservation enforcement measures NAC 445.	 Requires analysis of effectiveness of proposed conservation measures. Requires analysis of effectiveness of conservation-based water rate structure.
Cross Connection Control Plan:		
• Describes how to prevent unauthorized connections to PWSs that could potentially contaminate the system during loss of pressure.		

• Identifies activities needed to ensure that no unprotected service connections exist between PWSs and sources of contamination.

3.5 Source Water Protection Management Strategies

The Team developed management strategies to achieve the CSWP Plan goals (Section 1.2) based on an understanding of their community needs that is informed by the data and mapping developed through this planning process. These management strategies serve as the foundation for the Action Plan, which is aimed at addressing source water protection concerns throughout Lincoln County and within individual communities (Section 4.0 and Appendix E). A summary of the management strategies established to implement source water protection in Lincoln County is provided in Table 3-4. These strategies serve as a comprehensive framework for protecting and preserving the quality and availability of community drinking water resources.



Table 3-4. Management Strategies

Education and Outreach

Community education and outreach play a pivotal role in raising awareness among the public about the origin of their drinking water and the critical importance of safeguarding it from pollution. The importance of community education and outreach are highlighted as <u>Goal 2</u> of this CSWP Plan.

By engaging in community-wide education programs, the CSWP Plan aims to accomplish long-term objectives that foster community development while concurrently preserving and protecting water quality. These educational initiatives help individuals understand the sources and processes involved in providing safe drinking water by encouraging a sense of responsibility and ownership among community members.

Collaborate with Local and Regional Partners

Effective coordination and collaboration between public water systems and local and regional partners are crucial for promoting source water protection awareness and ensuring successful implementation of source water protection measures. Recognizing the significance of this collaboration, the CSWP Plan incorporates a management strategy that emphasizes the importance of sharing relevant information and fostering coordinated efforts among stakeholders.

This management strategy serves two key goals of the CSWP Plan, namely <u>Goal 1 and Goal 4</u>. Goal 1 emphasizes the need to preserve the quality of public sources of drinking water, while Goal 4 focuses on the establishment of partnerships and cooperative relationships to enhance source water protection.

Include Source Water Protection in Plans and Policies

Integrating source water protection into the county's planning framework serves as a foundation for enhancing development standards and codes, should the county opt to do so. This management strategy enables meaningful discussions between public water systems and planners regarding land-use activities within Source Water Protection Areas, aligning with <u>Goal 1 and Goal 4</u> of the CSWP Plan.

Address Wellhead and Spring Vulnerability

In order to advance <u>Goal 1 and Goal 3</u> of the CSWP Plan, the Team prioritized wellhead and spring maintenance activities. These activities are crucial for addressing areas of concern related to the vulnerability of wellheads and springs across Lincoln County, thus safeguarding source water protection.

Consider Watershed in Planning

Recognizing that the majority of water sources in Lincoln County are underground aquifers, incorporating watershed considerations into source water protection planning is a pragmatic approach, particularly for public water sources situated in "shallow" or "unconfined" aquifers, as these aquifers typically have a closer surface-to-groundwater connection. This management strategy has been developed to address <u>Goal 1 and Goal 4</u> of the CSWP Plan.

Plan for Future Land Uses

A key component of the Integrated Source Water Protection Program is to consider possible future water sources to enable communities across Lincoln County to make informed decisions regarding their community development and future water needs. This management strategy is designed to address <u>Goal 1 and Goal 3</u> of this CSWP Plan.

4.0 Plan Implementation

4.1 Action Plan

The Action Plan, included as Appendix E, is a comprehensive guide developed by the Team to support the protection of local water sources and address community interests and concerns. It serves as a practical tool that builds upon the Management Strategies outlined in Section 3.5 of the CSWP Plan.

The Action Plan provides specific Actions that each community and the county can take to achieve the goals of the CSWP Plan. It considers numerous factors such as current land use, future development needs, county planning, hazard mitigation, regional collaboration, and public outreach.

Each Action lists the following information:

- Management Strategy: Describes the overarching approach for implementing the Action.
- 2) Action Description: Provides a detailed description of the activity to be undertaken.
- 3) Priority Ranking: Assigns a level of relative importance to each Action.
- **4)** Source Water Protection Partners: Identifies the stakeholders and organizations involved in implementing each Action.
- **5)** Type of Assistance Needed: Specifies the type of support or assistance required to carry out the Action, e.g., technical expertise, funding, or other resources.
- 6) Expected Schedule for Implementation: Outlines the anticipated timeline or schedule for executing an Action.

Furthermore, Appendix E provides a list of potential funding sources to support the implementation of the Action Plan.

4.2 Community Source Water Protection Plan Updates

The CSWP Plan is designed to be a dynamic, "living" document that can adapt to changing community needs and the evolving landscape of drinking water sources in Lincoln County. Regular updates to the CSWP Plan are essential to ensure the ongoing protection of drinking water resources.

The Team involved in the development of the CSWP Plan suggested that it is appropriate to meet at least once every other year (starting in 2024) to revisit the plan, assess the need for updates, and follow up on the implementation of the Action Plan. These periodic meetings provide an opportunity to evaluate the effectiveness of the CSWP Plan, incorporate latest information or data, and address emerging challenges or opportunities.

For technical assistance with CSWP Plan updates, you can contact the NDEP, Bureau of Safe Drinking Water, Integrated Source Water Protection Coordinator at (775) 687-9503.



5.0 Public Participation

Public participation and community engagement are an integral component of the Nevada ISWPP and for the development of the CSWP Plan. The program emphasizes a voluntary, community-based approach that involves local stakeholders in the planning and decision-making processes. By actively involving the public, local agencies, and stakeholders, the CSWP Plan aims to promote community awareness, education, and collaboration in source water protection efforts across Lincoln County.

5.1 Stakeholder Participation

During the development of the CSWP Plan, presentations were made to public water systems, the County Board of Commissioners, and the Caliente City Council to raise awareness about source water protection and engage key stakeholders. Regular meetings were held with public water systems, local agencies, and other stakeholders to involve them in the planning process and gather their input; meeting notes and agendas from these meetings are included in Appendix B of the CSWP Plan.

The Nevada Rural Water Association (NvRWA) played a significant role in enhancing public education and outreach efforts. They conducted visits and presentations to small public water systems in Lincoln County, distributed informational pamphlets, and provided training opportunities for water system operators.

5.2 Source Water Protection Educational Message

Public education and outreach play a vital role in achieving Goal 2 of the CSWP Plan, which aims to foster community-wide education and involvement in source water protection. The Education and Outreach Management Strategy was developed by the Team to promote local and county-wide awareness about the protection of drinking water sources through various Actions described in the



Action Plan (Appendix E). Knowledge leads to understanding, which may change attitudes and lead to behavior and actions that support source water protection now and for future generations.

The Public Education and Outreach Plan, outlined in Appendix F of the CSWP Plan, includes various messages that highlight the importance of source water protection, and the actions individuals and communities can take to safeguard drinking water sources. These messages serve as kev communication points to raise awareness and promote responsible actions. The CSWP Plan seeks to empower the public to contribute to source water protection efforts and ensure the sustainability of drinking water resources.

The following messages are highlights from the Public Education and Outreach Plan (Appendix F), which provides Lincoln County with a set of tools to promote source water protection discussion and public outreach messaging. Nevada Rural Water is a key partner in providing education assistance.

Where does the water in your tap come from?

Drinking water in Lincoln County comes <u>mostly</u> <u>from groundwater</u>, however, there are <u>a few</u> <u>springs</u> too. Groundwater is underneath the Earth's surface and is stored in an underground aquifer that you cannot see. Springs are formed when the groundwater reaches the surface through an opening in the ground. Community public water systems pump the water out of the aquifer or spring, clean it, and send it right to your tap. Your drinking water is 100% safe to drink thanks to YOUR public water system operators!

Why is it important to protect drinking water at the source?

Once your drinking water becomes polluted, it is extremely <u>costly and difficult to clean</u>. You have the power to support YOUR water system operators as they implement strategic safeguards, such as source water protection, to avoid and/or control contamination threats and incidents which may pollute your drinking water.

What is Source Water Protection?

Source water protection is a <u>community effort</u> to <u>prevent pollution</u> of the <u>sources</u> of your drinking water. You have the power to prevent the contamination of your drinking water.

What are Source Water Protection Areas?

In Lincoln County, Source Water Protection Areas are <u>management boundaries</u> surrounding public drinking water sources; these typically cover a broad area where certain human activities and natural occurrences have the potential to impact sources of public drinking water.

Why is it important to protect water at the source?

<u>Protecting sources</u> of public drinking water <u>before pollution enters</u> lessens potential health issues and reduces the costs associated with water treatment. Residents of Lincoln County you can help protect your source water by managing land uses and human-caused sources of contamination preventing pollution before it enters your drinking water supply.

What contaminates the water we drink?

There are numerous pollutants that can contaminate both surface and groundwater. Some contaminants are a result of improper disposal of common household and business products (e.g., cleaning products, waste oil, pet waste, fertilizers, and pesticides), other contaminants are byproducts of various industries. Improper use, storage, or disposal of contaminants may threaten your drinking water.



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Appendices

(Provided as Separate PDF Files)

- Appendix A. Source Water Protection Area Maps
- Appendix B. Meeting and Public Participation Documentation
- Appendix C. Capture Zone Evaluation Report (Contains Sensitive Information*)
- Appendix D. Potential Contaminant Source Summary (Contains Sensitive Information*)
- Appendix E. Action Plan
- Appendix F. Public Education and Outreach Plan

* Contact the Lincoln County Planning Department, City of Caliente or your local public water system for review. [This page intentionally left blank.]