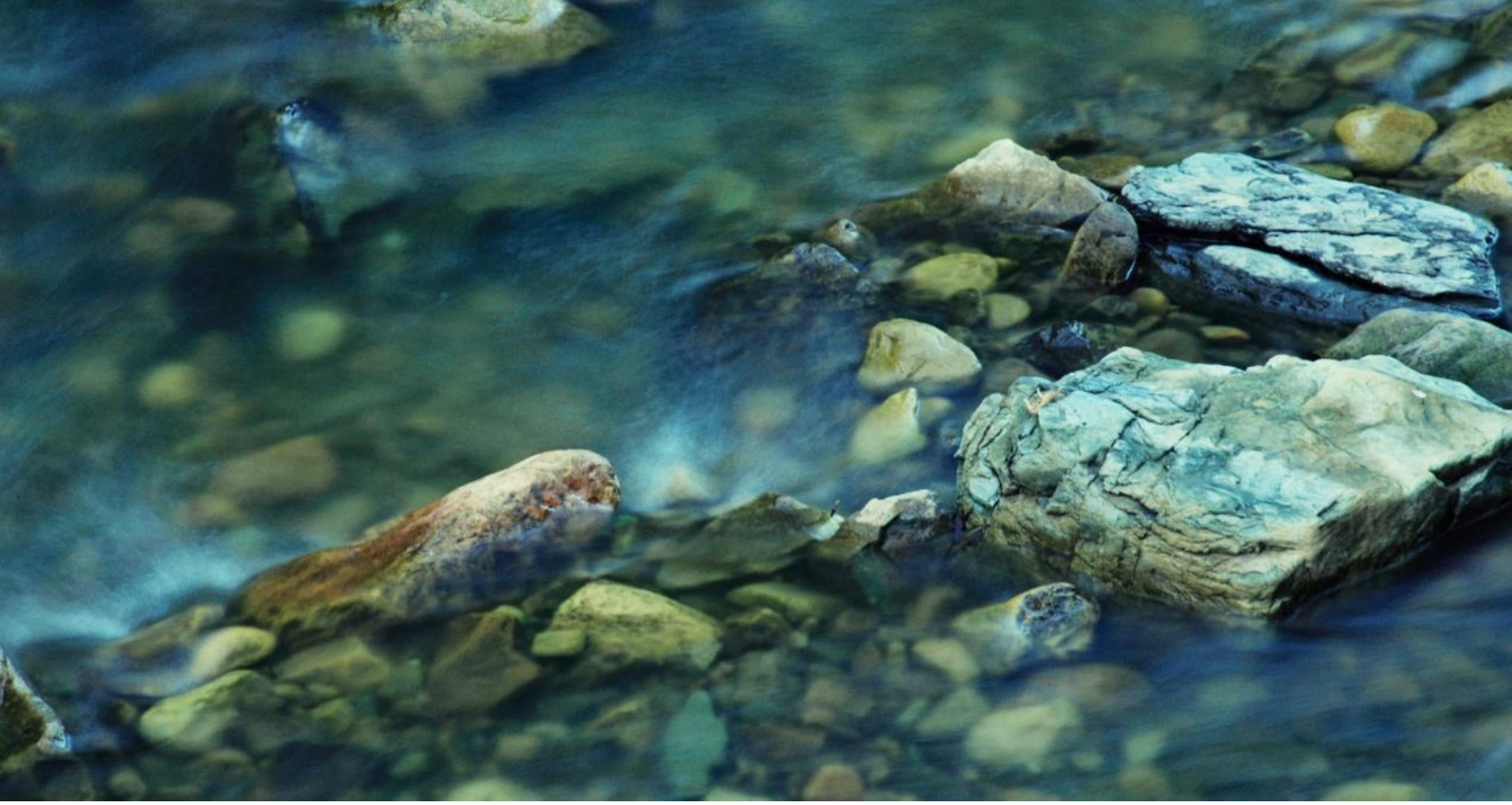

July 2024
Idledale Water and Sanitation District - Water System Improvements Project

USDA Environmental Report

Prepared for Idledale Water and Sanitation District

July 2024
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USDA Environmental Report

Prepared for
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Project Number: 232684-01.01
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ABBREVIATIONS

CDPHE	Colorado Department of Public Health and Environment
CWA	Clean Water Act
ER	Environmental Report
FEMA	Federal Emergency Management Agency
GWUDI	Groundwater under direct influence of surface water
HDD	Horizontal Directional Drilling
IWSD	Idledale Water and Sanitation District, District
NRCS	National Resource Conservation Service
NWI	National Wetlands Inventory
NWP	National Wide Permit
ROW	Right-of-way
SCADA	Supervisory Control and Data Acquisition
SHPO	State Historic Preservation Office
THPO	Tribal Historic Preservation Office
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
VFD	Variable frequency drive

1 Executive Summary

This Environmental Report (ER) has been prepared by the Idledale Water and Sanitation District (IWSD, District) of Idledale, Colorado for the United States Department of Agriculture's (USDA) Rural Development group for consideration of grant and loan opportunities. The ER reflects the preliminary design of water system improvements to improve the firm capacity of the District's potable water supply.

The District has experienced compounding negative impacts that have included equipment failures, unchecked system leaks, multiple years of drought, and reduced groundwater recharge. These issues have caused repeated water shortages and use restrictions to customers. The District has even been forced to purchase bulk water and haul it from other water districts in Frederick, Golden and the Genesee on multiple occasions to maintain minimum potable water service to the residents. This had the compounding effects of dramatically reducing the community's firefighting water storage supply. Given their limited financial resources for operational expenses, the water hauling activities has also reduced financial capital reserves. The proposed improvements to the raw water supply are intended to meet the existing water supply shortage, as well as provide sufficient capacity to meet the demands of a 20-year planning period.

Anchor QEA, working as engineering consultants for the District, has identified several water system improvements designed to alleviate or eliminate the water supply deficit. Proposed improvements include constructing an additional groundwater supply well, installing a new water transmission line, improving existing monitoring capabilities and controls, and expanding the existing water treatment facility. Project related activities will be located entirely on District-owned property or within existing utility easements. No land or properties will be acquired as part of this project and existing land uses will not be modified.

This project, referred to as the IWSD Water System Improvements Project (project), is currently in the initial design phase. Information presented in the ER accurately reflects the anticipated project conditions, as they are understood at the time of writing.

2 Project Description and Location

2.1 Introduction

Idledale Water and Sanitation District (District) is a quasi-municipal organization which exists to provide potable water service to much of the area known as Idledale, Colorado. Idledale is geographically located on Colorado State Highway 74 and contiguous Bear Creek, approximately 3 miles west of Morrison, Colorado. Figure 2 shows the project location and Figure 3 shows existing District infrastructure and proposed improvements, including the Area of Potential Effect.

The District provides potable water service to approximately 137 residential properties by operating three groundwater wells, a 250,000-gallon buried water storage tank, 2 disinfection systems, booster pumping facilities and a water distribution system that includes buried piping, valves, and fire hydrants.

The District has recently experienced compounding negative impacts that have included equipment failures, unchecked system leaks, multiple years of historic drought, and water quality compliance advisories from Colorado Department of Public Health and Environment (CDPHE). These issues have caused repeated water shortages and use restrictions to customers, forcing the District to purchase and haul bulk water at significant financial penalty. Given their limited financial resources for operational expenses, the water hauling activities have depleted District financial capital reserves.

Faced with these mounting operational, regulatory, and financial challenges, the District engaged Anchor QEA to evaluate the potable water system facilities, identify and prioritize specific concerns, and provide alternatives and recommendations, including cost estimates for the design and construction of improvements. Design objectives of this project are to provide a sustainable approach to meeting existing water demand, as well as the demand projected for a 20-year planning cycle. Meeting sustainability objectives will involve formulating a solution to the water supply deficit that will be reliable during periods of extended drought, as well as a solution that is financially sustainable to the District's restricted operating budget. During this process, several alternatives were identified for inclusion in the project. The selected water system improvements include the following discrete components:

- Construction of a new groundwater supply well on District-owned property
- Installation of a new water transmission line and Forks Building booster pump improvements to connect the Ridgeway Well to the Upper Treatment Building.
- Renovation and expansion of the Upper Treatment Building on District-owned property
- Upgrades to treatment equipment, process controls, and communication to facilitate the new infrastructure
- Installation of diesel-powered emergency power generator and automatic transfer switch

- Installation of distribution system zone meter vaults to monitor flow conditions system-wide for abnormal water demand and/or system leaks

Implementing these improvements will achieve compliance with current CDPHE treatment regulations, provide the District with year-round firm capacity of their raw water supply system, improve finished water quality to the District customers, and reduce system water loss including ongoing operations and maintenance costs and efforts.

2.2 Project-Related Activities

Project related activities associated with the recommended improvements are best assessed individually as the location of the improvements are spread across a wide area of the District's service area. The following sections describe project-related activities associated with each of the proposed improvements planned for this project.

2.2.1 Construction of a New Groundwater Supply Well

A new groundwater supply well is proposed as a component of this project. The new well is planned to be located adjacent the existing Upper Treatment building on land that is currently owned by the District. The location of the proposed well is shown in Figure 3. Project-related activities associated with well construction will fall into the following categories:

- Pre-Construction Activities
  - A full depth borehole will be drilled using conventional rotary techniques suitable for drilling through bedrock.
  - Depths of drilling are anticipated to be between 450 to 800 feet, based on depths of other District-owned wells maintained by the District. Borehole diameter is anticipated to be from 10 inches to 6.5 inches, depending on depth below ground surface.
  - The borehole will be drilled from the ground surface and protected using signage and/or jersey barriers to prevent entrance by the public.
  - The borehole will be temporarily supported using a temporary well casing.
  - Water quality samples will be collected from the borehole to comply with state drinking water requirements and to guide the treatment design of the new well.
  - The borehole will be hydraulically assessed to determine anticipated flowrates. If the flowrate of the borehole is sufficient to increase raw water supply, the borehole will be developed into a permanent supply well.
- Construction Activities
  - Construction activities for new well development will include installation of a permanent steel and PVC well casing, gravel well pack, and bentonite clay casing seals.

  - After the well is developed, a well pump and motor with variable frequency drive will be installed, along with a water level pressure transducer to monitor standing water level.
  - The final groundwater well surface casing will be set approximately 1 foot above the existing grade to prevent surface water intrusion.
  - A run of subgrade pipe to connect the new well to the Upper Treatment Building will be installed using trench excavation techniques. Approximately 30 feet of connection piping will be required. Connection piping will be bedded to prevent compression and backfilled using excavated soils, if appropriate for reuse. The trench will be adequately compacted to prevent pipe movement.
- Well Operation
  - After construction, the new well will be put into service for delivering additional raw water supply to the Upper Treatment Building.
  - The well pump and motor will be operated using a variable frequency drive (VFD) located in the new facilities with an upgraded supervisory control and data acquisition (SCADA) system that will be modified to accommodate the additional well.
  - On-going maintenance activities may include adjusting the pump depth, cleaning of the well casing, and replacing electrical components. Other than during infrequent maintenance activities, the well casing will be closed and locked.

2.2.2 Installation of a New Transmission Line

The Ridgeway Well is located near the Forks Treatment Building near the center of the distribution system. This well does not have a connection to the Upper Treatment Building or storage tank and instead is treated at the Forks Treatment Building before discharging to the distribution system. As currently configured, this approach only allows approximately 30% utilization of the well's hydraulic capacity. This project component includes installing a new transmission line to connect the Ridgeway Well to the Upper Treatment Building, which would double the current hydraulic utilization of the Ridgeway Well, consolidate raw water treatment at a single location, and significantly improve the District's ability to respond to peak water demand conditions. The proposed alignment of the transmission line is shown in Figure 3.

Various alternatives were evaluated for a pipeline including constructing a new pipeline by conventional open-trench excavation, utilizing horizontal directional drilling (HDD) methods, and by installing a new smaller pipe within an existing pipeline (pipe-in-pipe installation) that has been permanently taken out of service. An abandoned 6-inch coated steel water line runs most of the length between the Forks Treatment Building and the Upper Treatment Building and was historically used as a water main. After assessing construction methodologies for the transmission line, this presents the most cost-effective means of constructing a new 2" transmission main. The existing decommissioned water line can be used as a conduit to run a new 2" transmission line from the

Ridgeway Well to the Upper Treatment Building. By utilizing the existing pipe, surface construction disturbance is reduced by 90%, and unit construction costs are significantly less by the District leveraging the use of existing abandoned infrastructure. This pipeline is already owned and protected by existing District utility easements, eliminating any needs for additional property acquisitions or new utility easements.

An additional benefit of the transmission line would be the consolidation of treatment processes to the Upper Treatment Building. Once Ridgeway Well flow is routed through the transmission line, the Forks Treatment Building blending system will be decommissioned, and treatment processes will be relocated to the Upper Treatment Building to accommodate the raw water quality of the Ridgeway Well. The Forks Treatment Building will be repurposed to serve as a new booster pump station to convey the Ridgeway Well flows to the Upper Treatment Building without needing to change out the refurbished Ridgeway well pump and motor.

The existing water line is approximately 2,530-feet long. An additional 900-feet of water line would be required to connect the Ridgeway Well with the existing waterline conduit, for a total piping length of 3,430-linear feet. The 900-linear feet of connection piping would be installed using either HDD or conventional trench installation predominantly within the existing public right-of-way (ROW) and underneath Grapevine Road. This 2" waterline would connect to the Ridgeway Well and would add approximately 100 ft of additional static head to the pump hydraulic requirements.

Permanent visible features of the new transmission line will be very limited as the majority of the new infrastructure will be located below grade. Isolation valves may be required along the transmission line that would result in valve key boxes being located at the ground surface. Flush mounted valve boxes will be used to reduce visible impacts and to prevent damage by vehicles, the public, and lawn mowers.

2.2.3 Expansion of the Upper Treatment Building

An expansion of the Upper Treatment Building will be necessary to enclose additional treatment equipment, increased piping from the transmission line and new groundwater well and upgraded controls to support the new infrastructure. The Upper Treatment Building is currently a 14 feet by 30 feet concrete masonry unit (CMU) structure with wood framed asphalt shingled roof, that houses the operational control center, piping, controls, chemical storage, and treatment equipment for Wells 1A and 1B, which are shown on Figure 3. Flow from Wells 1A and 1B enter the Upper Treatment Building, the water undergoes disinfection, and the treated water is discharged to the Storage Tank. The building also serves as an office for District operations staff.

The Upper Treatment Building expansion will involve the design and construction of a new airlock entrance structure that will provide protected entry to the existing facilities and the new building

expansion directly to the south. This approach avoids intrusion into the Federal Emergency Management Agency (FEMA) 100-year floodplain, which is well defined on the grounds of the Upper Treatment Facility. No impacts to the existing floodplain boundaries are proposed as part of this project. Construction activities anticipated to complete the building expansion include:

- Construction of a new 150 sf building entrance structure adjacent to the south facing wall of the existing building
- Subgrade utility work to route the new transmission line and connection piping to the new groundwater well into the Upper Treatment Building
- Foundation work, including excavation and installation of an expanded building foundation
- Masonry construction to enclose the new 600 sf building expansion
- Removal of existing building asphalt roofing system and Installation of new roofing system for complete expanded structure
- Installation of new building insulation and waterproofing systems, heating and ventilation system, new lighting, new doors and windows, and other building features.
- Electrical work to provide power to new treatment equipment, upgraded controls, and diesel-powered emergency power generation system with automatic transfer switch
- Incorporation of solar panels in building design to reduce overall building electrical demand

The building expansion is anticipated to remain a single-story structure and will be designed to comply with relevant building codes and standards.

2.2.4 Installation of Treatment Equipment and Controls Upgrades

Additional treatment equipment and control upgrades will be necessary to support the new infrastructure included in this project. Specifically, the following new or upgraded components will be included in the Upper Treatment Building:

- Upgraded groundwater under direct influence of surface water (GWUDI) filtration system to accommodate treatment from the new groundwater.
  - GWUDI treatment of Wells 1A and 1B will be mandatory to comply with drinking water regulations due to a determination made by CDPHE.
  - It is uncertain whether the new groundwater well will be classified as a GWUDI well. If it is determined to be GWUDI, the proposed treatment process has available hydraulic capacity to process the combined output of the new and existing wells together.
- Additional treatment equipment required to treat the existing Ridgeway Well.
  - Ridgeway Well currently produces water that has a Uranium concentration above the MCL and requires disinfection and 50% dilution with non-radioactive potable water to meet water quality standards for delivery to the public.

  - Final coordination with CDPHE will be required to confirm whether blending tanks will be required to assure treatment goals are met.
  - Ridgeway well has elevated levels of non-regulated contaminants that could be removed through pressure filtration with oxide activated media. While not specifically mandated to be removed, treatment will improve finished water quality, taste, and odor.
  - Depending on the results of the new well water quality, the District may choose to incorporate additional treatment capacity for the Ridgeway Well
- Additional treatment equipment to treat the new groundwater well.
  - Water quality from the new well will be assessed after the borehole is drilled and before the well is developed. Water quality samples will be collected to assess for regulated and emerging contaminants. The information from sample analysis will inform the selection and design of water treatment equipment used for the new well.
  - Additional treatment equipment for the new well may include additional media filtration to reduce metals or other regulated contaminants.
- Additional controls and sensors for the new groundwater well and tie-ins for the Ridgeway Well.
  - These will include a new variable frequency drive (VFD) to power the new well pump, water level transmitter to measure the water level within the new well, flow control valves, and a flow meter.
  - An additional flow meter and associated rate control valves will be required to complete the tie-in of the Ridgeway Well.
- Modifications to interior piping configuration.
  - Piping within the Upper Treatment Building will undergo extensive modification to accommodate the new groundwater well and the new transmission line from the Ridgeway Well. All incoming flows will be monitored individually, which will provide operations with the ability to select individual well source, flow rate control, and inform dosing rates for treatment process chemicals and disinfectant.
  - Flows from Wells 1A, 1B, Ridgeway and the new well will be directed to a common header prior to discharge into the Storage Tank.

Construction for the treatment and controls upgrades will be limited to deliveries of equipment, modifications to piping, and installation of sensors. The majority of this work will occur within the interior of the expanded Upper Treatment Building.

2.3 Land Requirements

All planned project activities will be conducted on District-owned property, including the new groundwater well and building expansion, or located in existing District water utility easements. The

transmission line will primarily be installed using trenchless, pipe-in-pipe construction methods performed within an existing water utility easement. No additional easements are anticipated to be required for this project. The Upper Treatment Building expansion will occur on District-owned property and sufficient area is available to comply with county set-back building requirements from adjacent parcels and the South Grapevine Road ROW.

3 Land Ownership and Land Use

Project related activities, including equipment and material storage, construction activities and placement of new infrastructure, are to be located exclusively on land owned by the District or on existing District water utility easements. The Upper Treatment Building expansion and new groundwater well will be located entirely on property that is owned by the District. The new transmission line, as shown on Figure 3, will run within an existing waterline utility easement. Project related work activities and installations associated with the transmission line will be accomplished within this existing easement and pre-existing public rights-of-way (ROW). The proposed transmission line is planned to run predominantly within an existing pipe within the existing easement. The old pipe is planned to be used as a conduit for running a new 2-inch transmission line to reduce construction impacts and provide a reduced cost for construction.

The existing utility easement, through which the new transmission line will run, is located on a mixture of residential property parcels and in the public ROW along South Grapevine Road. The ROW is maintained by Jefferson County Public Works and the project will be coordinated with the County to comply with construction requirements and relevant regulations that govern activities in the ROW. The new transmission line will not impact or pass through any parks, wilderness areas, or state or national forests. Construction activities may involve temporary obstructions within the utility easement, but these can be mitigated through District communications with private property owners and traffic control in compliance with Jefferson County ROW permits.

Private property parcels that could potentially be impacted by the installation of the transmission line include the following:

- 2324 S Grapevine Rd, Idledale CO 80453
  - Section 29, Township 4, Range 70
  - AIN/Parcel ID: 40-294-00-002
  - Owners: Robert R Smith, Susan F Schoch
- Vacant Land owned by the Freedman Family Living Trust
  - Section 29, Township 4, Range 70
  - AIN/Parcel ID: 40-294-00-010
- 2444 S Grapevine Rd, Idledale CO 80453
  - Section 29, Township 4, Range 70
  - AIN/Parcel ID: 40-294-00-015
  - Owners: Ivan J Graumann, Carlen K Graumann

This project may require access and modifications to the connection piping associated with the Ridgeway Well, which is located on private property near the Forks Treatment Building. The well and

piping is covered under a separate utility easement between the District and property owner. Additional information on this property is as follows:

- 2571 SW Grapevine Rd, Idledale CO 80453
  - Section 29, Township 4, Range 70, Starbuck Heights Subdivision
  - AIN/Parcel ID: 40-294-02-002
  - Owners: Joseph Johnson, Bailey Leboeuf Johnson

Due to the location of the proposed improvements, which are located on either District-owned property or existing utility easements, no land acquisitions or land use changes are anticipated. To date, coordination with federal agencies has been limited to funding assistance. For these reasons, a Phase 1 Environmental Site Assessment or Transactional Screen Questionnaire have not been completed. A CDPHE Environmental Checklist was completed as part of state-level project funding requirements. The Environmental Checklist is included as Attachment A. Environmental contamination, if present, could have an impact on the new groundwater well. Water quality from the new well will be assessed as part of the design process and contamination will be managed using appropriate treatment techniques.

4 Historic Preservation

The State Historic Preservation Office (SHPO) for Colorado and several relevant Tribal Historic Preservation Offices (THPO) and other contacts have been sent initiation letters to permit Section 106 review of the proposed project. THPO contacts were identified using the Tribal Directory Assessment Tool and proposed project extents within Jefferson County, Colorado. Tribal entities contacted for historic preservation review include:

- Apache Tribe of Oklahoma
- Cheyenne and Arapaho Tribes, Oklahoma
- Comanche Nation, Oklahoma
- Fort Belknap Indian Community of the Fort Belknap Reservation of Montana
- Northern Arapaho Tribe of the Wind River Reservation, Wyoming
- Northern Cheyenne Tribe of the Northern Cheyenne Indian Reservation, Montana

Initiation letters have been sent to SHPO and the THPO contacts listed above between June and July 2024. A draft of the Preliminary Engineering Report accompanied the initiation letters for the most up-to-date project description available at the time of initiation.

Proposed improvements are predominantly subgrade utilities improvements with minimal anticipated construction impacts due to selected installation methodology and substantive impacts to historic or cultural resources are not anticipated. During preparation of the CDPHE Environmental Checklist, research was performed to identify any properties listed in the National Register of Historic Places, or equivalent state-level listing. Only two properties of historic significance were identified in Idledale, including Little Park and Starbuck Park, which are both located outside of the project area limits. The Lariat Trail and the Bear Creek Scenic Drive (State Highway 74) were both listed on the National Register of Historic Places but again, these are not located within the Area of Potential Effect for the project. No existing structures, with the exception of the District-owned Upper Treatment Building, will be disturbed in anyway during this project. Areas disturbed as part of the proposed project have been previously disturbed for similar uses, including subgrade utility installation, and water treatment and distribution system operation and maintenance.

5 Threatened and Endangered Species/Biological Resources

Threaten and endangered species were evaluated for the project area using web-based tools from the United States Fish and Wildlife Service's (USFWS) Environmental Conservation Online System. This included evaluating threatened and endangered species within the areas planned to be impacted during project construction. Several threatened or endangered species were identified as having ranges that overlap the project area, including:

- Mammals:
  - Gray Wolf (Canis lupus) – Endangered
  - Preble's Meadow Jumping Mouse (Zapus hudsonius preblei) - Threatened
- Birds:
  - Mexican Spotted Owl (Strix occidentalis lucida) – Threatened
  - Piping Plover (Charadrius melodus) – Threatened
  - Whooping Crane (Grus americana) – Endangered
- Fishes:
  - Pallid Sturgeon (Scaphirhynchus albus) – Endangered
- Flowering Plants:
  - Ute Ladies' tresses (Spiranthes diluvialis) – Threatened
  - Western Prairie Fringed Orchid (Platanthera praeclara) – Threatened

No USFWS critical habitats were identified within the project area. Of the threatened and endangered species present in the project area, only one, Preble's Meadow Jumping Mouse, was found to have general design guidelines to assist with identifying recommended conservation measures. General design guidelines relevant to this project are included as Attachment B. Mitigation measures to be included in this project for the protection of Preble's Meadow Jumping Mouse include the following:

- If habitat must be affected, clip vegetation to ground level one to two weeks prior to initiation of construction to discourage the project area's use by Preble's mice when the project intersects its habitat.
- Work will only be conducted during daylight hours to avoid disrupting Preble's mouse nocturnal activities.
- Work will avoid fragmenting linear riparian corridors wherever possible.
- Staging areas, access routes, and work areas will all be located in previously disturbed or modified non-habitat areas.
- Temporary work fencing or visible markers will be installed and maintained during construction to delineate access routes and to avoid disruption to existing habitat.

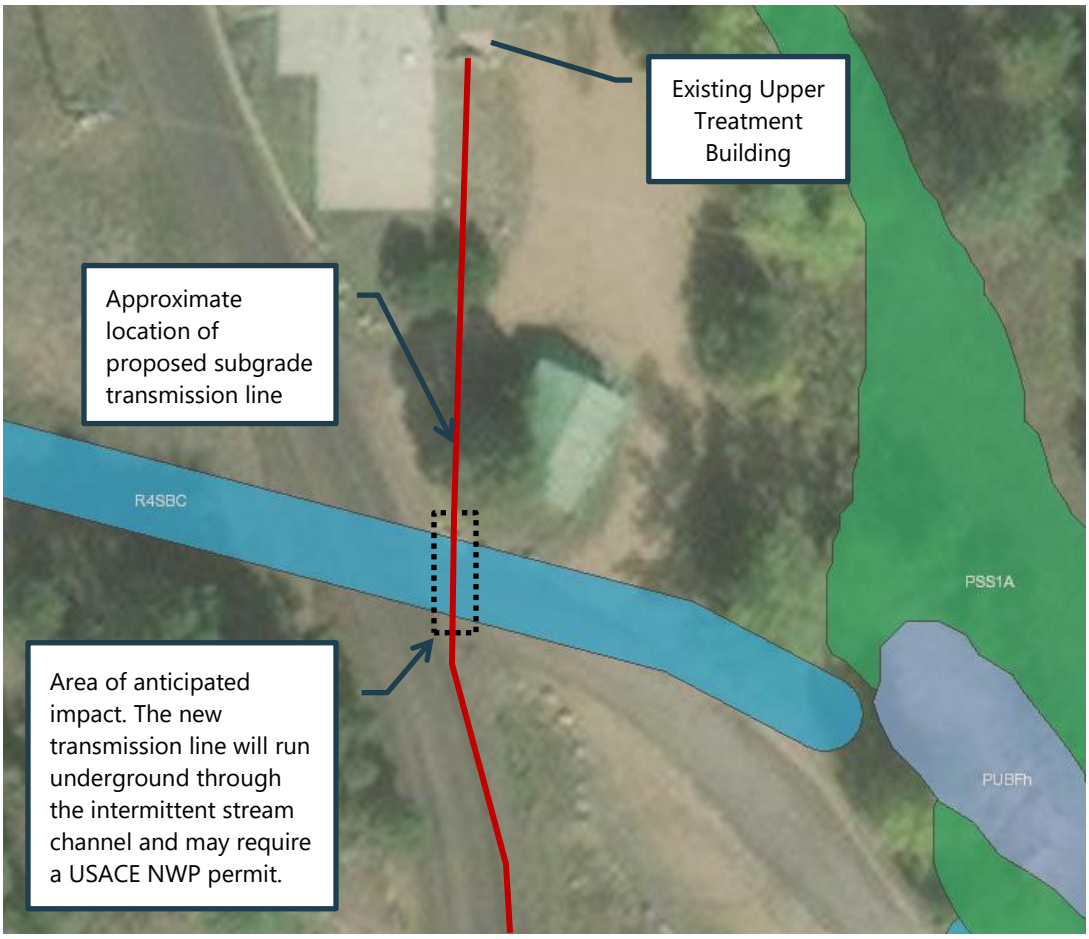
- A preconstruction briefing for construction personnel will be held to explain the limits of disturbance and required conservation measures.
- All project utilities will be located within the existing ROW, wherever practicable to avoid disruption to habitat.
- A restoration plan will be required by the selected contractor to describe the following practices implemented prior to, during, and after construction:
  - Reduce ground surface impacts to Peble's mice habitat
  - Communication procedures if Peble's mice are found within the project area
  - Procedures to delineate and mark the limits of required land disturbance
  - Waste management procedures, including the use of wildlife-proof garbage containers and frequency of off-site disposal.
  - Site restoration procedures, including:
    - Filling and seeding with weed-free material and native seed mixtures appropriate for the project area.
    - Planting techniques
    - Post-restoration monitoring
    - All disturbed areas of the project must be revegetated using native shrubs, trees, forbs, and grasses wherever appropriate.

As no critical habitat was identified within the project area for other threatened or endangered species, no additional species-specific construction mitigation techniques will be implemented unless directed by local, state, or federal agencies.

6 Wetlands

The extents of the Area of Potential Effect were compared with known delineated wetlands, according to the USFWS National Wetlands Inventory (NWI). An intermittent stream channel is identified in the NWI that overlaps the planned connection location for the proposed transmission line. This stream channel, classified as R4SBC, indicating a riverine, intermittent, streambed, that is flooded seasonally, is located within the existing Grapevine Road ROW. The delineated R4SBC channel is contained in an existing culvert as it passes through the ROW. Figure 1 shows the intermittent (R4SBC classified) stream near the Upper Treatment Building. A full representation of the wetlands located near the project area is included as Attachment C.

Figure 1
Intermittent stream identified in the USFWS NWI near the Upper Treatment Building



Notes:

1. Screenshot taken from the USFWS NWI (2023)
2. Red line indicates the approximate location of the proposed transmission line
3. Black box indicates the extents of proposed impacts to the existing intermittent stream channel
4. Intermittent stream channel is shown in blue, wetlands (not impacted by proposed project) are shown in green, and ponds are shown in light blue.

Due to the location of this classified stream channel, coordination with the United States Army Corps of Engineers (USACE) has been initiated to determine if a Nationwide General Permit (NWP), or alternative, is necessary. USACE has opened a reference number for the project (NOW-2023-01908-DEN) and have indicated that a site-specific wetland delineation will be required to inform a determination on permitting. Therefore, a wetland delineation of this area of the project will be completed to assist in identifying an appropriate permitting strategy. The proposed project will comply with relevant permitting requirements determined by local, state, and federal agencies.

If an NWP is required, NWP 58 – Utility Line Activities for Water and Other Substances appears most relevant to the stream crossing. The planned construction activities will not impact the final "streambed" contours as the surface of this area is distinctly the ROW along Grapevine Road, which will not be modified from the existing condition. The transmission line would pass underneath the existing culvert to protect the line from freezing in the wintertime. The ROW portion disturbed by construction activities will be turned to a pre-construction condition in line with Jefferson County ROW permit requirements, along with NWP permit requirements.

7 Floodplains

The FEMA 100-year floodplain was identified near the project area and no construction activities are proposed that are located within the floodplain boundaries. Floodplain boundaries are shown on the project area relevant National Flood Hazard Layer FIRMette in Attachment D and no impacts or construction is planned within the regulated boundaries.

8 Coastal Areas

This project is in north-central Colorado and no coastal areas are present within the project area.

9 Important Farmland

The project site will not disturb or convert existing agriculture lands and no impacts to prime farmlands are anticipated. There is no established farmland located within the service area of the District and no land use will be changed or modified as part of this project. A search was performed using the USDA National Resource Conservation Service's (NRCS) Web Soil Survey online application (NRCS 2023) using the extents of the project area. The results of this search showing the Farmland Classification is included as Attachment E and shows that the entire project area is classified as "Not Prime Farmland".

10 Environmental Risk Management

It is not anticipated at this time that this project will include the procurement, use, or disposal of any hazardous material. As no land or property will be necessary to purchase or sell, the requirement for environmental due diligence surveys or reports will not be necessary. Environmental risks associated with the water treatment modifications will be designed to comply with CDPHE design criteria, which includes storage requirements for chemicals used in the treatment process. Currently, the District uses liquid sodium hypochlorite for disinfection and will continue to do use after the proposed improvements are implemented. Sodium hypochlorite has a reportable quantity of 100 pounds for compliance with the Clean Water Act (CWA). The District currently uses sodium hypochlorite in 55 gallon drums and could exceed the minimal reportable quantity established in the CWA if a multiple drum release were to occur. To prevent the release of sodium hypochlorite, the District utilizes secondary containment for all hazardous stored chemicals. The secondary containment currently used is sized appropriately to contain the full volume of stored chemicals. If a leak or spill were to occur, the secondary containment unit would reduce or eliminate the release of the chemicals into the environment.

Beyond the disinfection chemical, no additional hazardous substances are anticipated to be included in this project and the potential for environmental contamination is low.

11 Other Resources

The District has prepared a Source Water Assessment Report (Idledale WSD 2004) that evaluated the susceptibility of water sources to various forms of contamination and methods to protect the District's water supply. The Source Water Assessment Report is attached as Attachment F. The District's expected susceptibility of water sources to discrete contaminant sources is between moderately low to moderately high, which generally tracks with statewide averages for source water. The District's susceptibility of water sources to dispersed contaminant sources is mostly moderately low, which is slightly better than the statewide average.

Figures

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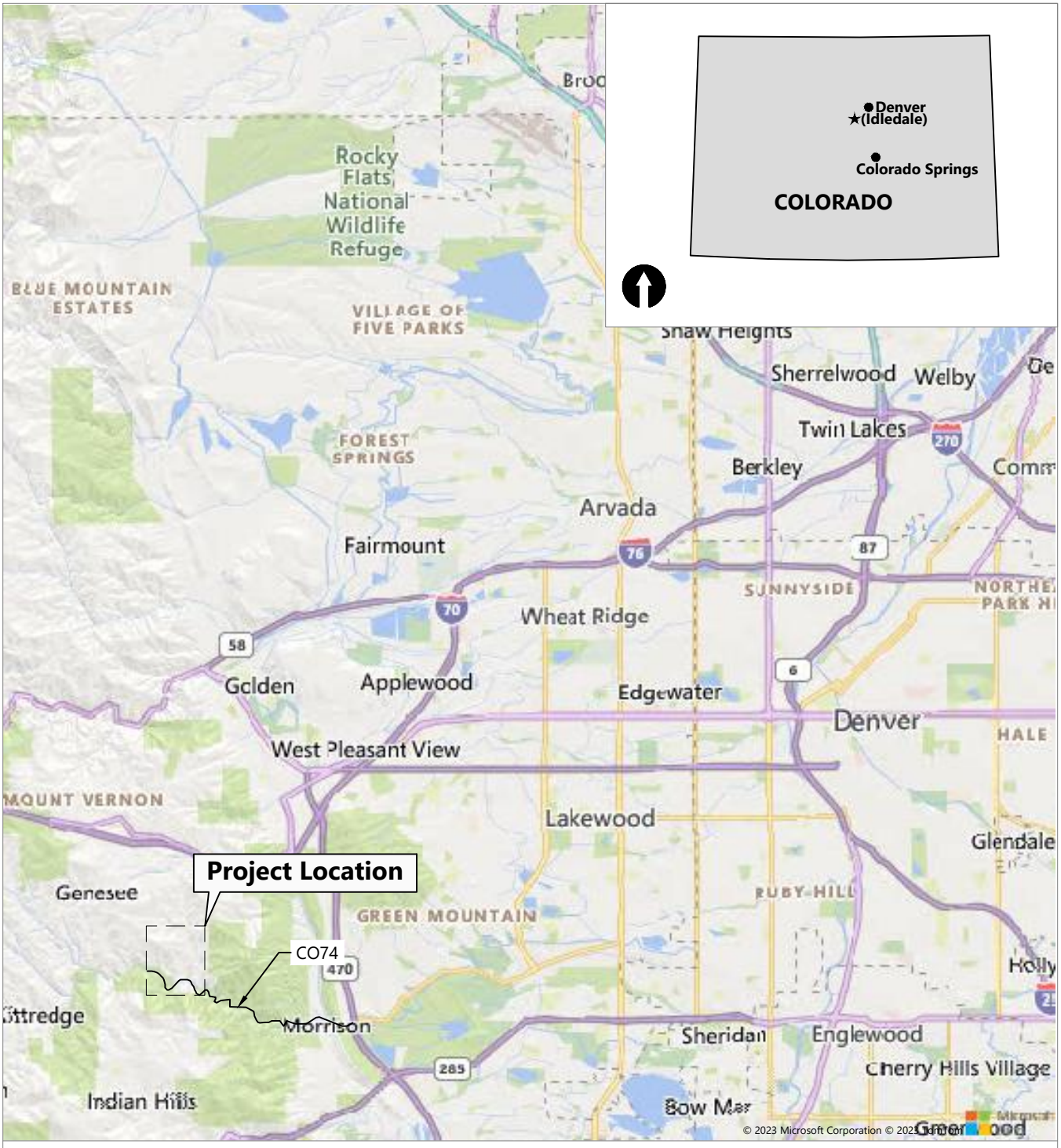

SOURCE: Aerial ©2020 Microsoft Corporation ©2020 DigitalGlobe ©CNES (2020) Distribution Airbus DS
Elevation data: USGS National Map
HORIZONTAL DATUM: Colorado State Plane Central Zone, North American Datum of 1983 (NAD83), U.S. Survey Feet

0 # Miles

Publish Date: 2024/03/29 10:31 AM | User: jfoster
Filepath: K:\Projects\2684-Idledale WSD USDA Search Grant\PER Preparation\2684-Idledale-RP-005 USDA Report Figure Site Overview.dwg Figure 1

ANCHOR QEA

Figure 2
Vicinity Map

Idledale Water and Sanitation District
USDA Preliminary Engineering Report

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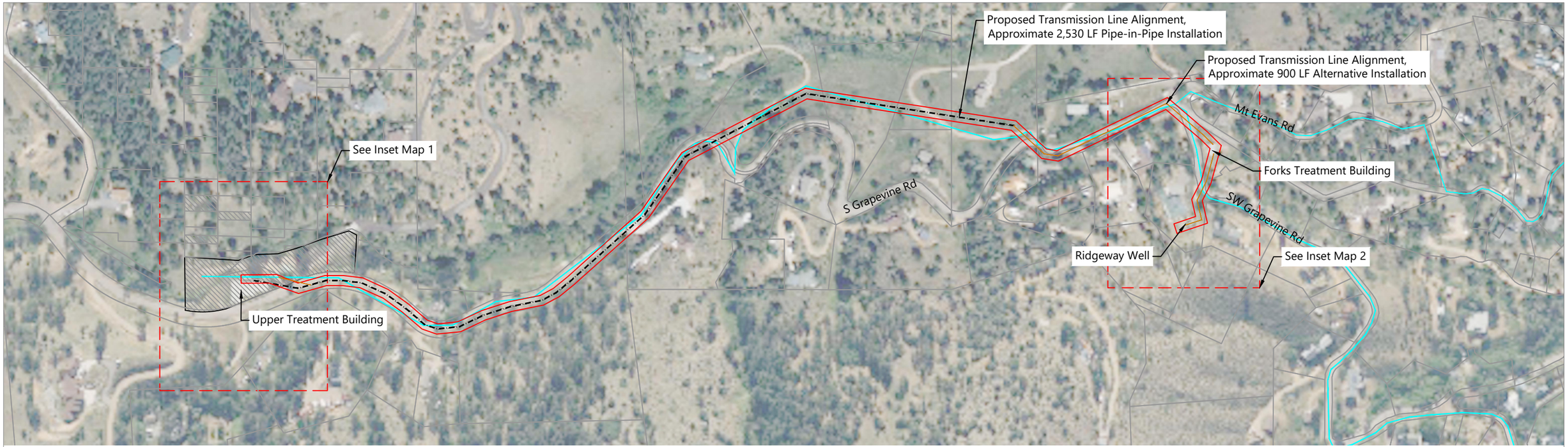
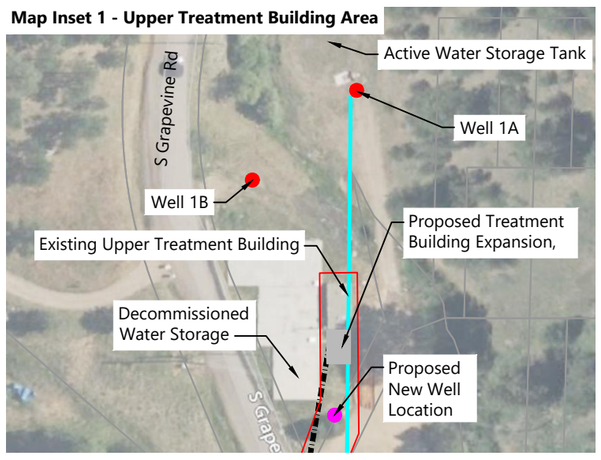
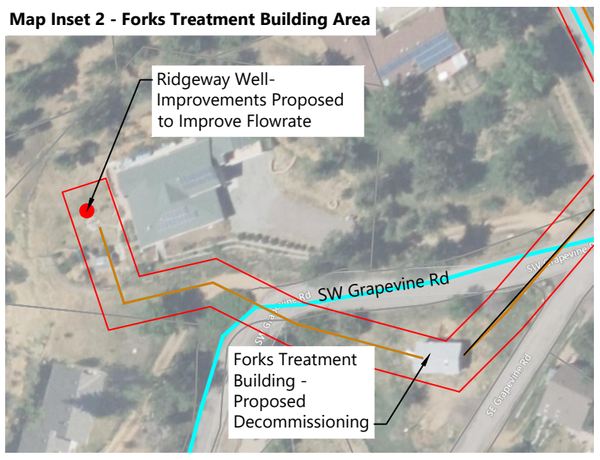


Map Inset 1 - Upper Treatment Building Area



Map Inset 2 - Forks Treatment Building Area



NOTES:
1. Upper Treatment Building Address: 2144 S Grapevine Rd Idledale, CO 80401
2. Forks Treatment Building Address: 2595 SE Grapevine Rd Idledale, CO 80401

SOURCE: Aerial ©2020 Microsoft Corporation ©2020 DigitalGlobe ©CNES (2020) Distribution Airbus DS
Elevation data: USGS National Map
HORIZONTAL DATUM: Colorado State Plane Central Zone, North American Datum of 1983 (NAD83), U.S. Survey Feet
VERTICAL DATUM: North American Vertical Datum of 1988 (NAVD88)

LEGEND:

- Existing Water Main & Laterals
- Proposed Transmission Line - Pipe-in-Pipe Installation
- Proposed Transmission Line - Trench Installation
- Existing Groundwater Supply Well
- Proposed Groundwater Supply Well
- Property Boundaries
- District-Owned Parcels
- Area of Potential Effect

0 300
Feet

Publish Date: 2024/01/26 9:29 AM | User: jfoster
Filepath: K:\Projects\2684-Idledale WSD USDA Search Grant\PER Preparation\2684-Idledale-RP-004 USDA Environmental Report.dwg Figure 2

ANCHOR QEA

Figure 3
Area of Potential Effect
Ideldale Water and Sanitation District
USDA Environmental Report

Attachment A
CDPHE Environmental Checklist

COLORADO
Department of Public Health & Environment

ENVIRONMENTAL CHECKLIST

Use the Discussion and References space at the end of each section to document your responses. For example, explain how you determined the level of impact and document the reasoning if checking PA (possible adverse) for any resource. Attach additional pages if necessary.

1. Brief project description, including identification of selected alternative:

   This proposed project involves new groundwater well construction, installing a new transmission line between an existing groundwater well and the existing Upper Treatment Building, rehabilitation of drinking water distribution system hydrants and valves, and installation of residential water meters.

2. Describe if the project will improve or maintain water quality, and if the project addresses a TMDL, and/or Watershed Management Plan.

   The proposed project will improve raw water supply to the system to reduce seasonal supply deficits related to decreased groundwater recharge in the summer. Treatment equipment will be installed to bring existing wells into compliance with recent GWUDI determination

3. Provide latitude and longitude of the proposed project (if a transmission / distribution / collection line identify the center point not the whole line):

   39.678658, -105.243311

4. Provide discharge (WW) or source (DW) information: N/A □

   Additional source water will be used from a new groundwater well/GWUDI well.

5. Provide NPDES/PWSID number:

   CO0130055

6. Provide primary waterbody name and waterbody ID, secondary name (if available), and State designated surface water use:

   NA, groundwater source.

7. Did your analysis consider how this project impacts community planning efforts in other areas (i.e. transportation, housing, etc.)?

Analysis conducted for this project assessed population and service area increases over a 20-year planning period, which included discussions with the local Water Board and general public on effects decreased water supply would have of development.

Y = Yes N = No PA = Possible Adverse

1. Physical Aspects - Topography, Geology and Soils

Y ☐ N ☑ PA ☐ a. Are there physical conditions (e.g., steep slopes, shrink-swells soils, etc.) that might be adversely affected by or might affect construction of the facilities?

Y ☐ N ☑ PA ☐ b. Are there similar limiting physical conditions in the planning area that might make development unsuitable?

Y ☐ N ☑ PA ☐ c. Are there any unusual or unique geological features that might be affected?

Y ☐ N ☑ PA ☐ d. Are there any hazardous areas (slides, faults, etc.) that might affect construction or development?

Discussion and References:

No adverse conditions have effected the construction of subgrade water infrastruture projects in the service area, based on discussions with District operators.

2. Climate

Y ☐ N ☑ PA ☐ a. Are there any unusual or special meteorological constraints in the planning area that might result in an air quality problem?

Y ☐ N ☑ PA ☐ b. Are there any unusual or special meteorological constraints in the planning area that might affect the feasibility of the proposed alternative?

Discussion and References:

The project has been initiated due to decreased groundwater recharge in the region that has occurred over the last 3-4 years. The purpose of the project is to ensure an

3. Population

Y ☐ N ☑ PA ☐ a. Are the proposed growth rates excessive (exceeding State projections, greater than 6% per annum for the 20 year planning period)?

Y ☐ N ☑ PA ☐ b. Will additional growth be induced or growth in new areas encouraged as a result of facilities construction?

Y ☐ N ☑ PA ☐ c. Will the facilities serve areas which are largely undeveloped areas at present?

Discussion and References:

The extents of the service area is constrained by physical limitations due to topography and existing development.

4. Housing, Industrial and Commercial Development and Utilities

Y ☐ N ☑ PA ☐ a. Will existing homes or business be displaced as a result of construction of this property?

Y ☐ N ☑ PA ☐ b. Will new housing serviced by this facility affect existing facilities, transportation patterns, environmentally sensitive areas, or be in special hazard or danger zones?

Y ☐ N ☑ PA ☐ c. Will new housing create strains on other utilities and services - policies, power, water supply, schools, hospital care, etc.?

Discussion and References:

No new residential or commercial development is anticipated to be created through the implementation of this project.

5. Economics and Social Profile

Y ☐ N ☑ PA ☐ a. Will certain landowners benefit substantially from the development of land due to location and size of the facilities?
Y ☐ N ☑ PA ☐ b. Will the facilities adversely affect land values?
Y ☐ N ☑ PA ☐ c. Are any poor or disadvantaged groups especially affected by this project?

Discussion and References:

This project will provide a more stable supply of water to existing users while decreasing operating costs to the District and consumers.

6. Land Use

Y ☐ N ☑ PA ☐ a. Will projected growth defeat the purpose of local land use controls (if any)?
Y ☐ N ☑ PA ☐ b. Is the location of the facilities incompatible with local land use plans?
Y ☐ N ☑ PA ☐ c. Will inhabited areas be adversely impacted by the project site?
Y ☐ N ☑ PA ☐ d. Will new development have adverse effects on older existing land uses (agriculture, forest land, etc.)?
Y ☐ N ☑ PA ☐ e. Will this project contribute to changes in land use in association with recreation (skiing, parks, etc.), mining or other large industrial or energy developments?

Discussion and References:

The planned improvements will occur entirely on District owned property and within public utility corridors and will not effect development, recreation, or local land use.

7. Floodplain Development

Y ☐ N ☑ PA ☐ a. Does the planning area contain 100 year floodplains?
If yes -
Y ☐ N ☑ PA ☐ b. Will the project be constructed in a 100 year floodplain?
Y ☐ N ☑ PA ☐ c. Will the project serve direct or indirect development in a 100 year floodplain anywhere in the planning area?

Discussion and References:

FEMA Flood Map Service Center, FEMA mapping tool

8. Wetlands

Y ☑ N ☐ PA ☐ a. Does the planning area contain wetlands as defined by the U.S. Fish and Wildlife Service?
If yes -
Y ☐ N ☑ PA ☐ b. Will any structure of the facility be located in wetlands?
Y ☐ N ☑ PA ☐ c. Will the project serve growth and development which will directly or indirectly affect wetlands?

Discussion and References:

USFWS National Wetlands Inventory. No structures are planned to be constructed in areas designated as wetlands.

9. Wild and Scenic Rivers

Y ☐ N ☑ PA ☐ a. Does the planning area contain a designated or proposed wild and scenic river?
If yes -
Y ☐ N ☑ PA ☐ b. Will the project be constructed near the river?

Y ☐ N ☑ PA ☐ c. Will projected growth and development take place contiguous to or upstream from the river segment?

Y ☐ N ☑ PA ☐ d. Will the river segment be used for disposal of effluent?

Discussion and References:

The project focus is on groundwater/GWUDI sources and will not encroach upon any surface waterbodies, including rivers or streams

10. Cultural Resources (Archeological/Historical)

Y ☐ N ☑ PA ☐ a. Are there any properties (historic, architectural, and archeological) in the planning area which are listed on or eligible for listing on the National Register of Historic Places?

If yes -

Y ☐ N ☑ PA ☐ b. Will the project have direct or indirect adverse impacts on any listed or eligible property?

Discussion and References:

No, all work will be conducted on District owned property and within the public

11. Flora and Fauna (including endangered species)

Y ☐ N ☑ PA ☐ a. Are there any designated threatened or endangered species or their habitat in the planning area?

Y ☐ N ☑ PA ☐ b. Will the project have direct or indirect adverse impacts on any such designated species?

Y ☐ N ☑ PA ☐ c. Will the project have direct or indirect adverse impacts on fish, wildlife or their habitat including migratory routes, wintering or calving areas?

Y ☐ N ☑ PA ☐ d. Does the planning area include a sensitive habitat area designed by a local, State or Federal wildlife agency?

Discussion and References:

The planning area is not within an area of interest for potential conservation areas and the footprint for improvements will not effect surface habitat past the construction phase

12. Recreation and Open Space

Y ☐ N ☑ PA ☐ a. Will the project eliminate or modify recreational open space, parks or areas of recognized scenic or recreational value?

Y ☐ N ☑ PA ☐ b. Is it feasible to combine the project with parks, bicycle paths, hiking trails, waterway access and other recreational uses?

Discussion and References:

The project will not effect recreation and open spaces near the planning area and will only occur on District owned property

13. Agricultural Lands

Y ☐ N ☑ PA ☐ a. Does the planning area contain any environmentally significant agricultural lands (prime, unique, statewide importance, local importance, etc.) as defined in the EPA Policy to Protect Environmentally Significant Agricultural Lands dated September 8, 1978?

Y ☐ N ☑ PA ☐ b. Will the project directly or indirectly encourage the irreversible conversion of Environmentally Significant Agricultural Lands to uses which result in the loss of these lands as an environmental or essential food production resource?

Discussion and References:

The project will not effect agricultural lands near the planning area and will only occur on District owned property.

14. Air Quality

Y ☐ N ☑ PA ☐	a.	Are there any direct air emissions from the project (e.g., odor controls, sludge incinerator) which do not meet Federal and State emission standards contained in the State Air Quality Implementation Plan (SIP)?
Y ☐ N ☑ PA ☐	b.	Is the project service area located in an area without an approved or conditionally approved SIP?
Y ☐ N ☑ PA ☐	c.	Is the increased capacity of the project greater than 1 mgd?
Y ☐ N ☑ PA ☐	d.	Do the population projections used in the facilities plan exceed the Sate or area wide projections in the SIP by more than 5%?
Y ☑ N ☐ PA ☐	e.	Does the project conform to the requirements of the SIP? (See EPA regulations under Section 316 of the Clean Air Act.)
Y ☐ N ☑ PA ☐	f.	Is the project inconsistent with the SIP of an adjoining State that may be impacted by the Project?
Y ☐ N ☑ PA ☐	g.	Does the project violate national ambient Air Quality Standards in an attainment or unclassified area?
Y ☐ N ☑ PA ☐	h.	Will the facilities create an odor nuisance problem?

Discussion and References:

No new emissions will be generated by this project that would effect the SIP.

15. Water Quality and Quantity (Surface/Groundwater)

Y ☐ N ☑ PA ☐	a.	Are present stream classifications in the receiving stream being challenged as too low to protect present or recent uses?
Y ☐ N ☑ PA ☐	b.	Is there a substantial risk that the proposed discharge will not meet existing stream standards or will not be of sufficient quality to protect present or recent stream uses?
Y ☐ N ☑ PA ☐	c.	Will construction of the project and development to be served by the project result in non-point water quality problems (sedimentation, urban stormwater, etc.)?
Y ☐ N ☑ PA ☐	d.	Will water rights be adversely affected by the project?
Y ☐ N ☑ PA ☐	e.	Will the project cause a significant amount of water to be transferred from one sub-basin to another (relative to the 7-day, 10 year flow of the diverted basin)?
Y ☐ N ☑ PA ☐	f.	Will stream habitat be affected as a result of the change in flow or stream bank modification?
Y ☐ N ☑ PA ☐	g.	Are stream conditions needed for deciding upon the required limitations inadequately specified in the 208 Plan? If so, have the wasteload allocations calculations been performed and approved by the State and EPA?
Y ☐ N ☑ PA ☐	h.	Is an Antidegradation Review required?
Y ☐ N ☑ PA ☐	i.	Will the project adversely affect the quantity or quality of a groundwater resource?
Y ☐ N ☑ PA ☐	j.	Does the project adversely affect an aquifer used as a potable drinking water supply?
Y ☐ N ☑ PA ☐	k.	Are there additional cost effective water conservation measures that could be adopted by community to reduce sewage generation?

Discussion and References:

Additional groundwater withdrawals will occur due to this project but withdrawals will not exceed the water rights of the District.

16. Public Health

Y ☐ N ☐ PA ☑	a.	Will there be adverse direct or indirect noise impacts from the project?
Y ☐ N ☑ PA ☐	b.	Will there be a vector problem (e.g., mosquito) from the project?

Y ☐ N ☑ PA ☐ c. Will there be any unique public health problems as a result of the project (e.g., increased disease risks)?

Discussion and References:

Additional noise will be generated during construction but will be limited to general construction equipment and activities.

17. Solid Waste (Sludge Management)

Y ☐ N ☑ PA ☐ a. Will sludge disposal occur in an area with inadequate sanitary landfills or on land unsuitable for land application?

Y ☐ N ☑ PA ☐ b. Are there special problems with the sludge that makes disposal difficult (hazardous, difficult to treat)?

Y ☐ N ☑ PA ☐ c. Is the technology selected for sludge disposal controversial?

Discussion and References:

No sludge will be produced by the recommended improvements.

18. Energy

Y ☑ N ☐ PA ☐ a. Are there additional cost effective measures to reduce energy consumption or increase energy recovery which could be included in this project?

Discussion and References:

Variable frequency drives will be installed to control the new well pump that will have energy savings capabilities. Additionally, solar panels for emergency battery power, high

19. Land Application

Y ☐ N ☑ PA ☐ a. Has a new or unproven technique been selected?

Y ☐ N ☑ PA ☐ b. Is there considerable public controversy about the project?

Y ☐ N ☑ PA ☐ c. Will the project require additional water rights or impact existing water Rights?

Y ☐ N ☑ PA ☐ d. Is the project multi-purpose?

Discussion and References:

No additional water rights will be required.

20. Regionalization

Y ☐ N ☑ PA ☐ a. Are there jurisdictional disputes or controversy over the project?

Y ☐ N ☑ PA ☐ b. Is conformance with the 208 plan in question?

Y ☐ N ☑ PA ☐ c. Is the proliferation of small treatment plants and septic systems creating a significant health problem?

Y ☐ N ☑ PA ☐ d. Have inter-jurisdictional agreements been signed?

Discussion and References:

21. Public Participation

Y ☐ N ☑ PA ☐ a. Is there a substantial level of public controversy?

Y ☑ N ☐ PA ☐ b. Is there adequate evidence of public participation in the project?

Discussion and References:

Public hearings will be held to discuss the project and to provide an opportunity for

22. Environmental Laws

Y ☐ N ☑ PA ☐ a. Does the project threaten to violate any State, Federal or local law or requirement imposed to protect the environment?

Discussion and References:

Prepared By: Kyle Gustafson, Engineer, Orsatti Water Consultants
Name, Title, and Affiliation

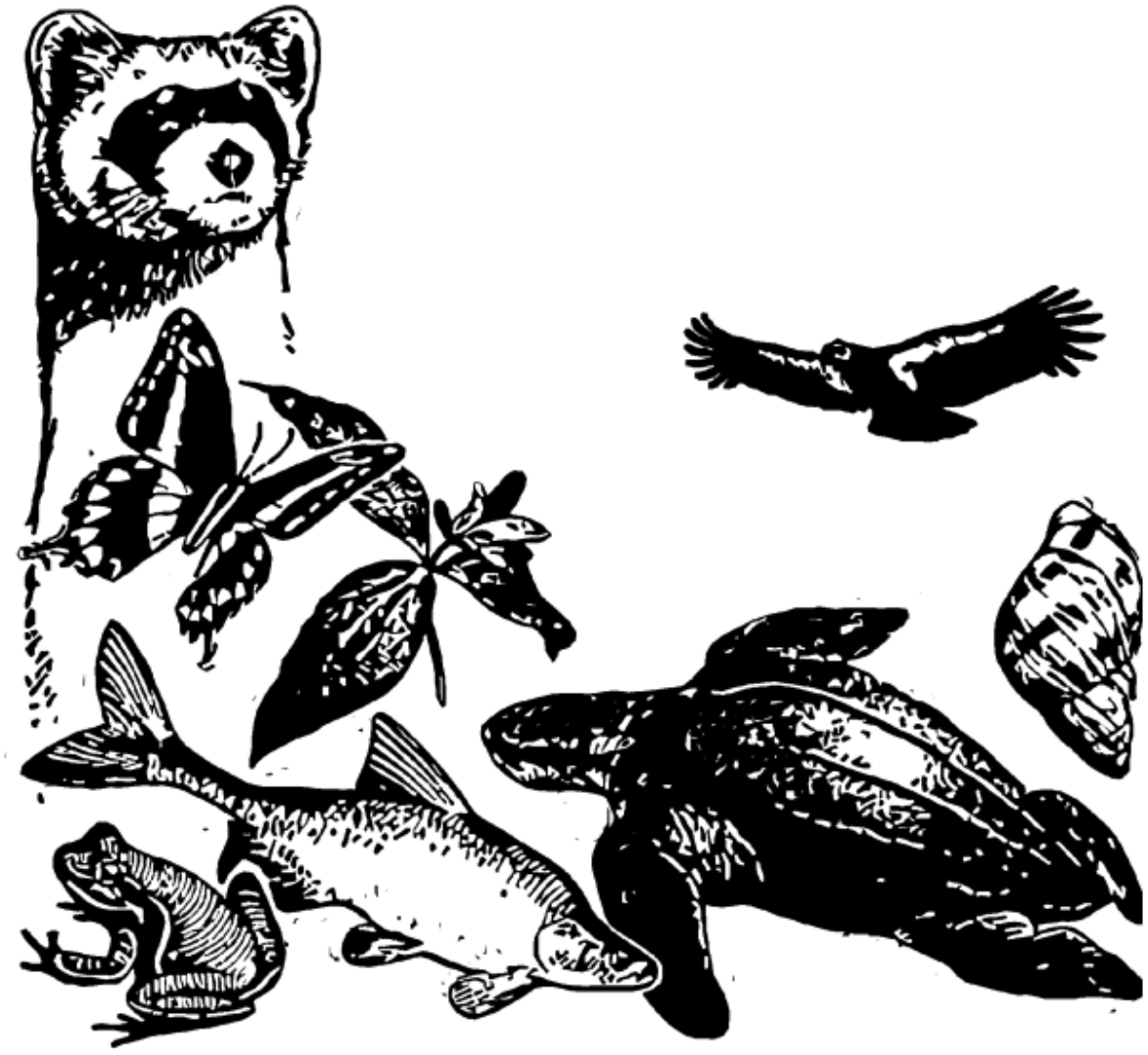
Date: 1/26/2022

Attachment B
USFWS General Project Design Guidelines for Preble's Jumping Mouse

U.S. Fish & Wildlife Service

General Project Design Guidelines (1 Species)

Generated December 07, 2023 08:25 PM UTC, IPaC v6.101.0-rc3



IPaC - Information for Planning and Consultation (https://ipac.ecosphere.fws.gov/): A project planning tool to help streamline the U.S. Fish and Wildlife Service environmental review process.

Table of Contents

Species Document Availability

Species with general design guidelines

Preble's Meadow Jumping Mouse Zapus hudsonius preblei

Species without general design guidelines available

Gray Wolf Canis lupus

Mexican Spotted Owl Strix occidentalis lucida

Monarch Butterfly Danaus plexippus

Pallid Sturgeon Scaphirhynchus albus

Piping Plover Charadrius melodus

Ute Ladies'-tresses Spiranthes diluvialis

Western Prairie Fringed Orchid Platanthera praeclara

Whooping Crane Grus americana

General Project Design Guidelines - Mexican Spotted Owl and 8 more species

Published by Colorado Ecological Services Field Office for the following species included in your project

- Mexican Spotted Owl *Strix occidentalis lucida*
- Whooping Crane *Grus americana*
- Piping Plover *Charadrius melodus*
- Gray Wolf *Canis lupus*
- Pallid Sturgeon *Scaphirhynchus albus*
- Ute Ladies'-tresses *Spiranthes diluvialis*
- Preble's Meadow Jumping Mouse *Zapus hudsonius preblei*
- Monarch Butterfly *Danaus plexippus*
- Western Prairie Fringed Orchid *Platanthera praeclara*

Recommended Conservation Measures
Preble's Meadow Jumping Mouse
USFWS April 2021

PRE-CONSTRUCTION DESIGN

1. Timing:
    - To minimize impacts to the Preble's mouse, plan project construction during the species' primary hibernation season (approximately November 1 – April 30).
        i. Trim potential hibernation habitat to ground level around the middle of August to discourage the mouse from hibernating in that area before construction begins.
        ii. Work site lighting would be restricted to the Preble's mouse hibernation season. Any temporary lighting installed will use downcast LED full-cutoff fixtures that comply with the International Dark-Sky Association's recommendations for outdoor illumination. Shielding and directing of lighting will be used to minimize light spill off the site.
    - For construction that must occur during the species' active season (May 1 through October 31):
        i. If habitat must be affected, clip vegetation to ground level one to two weeks prior to initiation of construction to discourage the project area's use by Preble's mice where the project intersects its habitat.
        ii. Work only during daylight hours to avoid disrupting Preble's mouse nocturnal activities.
2. Design the project to avoid and minimize permanent and temporary impacts to riparian and adjacent upland habitats.
    - Identify and prioritize riparian and adjacent upland habitats within the project area.
    - Design the project so that it avoids these habitats, or minimizes impacts if total avoidance is not possible.
    - Avoid fragmenting linear riparian corridors.
    - Minimize the number and footprint of access routes, staging areas, and work areas.
    - Locate access routes, staging areas, and work areas within previously disturbed or modified non-habitat areas. If that is not practicable, use a route that avoids damaging live or dormant vegetation.
    - Temporarily line access routes with geotextiles or other materials, especially in wet, unstable soils, to protect roots and the seed bank.
    - Install limits of work fencing (e.g., orange barrier netting or silt fencing), signage, or other visible markers to delineate access routes and the project area from protected habitats. Use this fencing to enforce no-entry zones.
    - Avoid or minimize the amount of concrete, riprap, bridge footings, and other "hard," impermeable engineering features intended to be constructed within the stream channel and riparian or adjacent upland habitats.
    - If riprap must be used, plan to bury the riprap with soil after construction is completed, and then plant with native riparian vegetation.
    - Where feasible, plan to use bioengineering techniques to stabilize stream banks.

- Maintain habitat connectivity under bridges or through culverts by installing ledges or dry culverts adjacent to the culverts with water flow. Design bridges that allow sunlight in to support vegetation cover, and allow shrubs to grow at either end of culverts.

3. Plan ahead to hold a preconstruction briefing for onsite personnel to explain the limits of work and other conservation measures.
4. Locate utilities along existing road corridors, and if possible, within the roadway or road shoulder.
    - Bury overhead utilities whenever possible.
    - Directionally bore utilities and pipes underneath riparian habitats.
5. Develop a habitat restoration plan that addresses site preparation, salvaging desirable shrubs and saplings, planting techniques, control of non-native weeds, native species seed mixtures, and post-construction monitoring.

PROJECT IMPLEMENTATION

6. Contact the US Fish and Wildlife Service (Service) immediately by telephone at (303) 236–4773 if a Preble's mouse is found alive, dead, injured, or hibernating within the project area. Please also contact the Service if any other listed species are found within the project area.
7. To the maximum extent practicable, limit disturbing (e.g., crushing, trampling) or removing (e.g., cutting, clearing) all native vegetation, such as willows, trees, shrubs, forbs and grasses within riparian and adjacent upland habitats.
    - Restrict the temporary or permanent removal of vegetation to the footprint of the project area.
    - Salvage desirable trees and shrubs for replanting.
8. Equipment Use:
    - Minimize the use of heavy machinery and use smaller equipment and hand tools when possible.
    - Locate, store, stage, operate, and refuel equipment outside of riparian or adjacent upland habitats.
    - Operate equipment from previously disturbed or modified roadbeds or road shoulders above the riparian habitats.
    - Limit the number of entrance and exit points leading into the project area.
9. Throughout the project's duration, follow regional stormwater management guidelines and design best management practices to control contamination, erosion, and sedimentation, and other controls needed to stabilize soils in denuded or graded areas. Stockpile topsoil, trash and debris outside the riparian corridor and protect from stream flows or runoff. Controls include but are limited to:
    - silt fences
    - silt basins
    - gravel bags
    - biodegradable and wildlife friendly netting and blankets
10. Wildlife Protection:
    - Utilize wildlife-proof garbage containers on site and promptly remove waste to minimize site disturbance and avoid attracting predators.
    - Cover exposed holes or piles of loose dirt with boards, tarps, or other materials to prevent entrapment.

11. Non-native and Invasive Species Control:
    - Wash away mud and debris, and thoroughly inspect vehicles and equipment before entering or leaving the project area so that they are free of noxious weed seeds and plant parts.
    - Use only certified weed-free materials, including gravel, sand, topsoil, seed, and mulch.
    - Invasive aquatic invertebrates: Resource management work often facilitates the spread of invasive species to unique and critical habitats for already endangered species. You are required to comply with the 2019 Colorado Revised Statutes on aquatic nuisance species (also known as the State Aquatic Nuisance Species Act; C.R.S. 33-10.5-101 through 108). See information on aquatic nuisance species in Colorado, including the State of Colorado Aquatic Nuisance Species Management Plan, which includes information on equipment inspection and decontamination.

POST-CONSTRUCTION

12. Complete construction before beginning restoration or enhancement activities.
13. Develop and implement a habitat restoration plan that addresses:
    - Burying riprap with soil, and then planting with native riparian vegetation
    - Control of non-native weeds
    - Filling and reseeding with weed-free material and native seed mixtures. IMPORTANT: Consult the Service before finalizing a seed species and plant species list.
    - Planting techniques
    - Post-construction monitoring: The Service can review, recommend, and approve success criteria during the consultation process, such as species composition, herbaceous vegetation height and density, and non-native species tolerance limits.
    - Revegetating all disturbed areas with native shrubs, trees, forbs, and grasses
    - Site preparation: Ripping compacted access routes prior to replanting with native vegetation
14. Place educational signage along retained or newly established trails in Preble's mouse habitat to inform users about the species and measures in place to protect it.
    - Use fencing to discourage public access into sensitive habitat.
    - Require pedestrians to stay on established trails and pets to be kept on leash.

Attachment C
USFWS National Wetlands Inventory Map

U.S. Fish and Wildlife Service
National Wetlands Inventory

Idledale WSD Wetlands Map

December 7, 2023

Wetlands

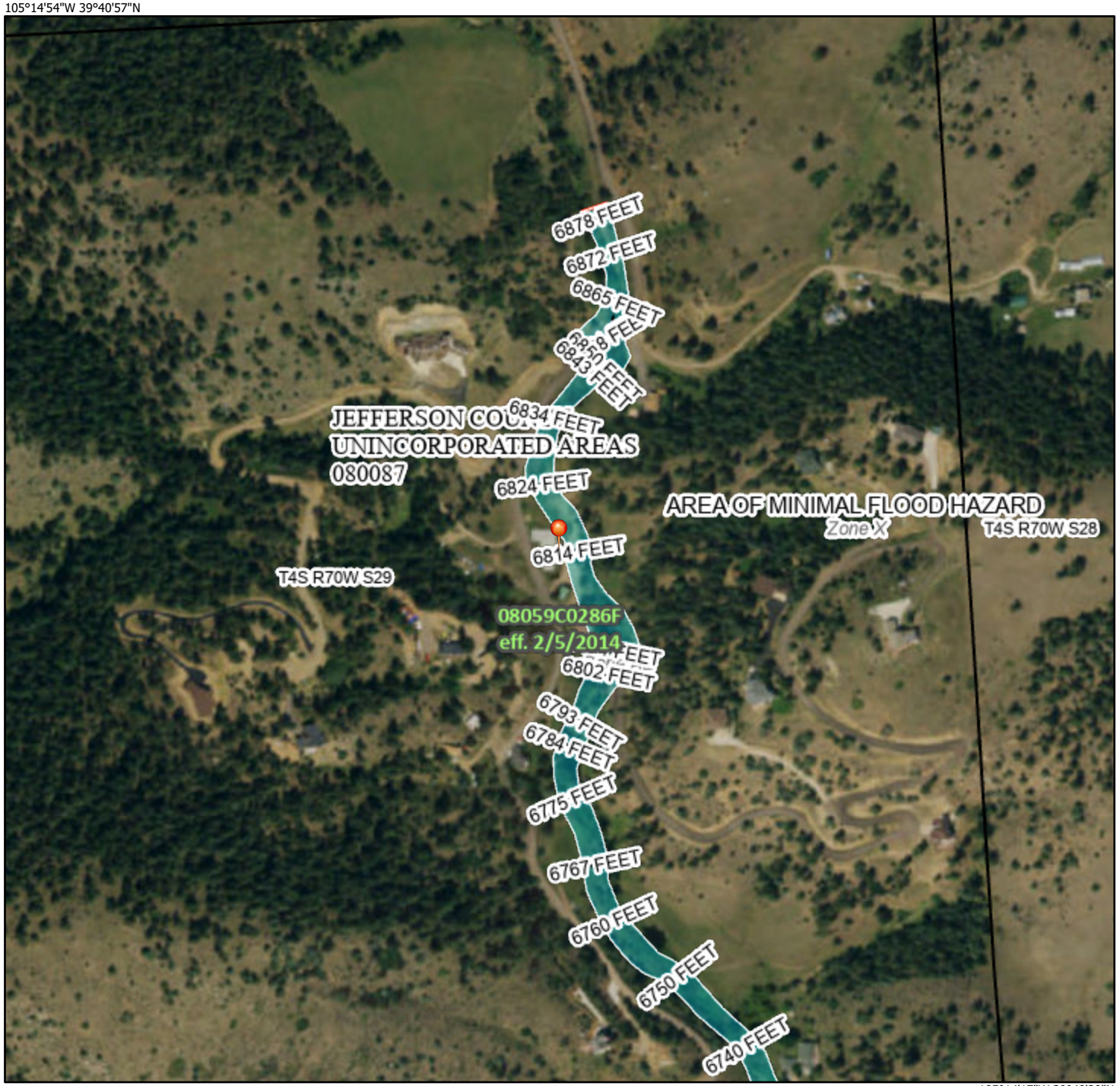
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Attachment D
FEMA National Flood Hazard FIRMette

National Flood Hazard Layer FIRMette

FEMA

105°14'54"W 39°40'57"N



105°14'17"W 39°40'29"N

Feet

0 250 500 1,000 1,500 2,000

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

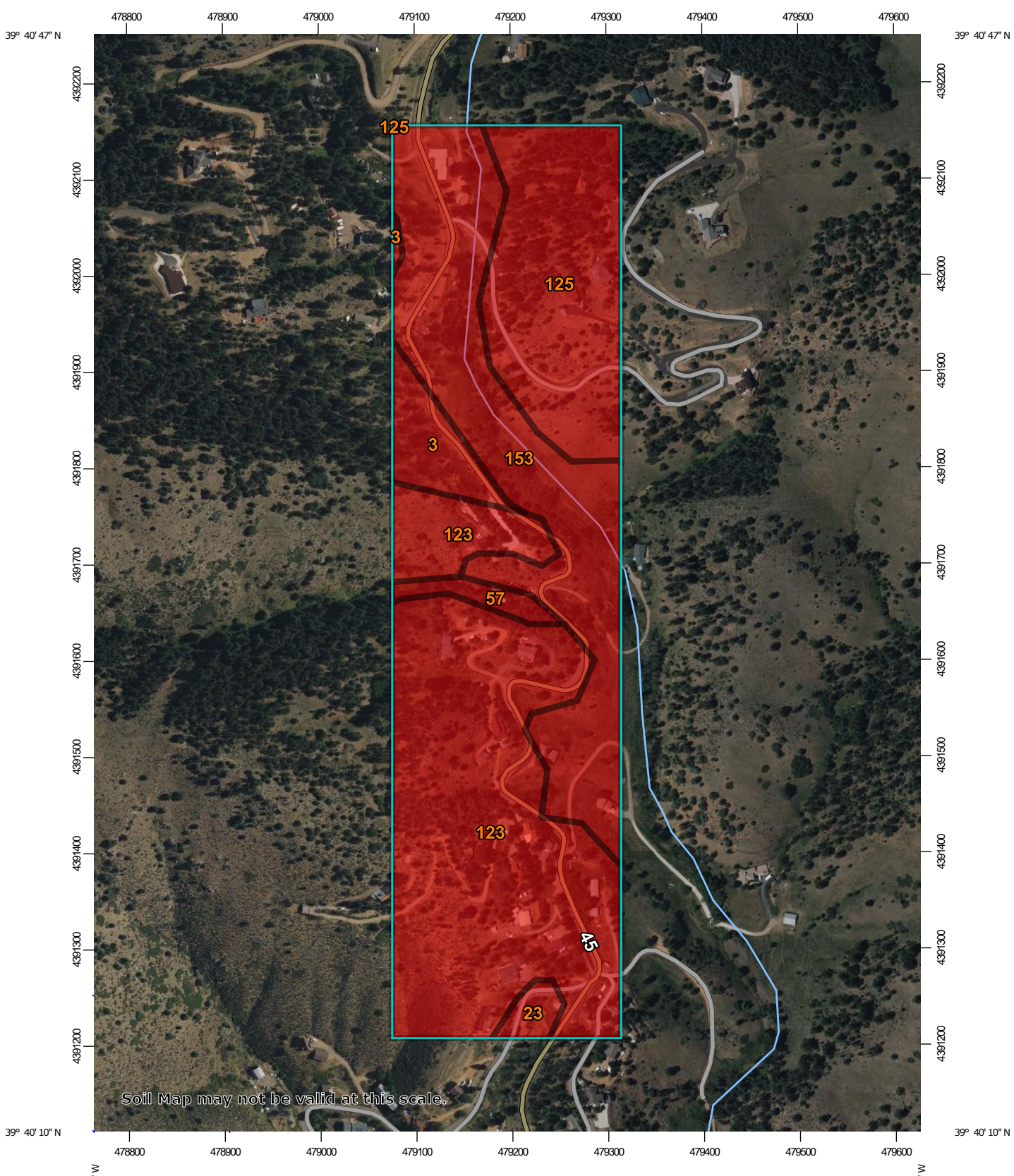
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 12/7/2023 at 6:24 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Attachment E
NCRS Farmland Classification

Farmland Classification—Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties
(Idledale Water System Improvements Project Extents)



Map Scale: 1:5,560 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

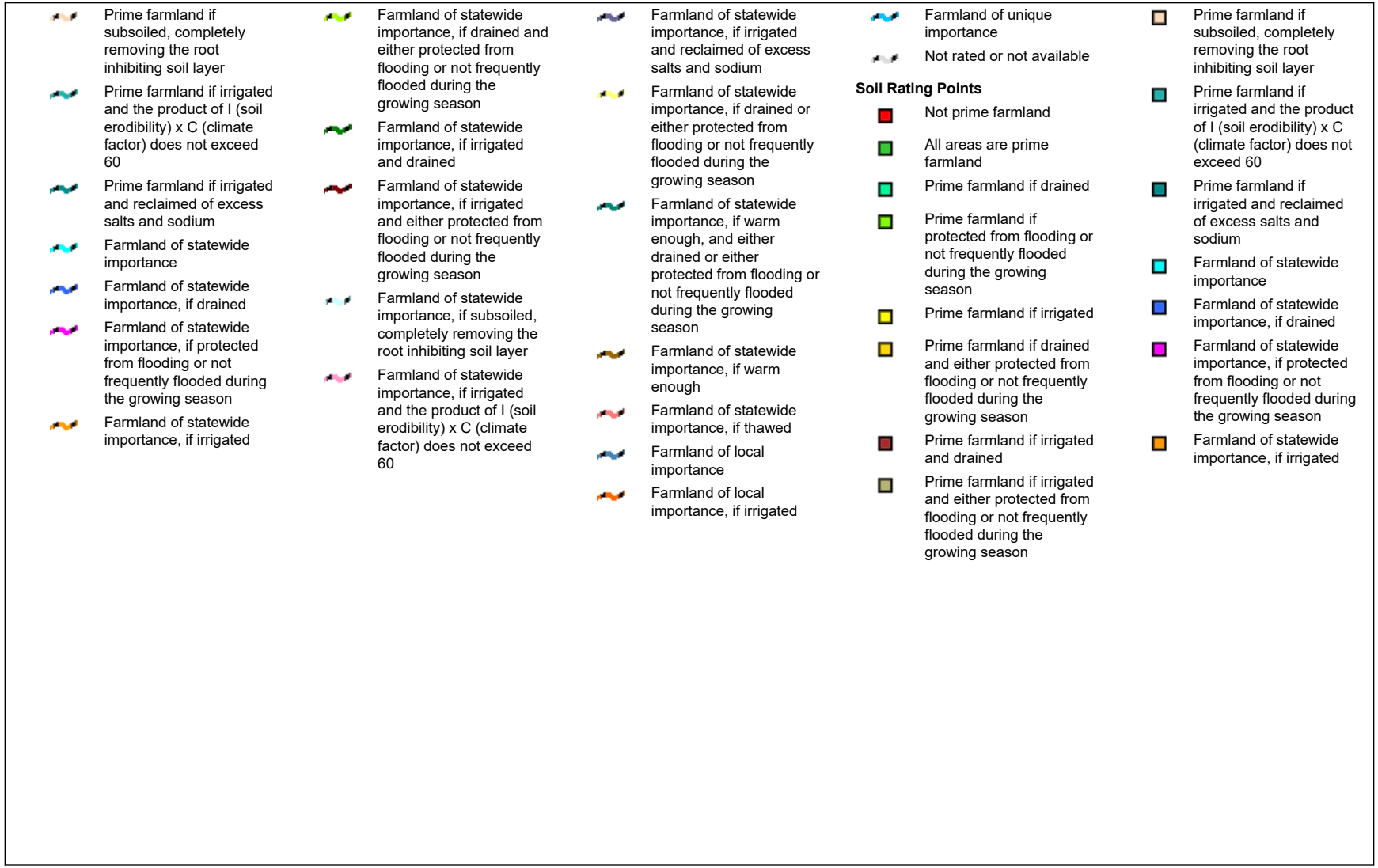
Soils

Soil Rating Polygons

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of statewide importance, if drained
- Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if irrigated
- Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if irrigated and drained
- Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer
- Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough
- Farmland of statewide importance, if thawed
- Farmland of local importance
- Farmland of local importance, if irrigated
- Farmland of unique importance
- Not rated or not available

Soil Rating Lines

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season


Prime farmland if subsoiled, completely removing the root inhibiting soil layer
Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
Prime farmland if irrigated and reclaimed of excess salts and sodium
Farmland of statewide importance
Farmland of statewide importance, if drained
Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
Farmland of statewide importance, if irrigated
Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season
Farmland of statewide importance, if irrigated and drained
Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season
Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer
Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium
Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season
Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season
Farmland of statewide importance, if warm enough
Farmland of statewide importance, if thawed
Farmland of local importance
Farmland of local importance, if irrigated
Farmland of unique importance
Not rated or not available
Soil Rating Points
Not prime farmland
All areas are prime farmland
Prime farmland if drained
Prime farmland if protected from flooding or not frequently flooded during the growing season
Prime farmland if irrigated
Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Prime farmland if irrigated and drained
Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
Prime farmland if subsoiled, completely removing the root inhibiting soil layer
Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
Prime farmland if irrigated and reclaimed of excess salts and sodium
Farmland of statewide importance
Farmland of statewide importance, if drained
Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
Farmland of statewide importance, if irrigated

- Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if irrigated and drained
- Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer
- Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough
- Farmland of statewide importance, if thawed
- Farmland of local importance
- Farmland of local importance, if irrigated
- Farmland of unique importance
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties
Survey Area Data: Version 18, Aug 24, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 1, 2020—Jul 2, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Farmland Classification

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
3	Allens Park variant-Ratake-Rock outcrop complex, 30 to 50 percent slopes	Not prime farmland	2.5	4.4%
23	Curecanti very stony sandy loam, 15 to 50 percent slopes	Not prime farmland	0.7	1.3%
57	Grimstone-Peeler-Rock outcrop complex, 30 to 50 percent slopes	Not prime farmland	0.9	1.7%
123	Ratake-Cathedral-Rock outcrop complex, 25 to 60 percent slopes	Not prime farmland	24.7	44.0%
125	Ratake-Lininger stony sandy loams, 30 to 60 percent slopes	Not prime farmland	10.9	19.3%
153	Trag sandy loam, 9 to 25 percent slopes	Not prime farmland	16.5	29.4%
Totals for Area of Interest			**56.2**	**100.0%**

Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Rating Options

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

Attachment F
Source Water Assessment Report

SOURCE WATER ASSESSMENT REPORT

Ground Water Sources

IDLEDALE WSD
Public Water System ID: CO0130055

LAKEWOOD, CO

JEFFERSON County

11/8/2004

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

SOURCE WATER ASSESSMENT SUMMARY

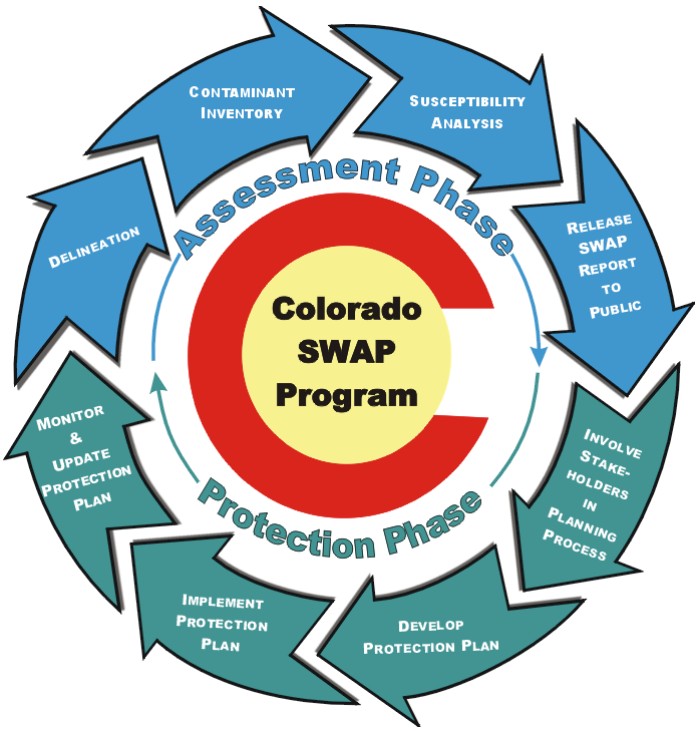
Background

The Colorado Department of Public Health and Environment (CDPHE) has completed a source water assessment for **IDLEDALE WSD** as required by the 1996 Safe Drinking Water Act amendments and in accordance with Colorado's Source Water Assessment and Protection (SWAP) program. The purpose of this assessment is to analyze the potential susceptibility of each public drinking water source to contamination, and to supply pertinent information so that decision-makers voluntarily can develop and implement appropriate preventive measures to protect these water sources. The Safe Drinking Water Act requires that the public water system and its consumers be informed of the assessment results.

SWAP Process

The SWAP program is a multi-step two-phased process (Figure 1) designed to assist public water systems in preventing accidental contamination of their untreated drinking water supplies. These phases include the assessment phase and the protection phase as depicted in the upper and lower portions of Figure 1, respectively.

Figure 1. Source Water Assessment and Protection Process.



The assessment phase involves understanding where each public water system's source water comes from, what contaminant sources potentially threaten the water source(s), and how

susceptible each water source is to potential contamination. The product of the assessment phase is contained in this report.

The protection phase occurs when local decision-makers use the source water assessment results and other pertinent information to develop management and response strategies to protect the water sources from potential contamination.

Assessment Process

As depicted in the upper portion of Figure 1, the source water assessment for all public water systems consists of four primary elements. These elements include:

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 and;
4) reporting the results of the source water assessment to the public water systems and the general public.

Public water systems were given the opportunity to review and provide corrections and/or feedback on draft versions of their source water assessment area delineations and their contaminant source inventories. All pertinent corrections and feedback were incorporated into this assessment.

Delineation of Source Water Assessment Area

The source water assessment area defines the area or region of the watershed or aquifer contributing untreated water to the public water system's source water intake. The area also defines where potential contamination of this water source could occur.

A public water system may have rights to use one or more source water types for drinking water. These source water types include:

- Surface water source - any "untreated" water source that is diverted directly from a stream, river, lake, pond or similar surface water body.
- Ground water source - any "untreated" water source that is diverted directly from an underground source of water (i.e., an aquifer).
- Ground water source under the direct influence of surface water - any "untreated", shallow, ground water source that testing has shown to be in hydrologic connection to a nearby surface water body.

For ground water systems, the source water assessment area essentially includes the area of the aquifer drained by the source water intake. In the case of ground water systems, the intake would most commonly include wells, and to a lesser extent include spring boxes and infiltration galleries.

A public water system also may have purchased water sources. A purchased water source includes any "treated" surface water source, ground water source and/or ground water source under the influence of surface water that is purchased from another public water system.

This assessment report presents the results only for active ground water sources that the public water system has rights to use for drinking water. Assessment results for any purchased ground water sources that the public water system may have are presented in the source water assessment report(s) for the public water system that supplies the purchased ground water source.

Contaminant Source Inventory

Drinking water sources are susceptible to contamination from a wide variety of natural and man-made threats. Figure 2 illustrates some of the potential contaminant sources that might be encountered for surface water and ground water sources, and how contaminants from these sources can enter the source water. Potential contaminant sources include anything likely to manufacture, produce, use, store, dispose, or transport regulated and unregulated contaminants of concern. Potential contaminant sources were divided into two groups for this assessment:

- Discrete contaminant sources – generally include facility-related operations from which the potential release of contamination would originate from a relatively small area.
- Dispersed contaminant sources – generally include broad based land uses and miscellaneous sources from which the potential release of contamination would be spread widely over a relatively large area.

Figure 2. Examples of Potential Contaminant Sources and How Contaminants Can Enter Your Source Water.

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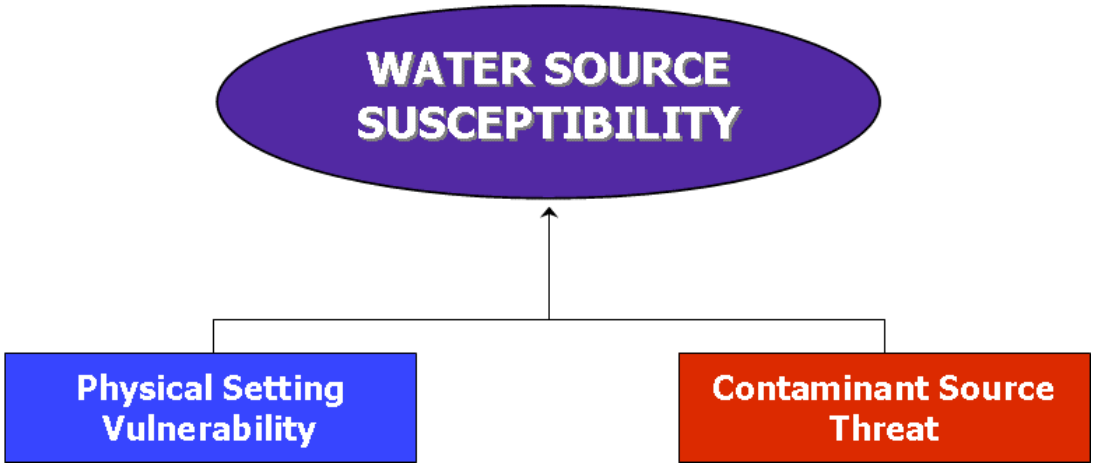
Susceptibility Analysis

The current analysis looks at the susceptibility of a water source to individual potential contaminant sources (referred to as individual susceptibility), as well as the total susceptibility of a water source to all of the individual potential contaminant sources that were inventoried within its source water assessment area. The susceptibility of a ground water source to an individual potential contaminant source depends on the two primary factors: physical setting vulnerability and contaminant source threat, as shown in Figure 3.

Figure 3. Components of Water Source Susceptibility.



Physical Setting Vulnerability – involves an evaluation of the ability of the ground water flow system in the source water assessment area to provide a sufficient buffering capacity to mitigate potential contaminant concentrations in the source water. This ability is affected by physical characteristics like the ground water flow properties of the aquifer, the total depth of the water source and its intake, the depth to first water, the flow rate of the water source, as well as the structural soundness of the intake itself.

Contaminant Source Threat – involves an evaluation of the potential for a contaminant source to provide contaminants in sufficient amounts for the source water to become contaminated at concentrations that may pose a health concern to consumers of the water. The potential threat is affected by the types and volumes of potential contaminants that might be present, the likelihood that contaminants might be released, the proximity of the contaminant source to the source water intake, and soil properties and water levels in the vicinity of the contaminant source.

The total susceptibility of a water source is determined from its cumulative susceptibility to all of the discrete contaminant sources and all of the dispersed contaminant sources that were inventoried in its source water assessment area. In other words, the total susceptibility of a water source is a reflection of the combined individual susceptibilities posed by all of the discrete and all of the dispersed contaminant sources inventoried in the source water assessment area. Therefore, the susceptibility of a water source to all discrete contaminant sources is a reflection of the combined individual susceptibilities posed by each discrete contaminant source that was

inventoried. Likewise, the susceptibility of a water source to all dispersed contaminant sources is a reflection of the combined individual susceptibilities posed by each dispersed contaminant source that was inventoried.

In order to determine the susceptibility of a water source to potential contamination, the Colorado Department of Public Health and Environment developed a unique susceptibility analysis model and scoring system to evaluate the different physical setting vulnerability and contaminant threat factors that contribute to the susceptibility of a water source. This unique model and scoring system serves as the benchmark by which the potential susceptibility of other like water sources in the state can be measured or judged. *Therefore, the results of your source water assessment are not directly comparable to results from other states. These assessment results are only meaningful when compared to other ground water sources in Colorado.*

To provide the reader a general sense of the degree of potential risk to a water source, the total susceptibility scores, individual susceptibility scores and physical setting vulnerability scores are assigned qualitative ratings of Low, Moderately Low, Moderate, Moderately High, or High based on statistical indicators established by the Colorado Department of Public Health and Environment. In developing the qualitative ratings for these particular factors, a commonly applied statistical approach is used to group the scores for each of these factors into the five possible rating categories. This approach is not unlike what a teacher uses in grading student test scores. The statistical approach determines the factor score's relative position within the statewide populations of total susceptibility scores, individual susceptibility scores or physical setting vulnerability scores for the more than 2,700 ground water sources that were analyzed.

In general, the higher the susceptibility rating for the water source, the greater the risk for potential contamination of the water source. For example, a total susceptibility rating of Moderately High or High generally means that the potential vulnerability posed by the physical setting of the water source and the cumulative potential threats posed by the various contaminant sources are proportionately higher than the vulnerability and cumulative threats posed to an average ground water source in the state. Similarly, an individual susceptibility rating of Moderately High or High generally means that the potential vulnerability posed by the physical setting of the water source and the potential threat posed by an individual contaminant source is proportionately higher than the vulnerability and individual threat posed to an average ground water source in the state.

Likewise, the higher the physical setting vulnerability rating for the water source, the more vulnerable the water source is to potential contamination. A physical setting vulnerability rating of Moderately High or High generally means that the physical setting of the water source potentially provides proportionately less buffering capability to mitigate potential contaminant concentrations in the source water when compared to an average ground water source in the state.

The results of the statistical evaluations are easier to understand by plotting the statewide distribution of the total and individual susceptibility ratings, and the physical setting vulnerability ratings for all ground water sources that were analyzed. The final statewide total susceptibility, individual susceptibility and physical setting vulnerability rating distribution plots

generated from the evaluations are presented in the assessment results section of this report. These rating distribution plots present the numerical scoring ranges associated with a given rating category, and the number of water sources or contaminant sources throughout the state that received a specific rating.

The Colorado Department of Public Health and Environment has provided two source water assessment methodology documents that can be downloaded from the Colorado SWAP web site (**www.cdphe.state.co.us/wq/sw/swaphom.html**) and reviewed. These documents present a more detailed discussion on the assessment methodology used for surface water sources and ground water sources under the direct influence of surface water, and ground water sources for people who are interested.

Protection Process

Public water systems and communities are strongly encouraged to use their source water assessment information to voluntarily enter the protection phase of SWAP. The next step involves developing and continuously implementing a source water management or protection plan at the local level. **No statutory authority has been given to the Colorado Department of Public Health and Environment to force the adoption or implementation of source water protection measures. The authority to do so rests with local communities and governments.**

As depicted in the lower portion of Figure 1, the source water protection phase for all public water systems consists of four primary elements. These elements include:

1) involving stakeholders in the planning process;
2) developing a comprehensive protection plan for all of your drinking water sources;
3) implementing the protection plan on a continuous basis to reduce the risk of accidental contamination of the drinking water sources; and
4) monitoring the effectiveness of the protection plan and updating it accordingly as future assessment results indicate.

Involve Stakeholders

Public participation is crucial 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 protecting this valuable resource.

The public water supplier or any other well-suited local interest group may take the lead in organizing public participation in the local SWAP protection planning effort. For public participation to be effective, there must be a well-organized effort to raise public awareness, identify groups and individuals interested in helping, and to define and implement the necessary assessment and planning tasks. The lead group is encouraged to involve 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 efforts.

Develop Protection Plan

A source water management or protection plan essentially identifies (1) the specific management tools the public water system and community will use or the actions they will take to protect their source water, and (2) how the public water system and community will carry them out. A companion contingency plan is usually developed as part of the overall management plan. The contingency plan is essentially an emergency response plan for the water system that lays out a coordinated plan for responding rapidly, effectively, and efficiently to any emergency incident that threatens or disrupts the community water supply. Emergency incidents are any man-made events (e.g., chemical contamination, fire, vandalism, terrorism) or natural events (e.g., drought, fire, tornado) that can adversely affect the capability of the public water system to provide a steady supply of safe drinking water to its consumers. Public water systems and communities are encouraged to be creative in developing these plans.

Implement Protection Plan

The reduction of risk of accidental contamination of drinking water sources is affected by how well the public water system and community carry out the specific management tools they use or the actions they take to protect their source water. This requires a proper commitment of funding resources and personnel by the public water system and community to implement the source water protection measures they have developed. Considering the high cost of cleaning up contaminants once they have been released to the environment, this commitment may well be a reasonable investment to protect the natural quality of the drinking water source and avoid potential costly treatment of a contaminated water supply and/or costly development of a new water supply. The Colorado Department of Public Health and Environment also encourages public water systems and decision-makers to use their source water assessment results in making local land use decisions. Public water systems and communities interested in developing and implementing source water protection measures may be able to find limited financial assistance through the Colorado Department of Public Health and Environment.

Monitor and Update Protection Plan

Public water systems and communities are encouraged to monitor the effectiveness of the source water protection measures they have implemented and to update their source water protection plan accordingly as future assessment results indicate. In developing a protection plan, each public water system is encouraged to identify measurable results that can be used to monitor the success of the protection measures they have implemented. Source water protection plans may need to be revised to address new potential threats over time as new assessment results become available. As shown in Figure 1, SWAP was designed to be an iterative process, alternating back and forth between assessment and protection phases.

The primary elements of the protection phase discussed above are meant as a guide to public water systems and communities. In actual practice, developing and implementing source water

protection may be more or less complicated depending on the local community's willingness to adopt and implement source water protection measures. Additional source water protection information can be obtained by going to the U.S. Environmental Protection Agency's source water protection website (**www.epa.gov/safewater/protect.html**). Staff members at the Colorado Department of Public Health and Environment also are available to provide assistance with source water protection efforts.

Assessment Results

The source water assessment for **IDLEDALE WSD** rendered the following results:

- At the time of this assessment, the water supply consists of:

  - 4 active ground water sources
  - 0 active, purchased ground water sources

- Table 1 presents the cumulative results of the total susceptibility of the water source(s) to potential contamination from both discrete and dispersed contaminant sources. Water sources with total susceptibility ratings of Moderately High or High generally are at greater risk for potential contamination than those receiving lower ratings. As shown in Table 1, 1 active water source(s) was/were determined to have a Moderately High or High susceptibility to potential contamination.

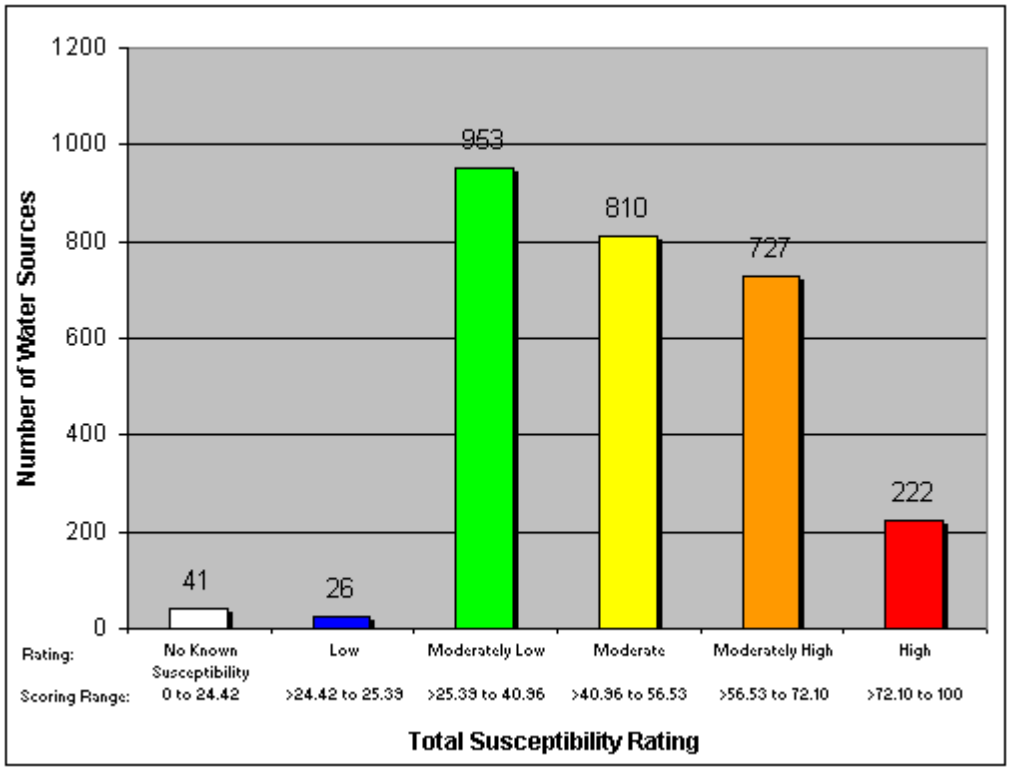
  There may be cases where the assessment was unable to verify the presence of discrete and dispersed contaminant sources based on the databases used for the contaminant inventory. In these cases, unless new information is identified and analyzed, the water source(s) is/are not currently known to be susceptible to potential contamination from any known discrete or dispersed contaminant sources. This situation is indicated in Table 1 by water sources receiving an overall susceptibility rating of "No Known Susceptibility."

  Table 1. Total Susceptibility Ratings for Water Sources.

Number of Water Sources	Susceptibility Rating
0	No Known Susceptibility
0	Low
2	Moderately Low
1	Moderate
1	Moderately High
0	High

  Figure 4 presents the statewide total susceptibility rating distribution plot for all ground water sources that were analyzed. The rating distribution plot presents the numerical scoring ranges associated with a given rating category, and the number of ground water sources throughout the state that received a specific qualitative rating. By comparing the results in Table 1 to Figure 4, one can see how the total susceptibility of the water source(s) in Table 1 compared to the total susceptibility of the other ground water sources throughout the state.

Figure 4. Statewide Total Susceptibility Rating Distribution Plot.



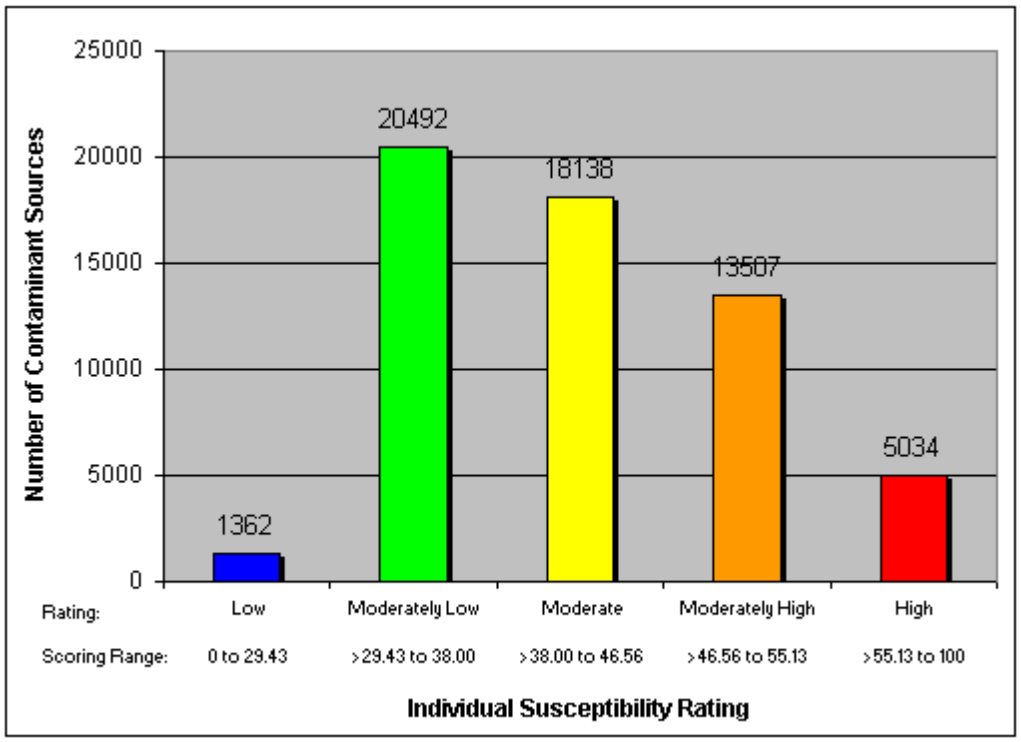
- Table 2 presents a summary of the individual susceptibility of the water source(s) to various types of discrete contaminant sources that were evaluated. Water sources with a Moderately High or High individual susceptibility to a discrete contaminant source generally are at greater risk for potential contamination from the discrete contaminant source than water sources receiving lower individual susceptibility ratings to similar or different discrete contaminant sources. The water source(s) has/have the greatest risk to potential contamination from the following types of discrete contaminant sources:

Table 2. Susceptibility of Water Source(s) to Discrete Contaminant Sources.

Contaminant Source Type	Individual Susceptibility Rating Summary (cumulative count for all water sources)				
	Low	Mod. Low	Moderate	Mod. High	High
EPA Superfund Sites	0	0	0	0	0
EPA Abandoned Contaminated Sites	0	0	0	0	0
EPA Hazardous Waste Generators	0	3	0	0	0
EPA Chemical Inventory/Storage Sites	0	0	0	0	0
EPA Toxic Release Inventory Sites	0	0	0	0	0
Permitted Wastewater Discharge Sites	0	2	0	0	0
Aboveground, Underground and Leaking Storage Tank Sites	0	5	0	0	0
Solid Waste Sites	0	0	0	0	0
Existing/Abandoned Mine Sites	0	0	9	1	0
Concentrated Animal Feeding Operations	0	0	0	0	0
Other Facilities	0	5	1	0	0
TOTAL:	**0**	**15**	**10**	**1**	**0**

Figure 5 presents the statewide rating distribution plot of the individual susceptibility to various types of discrete contaminant sources for all ground water sources that were analyzed. The rating distribution plot presents the numerical scoring ranges associated with a given rating category, and the number of discrete contaminant sources throughout the state that received a specific qualitative rating. By comparing the total count results in Table 2 to Figure 5, one can see how the individual susceptibility results of the water source(s) in Table 2 compared to the combined individual susceptibility results of the other ground water sources throughout the state.

Figure 5. Statewide Rating Distribution Plot of Individual Susceptibility to Discrete Contaminant Sources.



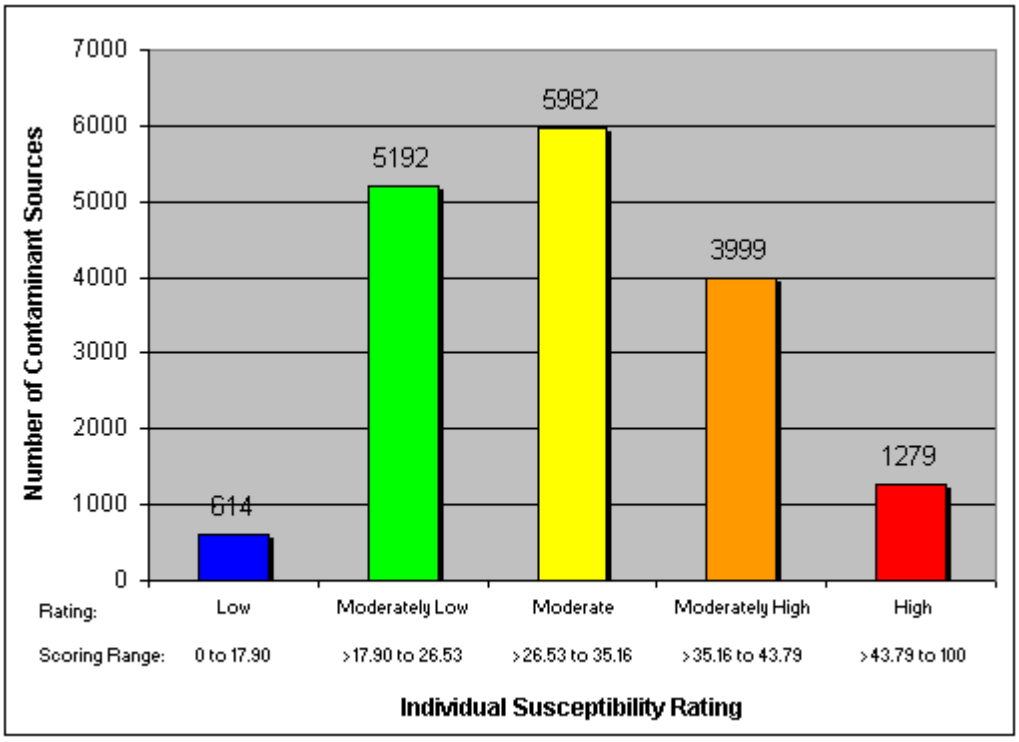
- Table 3 presents a summary of the individual susceptibility of the water source(s) to various types of dispersed contaminant sources that were evaluated. Water sources with a Moderately High or High individual susceptibility to a dispersed contaminant source generally are at greater risk of potential contamination from the dispersed contaminant source than water sources receiving lower individual susceptibility ratings to similar or different dispersed contaminant sources. The water source(s) has/have the greatest risk to potential contamination from the following types of dispersed contaminant sources:

Table 3. Susceptibility of Water Source(s) to Dispersed Contaminant Sources.

Contaminant Source Type	Individual Susceptibility Rating Summary (cumulative count for all water sources)				
	Low	Mod. Low	Moderate	Mod. High	High
LAND USE / LAND COVER TYPES:					
Commercial/Industrial/Transportation	0	1	0	0	0
High Intensity Residential	0	0	0	0	0
Low Intensity Residential	0	3	0	0	0
Urban Recreational Grasses	0	1	0	0	0
Quarries / Strip Mines / Gravel Pits	0	0	0	0	0
Row Crops	0	1	0	0	0
Fallow	0	1	0	0	0
Small Grains	0	0	0	0	0
Pasture / Hay	0	1	0	0	0
Orchards / Vineyards / Other	0	0	0	0	0
Deciduous Forest	0	4	0	0	0
Evergreen Forest	0	0	3	1	0
Mixed Forest	0	0	0	0	0
OTHER TYPES:					
Septic Systems	0	0	1	0	0
Oil / Gas Wells	0	0	0	0	0
Road Miles	0	1	1	1	0
TOTAL:	**0**	**13**	**5**	**2**	**0**

Figure 6 presents the statewide rating distribution plot of the individual susceptibility to various types of dispersed contaminant sources for all ground water sources that were analyzed. The rating distribution plot presents the numerical scoring ranges associated with a given rating category, and the number of dispersed contaminant sources throughout the state that received a specific qualitative rating. By comparing the total count results in Table 3 to Figure 6, one can see how the individual susceptibility results of the water source(s) in Table 3 compared to the combined individual susceptibility results of the other ground water sources throughout the state.

Figure 6. Statewide Distribution Plot of Individual Susceptibility to Dispersed Contaminant Sources.



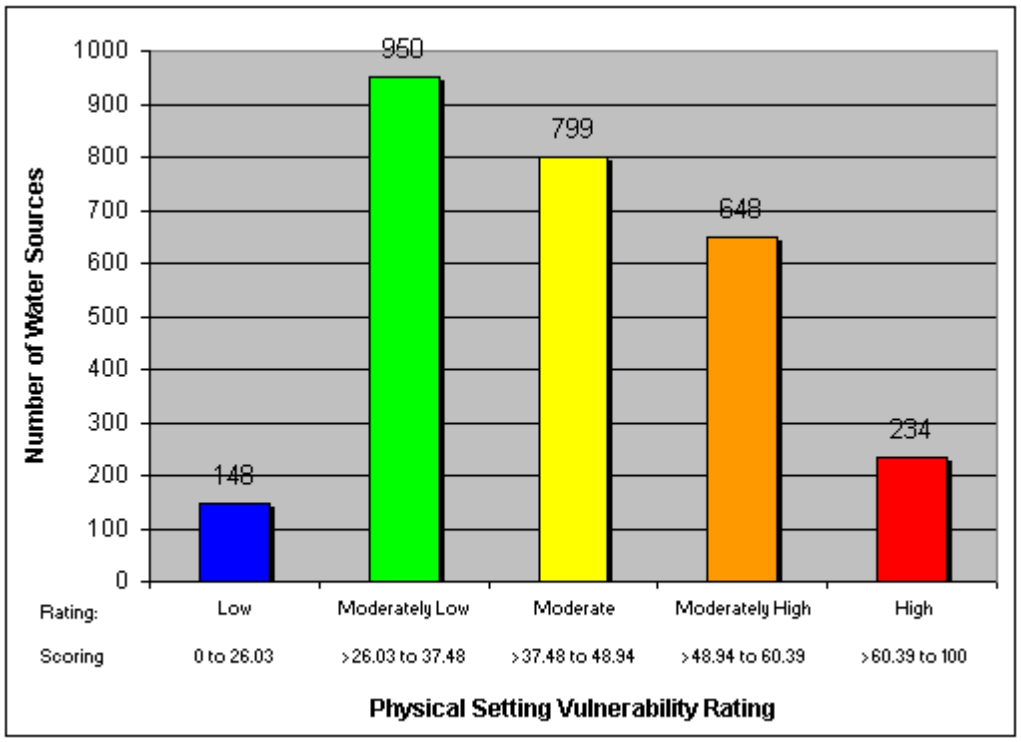
- Table 4 presents the cumulative results of the physical setting vulnerability ratings of the water source(s). A vulnerable physical setting generally means the water source(s) will be more susceptible to potential contamination. Water sources with physical setting vulnerability ratings of Moderately High or High generally are expected to have higher levels of potential susceptibility to contamination. As shown in Table 4, 0 active water source(s) was/were determined to have a Moderately High or High physical setting vulnerability.

Table 4. Physical Setting Vulnerability Ratings for Water Sources.

Number of Water Sources	Physical Setting Vulnerability Rating
0	Low
4	Moderately Low
0	Moderate
0	Moderately High
0	High

Figure 7 presents the statewide physical setting vulnerability rating distribution plot for all ground water sources that were analyzed. The rating distribution plot presents the numerical scoring ranges associated with a given rating category, and the number of ground water sources throughout the state that received a specific qualitative rating. By comparing the results in Table 4 to Figure 7, one can see how the physical setting vulnerability of the water source(s) in Table 4 compared to the physical setting vulnerability of the other ground water sources throughout the state.

Figure 7. Statewide Physical Setting Vulnerability Rating Distribution Plot.



The physical setting vulnerability remains important even where no or very few potential contaminant sources (discrete and/or dispersed) have been identified within the source water assessment area. In this case, if the physical setting vulnerability for a water source is estimated to be Moderately High or High, it could cause an increased susceptibility to contamination in the future if certain discrete and/or dispersed contaminant sources were located within the source water assessment area. This potential impact ultimately will depend on the degree of contaminant threat posed by the specific potential contaminant sources. Public water systems are strongly encouraged to consider this in their source water protection planning efforts, and to be vigilant to the introduction of potential contaminant sources within highly vulnerable physical settings. Such information may be useful to local land use planning agencies making land use and zoning decisions related to the siting of these future potential contaminant sources.

Additional Considerations

The source water assessment provides 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. This evaluation is comparable to what a doctor might use to screen a patient for a particular medical condition. The results of this assessment reflect the best efforts of the Colorado Department of Public Health and Environment and its contractors to simplify several complex physical, chemical and operational processes, and to assemble quality data sets for use in the assessment. Future improvements to the source water assessment results are envisioned as additional data become available. The Colorado Department of Public Health and Environment is confident that this assessment provides useful information to communities concerning the contaminant sources to which their water supply is potentially most susceptible. Public water systems also can use this information to evaluate the need for improvement to current water treatment capabilities, so as to be better prepared for future contamination threats.

This report represents the public version of the source water assessment that the Colorado Department of Public Health and Environment is required to make available under the Safe Drinking Water Act. The public version differs from the public water system version in that more detailed supporting information (e.g., input data and maps) was provided to each public water system as part of their report. Some of this supporting information is viewed by the Colorado Department of Public Health and Environment and many public water systems as security sensitive. Under the Colorado Open Records Act, certain information can be withheld from public disclosure if the information can be characterized either as "details of security arrangements or investigations" [section 27-72-204(3)(a)(XVII) C.R.S] or as information whose disclosure "would do substantial injury to the public interest" [section 24-72-204(6)(a) C.R.S.]. The Colorado Department of Public Health and Environment has determined that the following security sensitive information meets one or both of the preceding characterization criteria and will be withheld from public disclosure:

- Location information about the public water system's intakes/wells, treatment facilities, and diversion/conveyance structures, as well as location information about potential sources of contamination. Location information would include location coordinates, physical addresses and maps showing the locations of the intakes/wells, treatment facilities, diversion/conveyance structures, and potential sources of contamination;
- Hazardous chemical quantities, type, processes, and/or likelihood of release;
- Well/intake depths; and
- Structural integrity information concerning the drinking water intakes/wells.

Public water systems also will be given the opportunity to provide the Colorado Department of Public Health and Environment with rationale for excluding additional supporting information from public disclosure once they have received and reviewed their source water assessment report. Their rationale must meet one or both of the preceding characterization criteria established under the Colorado Open Records Act to be acceptable.

Consumers are encouraged to contact ***IDLEDALE WSD*** at ***303-697-9077*** if you are:

- interested in knowing more about the supporting information provided to the public water system; or
- interested in what source water protection measures the water system may be developing.

If you have questions concerning the results presented in the public version of the source water assessment, the methodologies used in the source water assessment, or the SWAP program in general, please contact the Colorado Department of Public Health and Environment at (303) 692-3592.

DISCLAIMER

This Source Water Assessment utilized information from a variety of public and other sources, and as such, no warranty of merchantability or of fitness for a particular purpose, expressed or implied, shall apply and the Colorado Department of Public Health and Environment specifically disclaims the making of such warranties. In no event shall the Colorado Department of Public Health and Environment be liable to anyone for special, incidental, consequential or exemplary damages.

SOURCE WATER ASSESSMENT REPORT

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

IDLEDALE WSD

Public Water System ID: CO0130055

LAKEWOOD, CO

JEFFERSON County

11/8/2004

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

SOURCE WATER ASSESSMENT SUMMARY

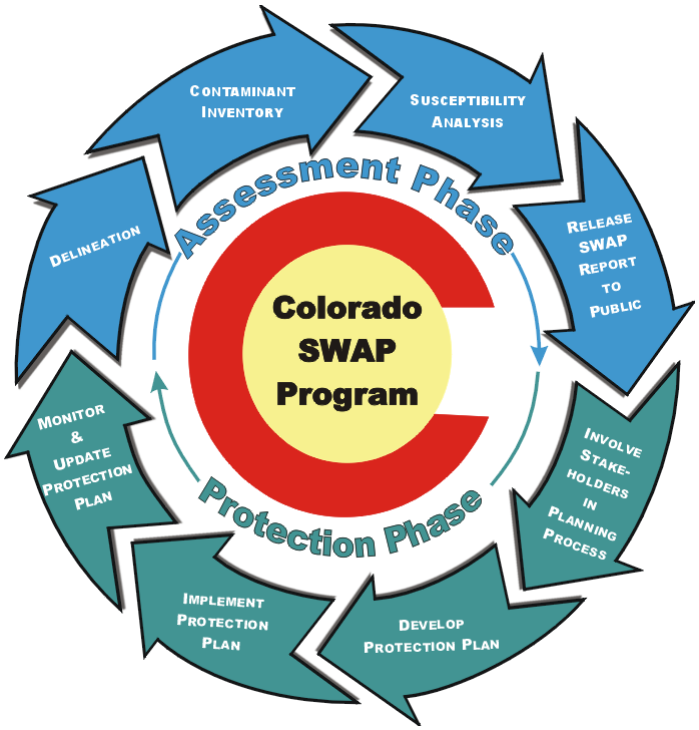
Background

The Colorado Department of Public Health and Environment (CDPHE) has completed a source water assessment for **IDLEDALE WSD** as required by the 1996 Safe Drinking Water Act amendments and in accordance with Colorado's Source Water Assessment and Protection (SWAP) program. The purpose of this assessment is to analyze the potential susceptibility of each public drinking water source to contamination, and to supply pertinent information so that decision-makers voluntarily can develop and implement appropriate preventive measures to protect these water sources. The Safe Drinking Water Act requires that the public water system and its consumers be informed of the assessment results.

SWAP Process

The SWAP program is a multi-step two-phased process (Figure 1) designed to assist public water systems in preventing accidental contamination of their untreated drinking water supplies. These phases include the assessment phase and the protection phase as depicted in the upper and lower portions of Figure 1, respectively.

Figure 1. Source Water Assessment and Protection Process.



The assessment phase involves understanding where each public water system's source water comes from, what contaminant sources potentially threaten the water source(s), and how

susceptible each water source is to potential contamination. The product of the assessment phase is contained in this report.

The protection phase occurs when local decision-makers use the source water assessment results and other pertinent information to develop management and response strategies to protect the water sources from potential contamination.

Assessment Process

As depicted in the upper portion of Figure 1, the source water assessment for all public water systems consists of four primary elements. These elements include:

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 and;
4) reporting the results of the source water assessment to the public water systems and the general public.

Public water systems were given the opportunity to review and provide corrections and/or feedback on draft versions of their source water assessment area delineations and their contaminant source inventories. All pertinent corrections and feedback were incorporated into this assessment.

Delineation of Source Water Assessment Area

The source water assessment area defines the area or region of the watershed or aquifer contributing untreated water to the public water system's source water intake. The area also defines where potential contamination of this water source could occur.

A public water system may have rights to use one or more source water types for drinking water. These source water types include:

- Surface water source - any "untreated" water source that is diverted directly from a stream, river, lake, pond or similar surface water body.
- Ground water source - any "untreated" water source that is diverted directly from an underground source of water (i.e., an aquifer).
- Ground water source under the direct influence of surface water - any "untreated", shallow, ground water source that testing has shown to be in hydrologic connection to a nearby surface water body.

For surface water systems and ground water systems under the influence of surface water, the source water assessment area includes the watershed drainage area above the intake, and any secondary diversion structures used to divert untreated water from other watersheds.

A public water system also may have purchased water sources. A purchased water source includes any "treated" surface water source, ground water source and/or ground water source under the influence of surface water that is purchased from another public water system.

This assessment report presents the results only for active surface water sources and/or ground water sources under the direct influence of surface water that the public water system has rights to use for drinking water. Assessment results for any purchased water sources that the public water system may have are presented in the source water assessment report(s) for the public water system that supplies the purchased water source.

Contaminant Source Inventory

Drinking water sources are susceptible to contamination from a wide variety of natural and man-made threats. Figure 2 illustrates some of the potential contaminant sources that might be encountered for surface water and ground water sources, and how contaminants from these sources can enter the source water. Potential contaminant sources include anything likely to manufacture, produce, use, store, dispose, or transport regulated and unregulated contaminants of concern. Potential contaminant sources were divided into two groups for this assessment:

- Discrete contaminant sources – generally include facility-related operations from which the potential release of contamination would be confined to a relatively small area.
- Dispersed contaminant sources – generally include broad based land uses and miscellaneous sources from which the potential release of contamination would be spread widely over a relatively large area.

Figure 2. Examples of Potential Contaminant Sources and How Contaminants Can Enter Your Source Water.

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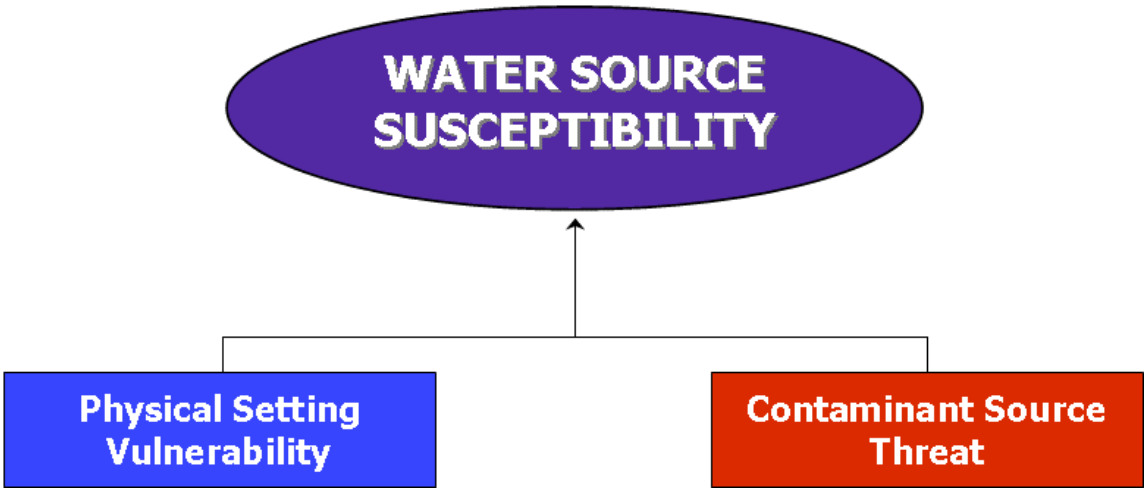
Susceptibility Analysis

The current analysis looks at the susceptibility of a water source to individual potential contaminant sources (referred to as individual susceptibility), as well as the total susceptibility of a water source to all of the individual potential contaminant sources that were inventoried within its source water assessment area. The susceptibility of a surface water source or a ground water source under the direct influence of surface water to an individual potential contaminant source depends on the two primary factors: physical setting vulnerability and contaminant source threat, as shown in Figure 3.

Figure 3. Components of Water Source Susceptibility.



Physical Setting Vulnerability – involves an evaluation of the ability of the watershed setting in the source water assessment area to provide a sufficient buffering capacity to mitigate potential contaminant concentrations in the source water. This ability is affected by physical characteristics like the total size of the source water assessment area, annual precipitation, soil properties and vegetative cover within the source water assessment area, as well as the structural soundness of the intake itself.

Contaminant Source Threat – involves an evaluation of the potential for a contaminant source to provide contaminants in sufficient amounts for the source water to become contaminated at concentrations that may pose a health concern to consumers of the water. The potential threat is affected by the types and volumes of potential contaminants that might be present, the likelihood that contaminants might be released, and the proximity of the contaminant source to the source water intake and its proximity to the surface water body supplying the untreated source water.

The total susceptibility of a water source is determined from its cumulative susceptibility to all of the discrete contaminant sources and all of the dispersed contaminant sources that were inventoried in its source water assessment area. In other words, the total susceptibility of a water source is a reflection of the combined individual susceptibilities posed by all of the discrete and all of the dispersed contaminant sources inventoried in the source water assessment area.

Therefore, the susceptibility of a water source to all discrete contaminant sources is a reflection of the combined individual susceptibilities posed by each discrete contaminant source that was inventoried. Likewise, the susceptibility of a water source to all dispersed contaminant sources is a reflection of the combined individual susceptibilities posed by each dispersed contaminant source that was inventoried.

In order to determine the susceptibility of a water source to potential contamination, the Colorado Department of Public Health and Environment developed a unique susceptibility analysis model and scoring system to evaluate the different physical setting vulnerability and contaminant threat factors that contribute to the susceptibility of a water source. This unique model and scoring system serves as the benchmark by which the potential susceptibility of other like water sources in the state can be measured or judged. *Therefore, the results of your source water assessment are not directly comparable to results from other states. These assessment results are only meaningful when compared to other surface water sources and ground water sources under the direct influence of surface water in Colorado.*

To provide the reader a general sense of the degree of potential risk to a water source, the total susceptibility scores, individual susceptibility scores and physical setting vulnerability scores are assigned qualitative ratings of Low, Moderately Low, Moderate, Moderately High, or High based on statistical indicators established by the Colorado Department of Public Health and Environment. In developing the qualitative ratings for these particular factors, a commonly applied statistical approach is used to group the scores for each of these factors into the five possible rating categories. This approach is not unlike what a teacher uses in grading student test scores. The statistical approach determines the factor score's relative position within the statewide populations of total susceptibility scores, individual susceptibility scores or physical setting vulnerability scores for the more than 500 surface water sources and ground water sources under the direct influence of surface water that were analyzed.

In general, the higher the susceptibility rating for the water source, the greater the risk for potential contamination of the water source. For example, a total susceptibility rating of Moderately High or High generally means that the potential vulnerability posed by the physical setting of the water source and the cumulative potential threats posed by the various contaminant sources are proportionately higher than the vulnerability and cumulative threats posed to an average surface water source or ground water source under the direct influence of surface water in the state. Similarly, an individual susceptibility rating of Moderately High or High generally means that the potential vulnerability posed by the physical setting of the water source and the potential threat posed by an individual contaminant source is proportionately higher than the vulnerability and individual threat posed to an average surface water source or ground water source under the direct influence of surface water in the state.

Likewise, the higher the physical setting vulnerability rating for the water source, the more vulnerable the water source is to potential contamination. A physical setting vulnerability rating of Moderately High or High generally means that the physical setting of the water source potentially provides proportionately less buffering capability to mitigate potential contaminant concentrations in the source water when compared to an average surface water source or ground water source under the direct influence of surface water in the state.

The results of the statistical evaluations are easier to understand by plotting the statewide distribution of the total and individual susceptibility ratings, and the physical setting vulnerability ratings for all surface water sources and ground water sources under the direct influence of surface water that were analyzed. The final statewide total susceptibility, individual susceptibility and physical setting vulnerability rating distribution plots generated from the evaluations are presented in the assessment results section of this report. These rating distribution plots present the numerical scoring ranges associated with a given rating category, and the number of water sources or contaminant sources throughout the state that received a specific rating.

The Colorado Department of Public Health and Environment has provided two source water assessment methodology documents that can be downloaded from the Colorado SWAP web site (**www.cdphe.state.co.us/wq/sw/swaphom.html**) and reviewed. These documents present a more detailed discussion on the assessment methodology used for surface water sources and ground water sources under the direct influence of surface water, and ground water sources for people who are interested.

Protection Process

Public water systems and communities are strongly encouraged to use their source water assessment information to voluntarily enter the protection phase of SWAP. The next step involves developing and continuously implementing a source water management or protection plan at the local level. **No statutory authority has been given to the Colorado Department of Public Health and Environment to force the adoption or implementation of source water protection measures. The authority to do so rests with local communities and governments.**

As depicted in the lower portion of Figure 1, the source water protection phase for all public water systems consists of four primary elements. These elements include:

1) involving stakeholders in the planning process;
2) developing a comprehensive protection plan for all of your drinking water sources;
3) implementing the protection plan on a continuous basis to reduce the risk of accidental contamination of the drinking water sources; and
4) monitoring the effectiveness of the protection plan and updating it accordingly as future assessment results indicate.

Involve Stakeholders

Public participation is crucial 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 protecting this valuable resource.

The public water supplier or any other well-suited local interest group may take the lead in organizing public participation in the local SWAP protection planning effort. For public participation to be effective, there must be a well-organized effort to raise public awareness, identify groups and individuals interested in helping, and to define and implement the necessary assessment and planning tasks. The lead group is encouraged to involve 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 efforts.

Develop Protection Plan

A source water management or protection plan essentially identifies (1) the specific management tools the public water system and community will use or the actions they will take to protect their source water, and (2) how the public water system and community will carry them out. A companion contingency plan is usually developed as part of the overall management plan. The contingency plan is essentially an emergency response plan for the water system that lays out a coordinated plan for responding rapidly, effectively, and efficiently to any emergency incident that threatens or disrupts the community water supply. Emergency incidents are any man-made events (e.g., chemical contamination, fire, vandalism, terrorism) or natural events (e.g., drought, fire, tornado) that can adversely affect the capability of the public water system to provide a steady supply of safe drinking water to its consumers. Public water systems and communities are encouraged to be creative in developing these plans.

Implement Protection Plan

The reduction of risk of accidental contamination of drinking water sources is affected by how well the public water system and community carry out the specific management tools they use or the actions they take to protect their source water. This requires a proper commitment of funding resources and personnel by the public water system and community to implement the source water protection measures they have developed. Considering the high cost of cleaning up contaminants once they have been released to the environment, this commitment may well be a reasonable investment to protect the natural quality of the drinking water source and avoid potential costly treatment of a contaminated water supply and/or costly development of a new water supply. The Colorado Department of Public Health and Environment also encourages public water systems and decision-makers to use their source water assessment results in making local land use decisions. Public water systems and communities interested in developing and implementing source water protection measures may be able to find limited financial assistance through the Colorado Department of Public Health and Environment.

Monitor and Update Protection Plan

Public water systems and communities are encouraged to monitor the effectiveness of the source water protection measures they have implemented and to update their source water protection plan accordingly as future assessment results indicate. In developing a protection plan, each public water system is encouraged to identify measurable results that can be used to monitor the success of the protection measures they have implemented. Source water protection plans may need to be revised to address new potential threats over time as new assessment results become

available. As shown in Figure 1, SWAP was designed to be an iterative process, alternating back and forth between assessment and protection phases.

The primary elements of the protection phase discussed above are meant as a guide to public water systems and communities. In actual practice, developing and implementing source water protection may be more or less complicated depending on the local community's willingness to adopt and implement source water protection measures. Additional source water protection information can be obtained by going to the U.S. Environmental Protection Agency's source water protection website (**www.epa.gov/safewater/protect.html**). Staff members at the Colorado Department of Public Health and Environment also are available to provide assistance with source water protection efforts.

Assessment Results

The source water assessment for **IDLEDALE WSD** rendered the following results:

- At the time of this assessment, the water supply consists of:

  - 1 active surface water sources
  - 0 active ground water sources under the influence of surface water
  - 0 active, purchased surface water sources and/or purchased ground water sources under the influence of surface water

- Table 1 presents the cumulative results of the total susceptibility of the water source(s) to potential contamination from both discrete and dispersed contaminant sources. Water sources with total susceptibility ratings of Moderately High or High generally are at greater risk for potential contamination than those receiving lower ratings. As shown in Table 1, 1 active water source(s) was/were determined to have a Moderately High or High susceptibility to potential contamination.

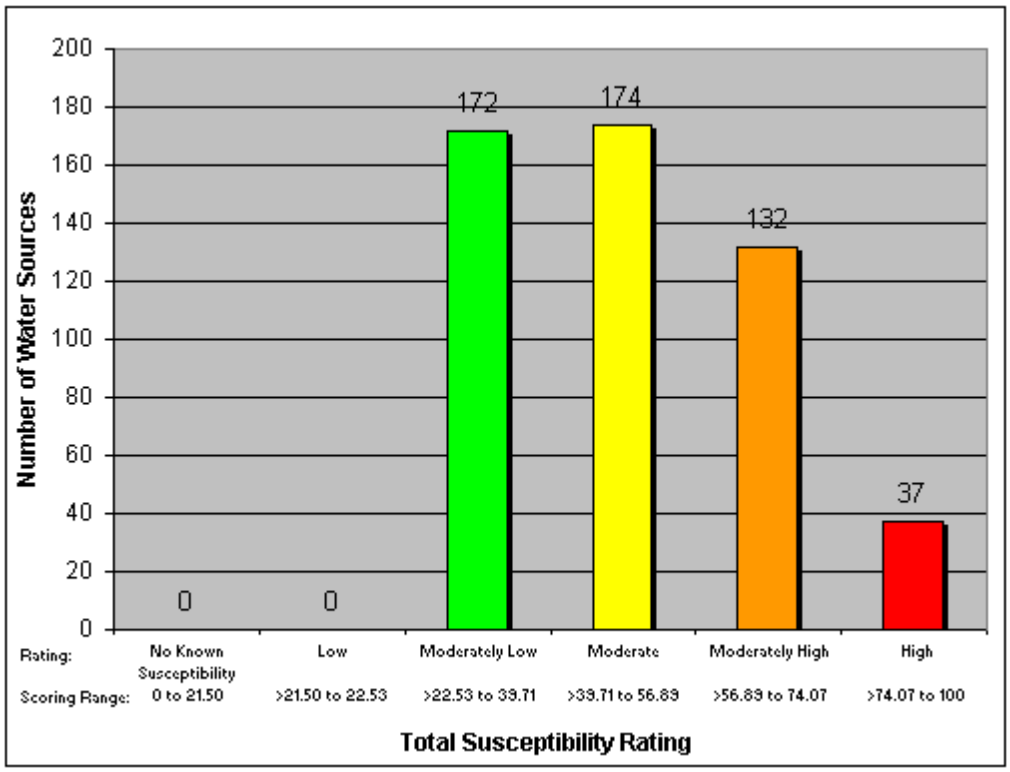
  There may be cases where the assessment was unable to verify the presence of discrete and dispersed contaminant sources based on the databases used for the contaminant inventory. In these cases, unless new information is identified and analyzed, the water source(s) is/are not currently known to be susceptible to potential contamination from any known discrete or dispersed contaminant sources. This situation is indicated in Table 1 by water sources receiving an overall susceptibility rating of "No Known Susceptibility."

  Table 1. Total Susceptibility Ratings for Water Sources.

Number of Water Sources	Susceptibility Rating
0	No Known Susceptibility
0	Low
0	Moderately Low
0	Moderate
1	Moderately High
0	High

Figure 4 presents the statewide total susceptibility rating distribution plot for all surface water sources and ground water sources under the direct influence of surface water that were analyzed. The rating distribution plot presents the numerical scoring ranges associated with a given rating category, and the number of surface water sources and ground water sources under the direct influence of surface water throughout the state that received a specific qualitative rating. By comparing the results in Table 1 to Figure 4, one can see how the total susceptibility of the water source(s) in Table 1 compared to the total susceptibility of the other surface water sources and ground water sources under the direct influence of surface water throughout the state.

Figure 4. Statewide Total Susceptibility Rating Distribution Plot.



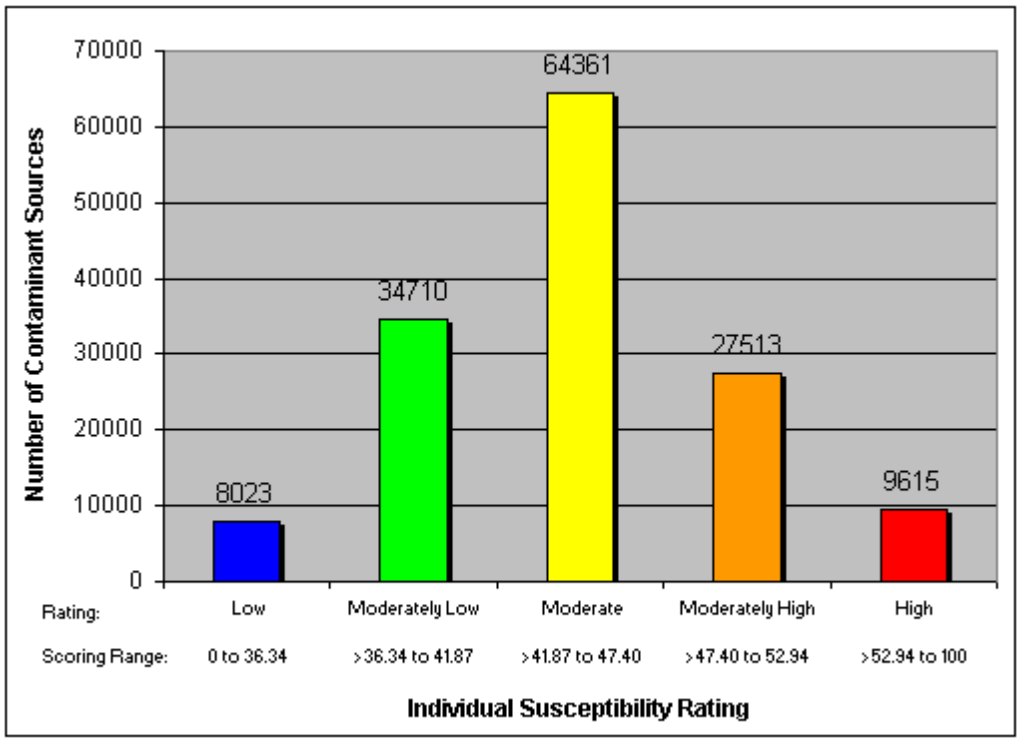
- Table 2 presents a summary of the individual susceptibility of the water source(s) to various types of discrete contaminant sources that were evaluated. Water sources with a Moderately High or High individual susceptibility to a discrete contaminant source generally are at greater risk for potential contamination from the discrete contaminant source than water sources receiving lower individual susceptibility ratings to similar or different discrete contaminant sources. The water source(s) has/have the greatest risk to potential contamination from the following types of discrete contaminant sources:

Table 2. Susceptibility of Water Source(s) to Discrete Contaminant Sources.

Contaminant Source Type	Individual Susceptibility Rating Summary (cumulative count for all water sources)				
	Low	Mod. Low	Moderate	Mod. High	High
EPA Superfund Sites	0	0	0	0	0
EPA Abandoned Contaminated Sites	0	0	0	0	0
EPA Hazardous Waste Generators	0	0	0	0	0
EPA Chemical Inventory/Storage Sites	0	0	0	0	0
EPA Toxic Release Inventory Sites	0	0	0	0	0
Permitted Wastewater Discharge Sites	0	0	0	0	0
Aboveground, Underground and Leaking Storage Tank Sites	0	0	0	0	0
Solid Waste Sites	0	0	0	0	0
Existing/Abandoned Mine Sites	0	0	0	0	1
Concentrated Animal Feeding Operations	0	0	0	0	0
Other Facilities	0	0	0	0	0
TOTAL:	**0**	**0**	**0**	**0**	**1**

Figure 5 presents the statewide rating distribution plot of the individual susceptibility to various types of discrete contaminant sources for all surface water sources and ground water sources under the direct influence of surface water that were analyzed. The rating distribution plot presents the numerical scoring ranges associated with a given rating category, and the number of discrete contaminant sources throughout the state that received a specific qualitative rating. By comparing the total count results in Table 2 to Figure 5, one can see how the individual susceptibility results of the water source(s) in Table 2 compared to the combined individual susceptibility results of the other surface water sources and ground water sources under the direct influence of surface water throughout the state.

Figure 5. Statewide Rating Distribution Plot of Individual Susceptibility to Discrete Contaminant Sources.



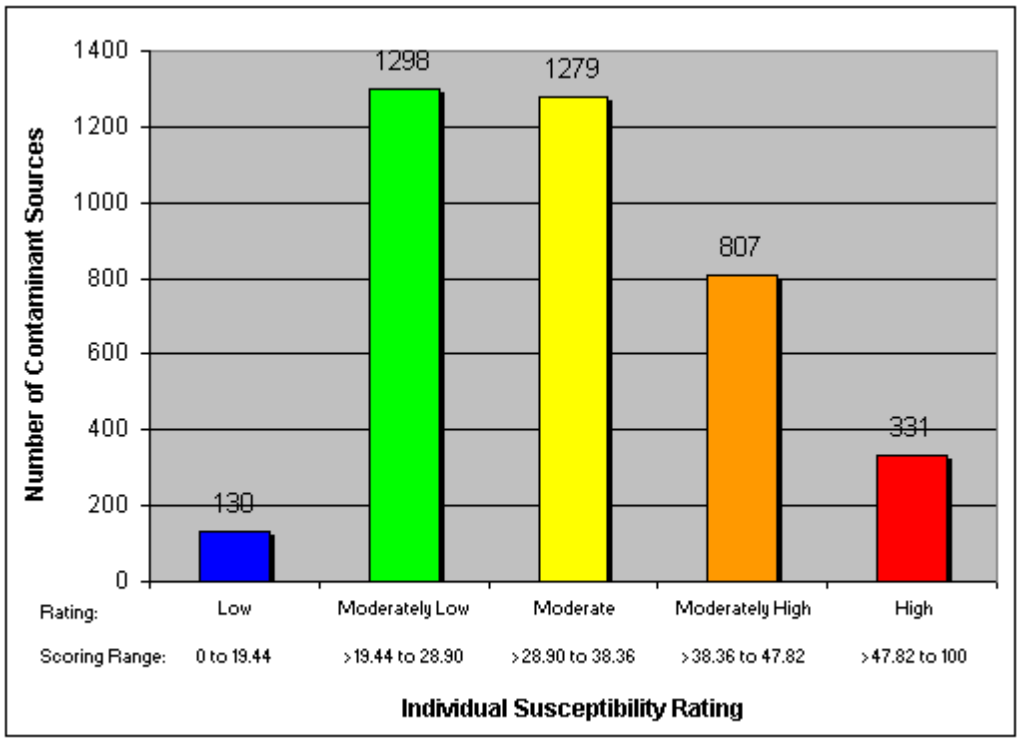
- Table 3 presents a summary of the individual susceptibility of the water source(s) to various types of dispersed contaminant sources that were evaluated. Water sources with a Moderately High or High individual susceptibility to a dispersed contaminant source generally are at greater risk of potential contamination from the dispersed contaminant source than water sources receiving lower individual susceptibility ratings to similar or different dispersed contaminant sources. The water source(s) has/have the greatest risk to potential contamination from the following types of dispersed contaminant sources:

Table 3. Susceptibility of Water Source(s) to Dispersed Contaminant Sources.

Contaminant Source Type	Individual Susceptibility Rating Summary (cumulative count for all water sources)				
	Low	Mod. Low	Moderate	Mod. High	High
LAND USE / LAND COVER TYPES:					
Commercial/Industrial/Transportation	0	0	0	1	0
High Intensity Residential	0	0	0	0	0
Low Intensity Residential	0	0	0	1	0
Urban Recreational Grasses	0	0	0	0	0
Quarries / Strip Mines / Gravel Pits	0	0	0	0	0
Row Crops	0	0	0	0	0
Fallow	0	0	0	1	0
Small Grains	0	0	0	0	0
Pasture / Hay	0	0	0	0	0
Orchards / Vineyards / Other	0	0	0	0	0
Deciduous Forest	0	0	0	1	0
Evergreen Forest	0	0	0	0	1
Mixed Forest	0	0	0	0	0
OTHER TYPES:					
Septic Systems	0	0	0	0	1
Oil / Gas Wells	0	0	0	0	0
Road Miles	0	0	0	0	1
TOTAL:	**0**	**0**	**0**	**4**	**3**

Figure 6 presents the statewide rating distribution plot of the individual susceptibility to various types of dispersed contaminant sources for all surface water sources and ground water sources under the direct influence of surface water that were analyzed. The rating distribution plot presents the numerical scoring ranges associated with a given rating category, and the number of dispersed contaminant sources throughout the state that received a specific qualitative rating. By comparing the total count results in Table 3 to Figure 6, one can see how the individual susceptibility results of the water source(s) in Table 3 compared to the combined individual susceptibility results of the other surface water sources and ground water sources under the direct influence of surface water throughout the state.

Figure 6. Statewide Rating Distribution Plot of Individual Susceptibility to Dispersed Contaminant Sources.



- Table 4 presents the cumulative results of the physical setting vulnerability ratings of the water source(s). A vulnerable physical setting generally means the water source(s) will be more susceptible to potential contamination. Water sources with physical setting vulnerability ratings of Moderately High or High generally are expected to have higher levels of potential susceptibility to contamination. As shown in Table 4, 1 active water source(s) was/were determined to have a Moderately High or High physical setting vulnerability.

Table 4. Physical Setting Vulnerability Ratings for Water Sources.

Number of Water Sources	Physical Setting Vulnerability Rating
0	Low
0	Moderately Low
0	Moderate
0	Moderately High
1	High

Figure 7 presents the statewide physical setting vulnerability rating distribution plot for all surface water sources and ground water sources under the direct influence of surface water that were analyzed. The rating distribution plot presents the numerical scoring ranges associated with a given rating category, and the number of surface water sources and ground water sources under the direct influence of surface water throughout the state that received a specific qualitative rating. By comparing the results in Table 4 to Figure 7, one can see how the physical setting vulnerability of the water source(s) in Table 4 compared to the physical setting vulnerability of the other surface water sources and ground water sources under the direct influence of surface water throughout the state.

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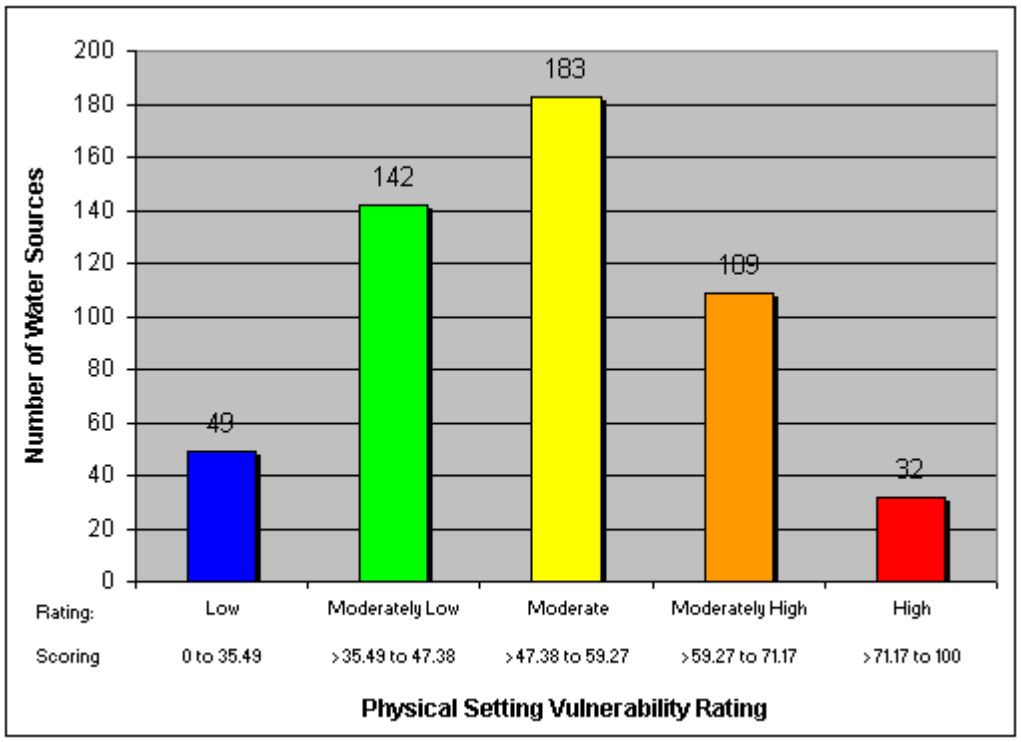

The physical setting vulnerability remains important even where no or very few potential contaminant sources (discrete and/or dispersed) have been identified within the source water assessment area. In this case, if the physical setting vulnerability for a water source is estimated to be Moderately High or High, it could cause an increased susceptibility to contamination in the future if certain discrete and/or dispersed contaminant sources were located within the source water assessment area. This potential impact ultimately will depend on the degree of contaminant threat posed by the specific potential contaminant sources. Public water systems are strongly encouraged to consider this in their source water protection planning efforts, and to be vigilant to the introduction of potential contaminant sources within highly vulnerable physical settings. Such information may be useful to local land use planning agencies making land use and zoning decisions related to the siting of these future potential contaminant sources.

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- interested in knowing more about the supporting information provided to the public water system; or
- interested in what source water protection measures the water system may be developing.

If you have questions concerning the results presented in the public version of the source water assessment, the methodologies used in the source water assessment, or the SWAP program in general, please contact the Colorado Department of Public Health and Environment at (303) 692-3592.

DISCLAIMER

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