



100017824

**THIRD FIVE-YEAR REVIEW REPORT FOR
FRENCH GULCH SITE
SUMMIT COUNTY, COLORADO**



Prepared by

**U.S. Environmental Protection Agency
Region 8
Denver, Colorado**

**AARON
URDIALES**

Digitally signed by
AARON URDIALES
Date: 2025.09.08
17:00:37 -06'00'

Aaron Urdiales, Director
Superfund and Emergency Management Division

Table of Contents

LIST OF ABBREVIATIONS AND ACRONYMS.....	3
I. INTRODUCTION	4
Site Background.....	4
FIVE-YEAR REVIEW SUMMARY FORM.....	6
II. RESPONSE ACTION SUMMARY	8
Basis for Taking Action	8
Response Actions.....	8
Status of Implementation of the Water Quality Action	11
Systems Operations/Operation and Maintenance (O&M).....	17
III. PROGRESS SINCE THE PREVIOUS REVIEW	19
IV. FIVE-YEAR REVIEW PROCESS	21
Community Notification, Community Involvement and Site Interviews	21
Data Review.....	22
Site Inspection.....	25
V. TECHNICAL ASSESSMENT	25
QUESTION A: Is the remedy functioning as intended by the decision documents?.....	25
QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels and RAOs used at the time of the remedy selection still valid?.....	26
QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?	27
VI. ISSUES/RECOMMENDATIONS	27
OTHER FINDINGS.....	28
VII. PROTECTIVENESS STATEMENT.....	28
VIII. NEXT REVIEW.....	29
APPENDIX A – REFERENCE LIST	A-1
APPENDIX B – SITE CHRONOLOGY.....	B-1
APPENDIX C – SITE MAPS	C-1
APPENDIX D – PRESS NOTICE	D-1
APPENDIX E – INTERVIEW FORMS	E-1
APPENDIX F – DATA REVIEW TABLES AND FIGURES	F-1
APPENDIX G – SITE INSPECTION CHECKLIST	G-1
APPENDIX H – SITE INSPECTION PHOTOS.....	H-1
APPENDIX I – DETAILED ARARS REVIEW	I-1

Tables

Table 1: CWQCC Water Quality Standards for Blue River Segments 2a, 2b and 11 (French Gulch).....	10
Table 2: Treatment System Effluent Limitations.....	11
Table 3: Summary of Implemented Institutional Controls (ICs)	16
Table 4: WTP Operational Summary, 2020 to 2025.....	18
Table 5: Percentage Time Discharging Versus Recycling.....	18
Table 4: Protectiveness Determinations/Statements from the 2020 FYR Report.....	19
Table 5: Status of Recommendations from the 2020 FYR Report.....	20
Table B-1: Site Chronology	B-1
Table F-1: Monitoring Locations	F-1
Table F-2: Median and Maximum Detected Dissolved Cadmium and Zinc Concentrations in Groundwater, 2020 to 2024	F-3
Table F-3: Surface Water BR-2 Dissolved Cadmium and Zinc Concentrations, 2020 to 2024	F-3

Figures

Figure 1: Site Vicinity Map.....	7
Figure 2: Area of the 2007 Environmental Covenant.....	17
Figure 3: Monitoring Locations.....	23
Figure C-1: Wellington-Oro Mine Water Treatment Plant Process Flow Schematic	C-1
Figure C-2: USGS Sample Locations.....	C-2
Figure F-1: French Gulch Dissolved Zinc Concentrations Over Time	F-5
Figure F-2: French Gulch Dissolved Cadmium Concentrations Over Time.....	F-6
Figure F-3: Blue River Dissolved Zinc Concentrations Over Time.....	F-7
Figure F-4: Blue River Dissolved Cadmium Concentrations Over Time	F-8
Figure F-5: Dissolved Zinc Concentrations in Groundwater Over Time.....	F-9
Figure F-6: Dissolved Cadmium Concentrations in Groundwater Over Time.....	F-9
Figure F-7: Dissolved Manganese Concentrations in Groundwater Over Time	F-10
Figure F-8: USGS Study Locations.....	F-11
Figure F-9: Cadmium Concentrations, Upstream to Downstream.....	F-12
Figure F-10: Zinc Concentrations, Upstream to Downstream	F-13

LIST OF ABBREVIATIONS AND ACRONYMS

3DVA	Three-Dimensional Visualization and Analysis
ARAR	Applicable or Relevant and Appropriate Requirement
BioteQ	BioteQ Environmental Technologies, Inc.
BR	Blue River
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIC	Community Involvement Coordinator
COC	Contaminant of Concern
CWQCC	Colorado Water Quality Control Commission
DCM	Discharge Control Mechanism
DEP	Dead Elk Pond
EE/CA	Engineering Evaluation/Cost Analysis
EPA	United States Environmental Protection Agency
ESAT	Environmental Services Team
ft-bgs	feet below ground surface
FG	French Gulch
FYR	Five-Year Review
gpm	Gallons per Minute
IC	Institutional Control
ln	Natural Log
MCL	Maximum Contaminant Level
MG	Million Gallons
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter
MIW	Mine-Influenced Water
MW	Monitoring Well
NA	Not Applicable
NCP	National Contingency Plan
NPL	National Priorities List
OPP	Opportunistic
O&M	Operation and Maintenance
PRP	Potentially Responsible Party
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RPM	Remedial Project Manager
USGS	United States Geological Survey
UU/UE	Unlimited Use and Unrestricted Exposure
W-O	Wellington Oro
WTP	Water Treatment Plant

I. INTRODUCTION

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency is preparing this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP) (40 Code of Federal Regulations Section 300.430(f)(4)(ii)) and considering the EPA's policy.

This is the third FYR for the French Gulch site (Site). The Site is not included on the EPA Superfund program's National Priorities List (NPL), but the EPA considers the Site an NPL-caliber site. Due to state and community concerns, the EPA deferred an NPL listing decision and is addressing the Site through a community-based environmental protection framework. The triggering action for this discretionary review is the previous FYR. This FYR has been prepared to meet the requirements of a 2005 Consent Decree and because hazardous substances, pollutants or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

Two separate response actions have been completed at the Site to address surface waste (the Capping Action) and water quality (the Water Quality Action).¹ The 2005 Consent Decree states that the EPA will conduct a review of whether the Water Quality Action is protective of human health and the environment at least every five years.² Therefore, the Water Quality Action is the main subject of this FYR Report. This report also summarizes activities for the Capping Action.

The EPA's remedial project manager (RPM) Josie Nusz led the FYR. Participants included the EPA's community involvement coordinator (CIC) Kate Tribbett, Mary Boardman and Alex Hedgepath from the Colorado Department of Public Health and Environment (CDPHE), and Ali Cattani and Johnny Zimmerman-Ward from the EPA's FYR support contractor Skeo. The town of Breckenridge and Summit County (Town and County), the parties responsible for the operation of the Wellington-Oro water treatment plant (WTP), were notified of the initiation of the FYR. The review began on 10/24/2024.

The EPA has determined in the FYR that the cleanup at the French Gulch site is not protective. Although the current remedy is protective of human health and allows for recreational reuse, it is not protective of the environment. Concentrations of zinc in surface water of Blue River Segment 2a do not meet the current water quality standards that support attainment of an adult brown trout fishery. The EPA and CDPHE will review the water quality standards and determine if updates are needed.

Site Background

The Site is located along French Gulch near the town of Breckenridge, about two miles upstream and east of the confluence of French Gulch with the Blue River (Figure 1).³ The Site includes mine wastes and the flooded mine pool associated with the former Wellington-Oro Mine complex. The majority of mining activities at the

¹ As described in the 1998 Action Memorandum (Capping Action) and the 2002 Action Memorandum and 2004 Addendum #1 (Water Quality Action); see Response Action section of this FYR Report for additional details.

² Section V of the 2005 Consent Decree required that the buyers (Town and County) perform the actions necessary to implement the Water Quality Action Memorandum in accordance with the Statement of Work, which was attached as Appendix 4 to the Consent Decree. According to the Statement of Work, "Buyers will cooperate with the EPA, in order to permit the EPA to conduct reviews of whether the Water Quality Action is protective of human health and the environment at least every five (5) years in accordance with the EPA's "Comprehensive Five-Year Review Guidance," Office of Solid Waste and Emergency Response Directive 9355.7-03BP, dated June 2001 (the "Guidance")."

³ French Gulch is also referred to as French Creek; they are used interchangeably in site documents. This FYR Report refers only to French Gulch.

Wellington-Oro Mine occurred between the 1880s and the 1930s; some mining continued until the 1970s. During those periods, lead, zinc, copper, silver and gold ores were removed from over 12 miles of tunnels, adits, drifts, stopes and crosscuts (about half of which are below the elevation of the groundwater table). The French Gulch valley floor was mined and dredged from the late 1850s to the 1940s, altering the valley topography and leaving behind large piles of boulders, cobbles and gravel. Acid mine water flowing through these mine workings becomes highly contaminated with dissolved metals, exits the mine in the form of seeps and enters French Gulch. The EPA's investigations in the late 1980s determined that the Wellington-Oro Mine pool was the major contributor of zinc and cadmium load from French Gulch into the Blue River. The French Gulch valley includes several abandoned mine and mill sites, the largest of which is the Wellington-Oro Mine complex.

At the western limit, the water level in the mine is above the level of French Gulch resulting in water discharges from the mine to the valley: (1) through faults and fractures that discharge to the alluvium; (2) as shallow alluvial groundwater flow; and (3) in the form of a series of springs that discharge mine pool water year round and intermittent springs located in dredge tailings piles that line the French Gulch valley floor.

French Gulch flows from east to west in the vicinity of the Wellington-Oro Mine complex and drains into the Blue River. The Blue River flows north through Breckenridge toward Dillon Reservoir, where it enters the southern arm of the reservoir about six miles north of Breckenridge. Dillon Reservoir is a drinking water supply for Denver, Colorado. Due to physical habitat barriers and elevated metals concentrations, fish are not present in French Gulch downstream of the Wellington-Oro Mine complex. Water quality above the mine is very good and supports a Cutthroat trout population. Chemical and physical barriers prevent the migration of fish from the Blue River into the upper reaches of the water body.

There are various land uses in the site area. Near the confluence of French Gulch into Blue River, the area is zoned for industrial and commercial uses. Further upstream along French Gulch (but downstream of the Wellington-Oro WTP), there is an area of existing residential development known as the Wellington Neighborhood and an associated development known as Lincoln Park. Recreational uses in the French Gulch area include biking, horseback riding, hiking and jogging. The Town and County own and manage about 1,800 acres near the Site as open space. This area includes the Wellington-Oro WTP.

Appendix A provides a list of resources used in the preparation of this FYR Report. Appendix B provides a chronology of site events.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: French Gulch		
EPA ID: CO0001093392		
Region: 8	State: Colorado	City/County: Breckenridge/Summit
SITE STATUS		
NPL Status: Non-NPL		
Multiple OUs? No	Has the Site achieved construction completion? No	
REVIEW STATUS		
Lead agency: The EPA		
Author name: EPA RPM Josie Nusz, with contractor support provided by Skeo		
Author affiliation: the EPA's Region 8 and Skeo		
Review period: 10/24/2024 – 9/2/2025		
Date of site inspection: 5/5/2025		
Type of review: Discretionary		
Review number: 3		
Triggering action date: 9/8/2020		
Due date (<i>five years after triggering action date</i>): 9/8/2025		

Figure 1: Site Vicinity Map



II. RESPONSE ACTION SUMMARY

Basis for Taking Action

The EPA and the state of Colorado (State) began evaluating the area near the Wellington-Oro Mine complex in the late 1980s under Section 319 of the Clean Water Act for a non-point source project. Between 1989 and 1995, the State conducted significant investigations at the Wellington-Oro Mine site (including the French Gulch Site) to determine the nature and extent of contamination. In 1995, it was determined that the scope and complexity of the problems at the Site exceeded the capacity of the non-point source program. Therefore, after conducting a preliminary assessment and site investigation, the EPA continued the investigations and remediation of the Site under CERCLA authority. However, due to State and community concerns, the EPA deferred an NPL listing decision and has proceeded to address the Site through a community-based environmental protection framework.

Conditions at the Site posed two primary public health and environmental issues. The public health issue was the potential risk to human health from exposure to elevated levels of lead and arsenic in the surface wastes. The environmental issue at the Site was the exposure of fish and aquatic invertebrates to heavy metals downstream from the Site. The EPA's 2002 ecological risk assessment found that dissolved metals in surface water downstream of the Wellington-Oro Mine were acutely toxic to fish and invertebrates. There were no risks to non-aquatic species from metals contamination in the stream. The ecological contaminants of concern (COCs) are cadmium and zinc. The EPA's human health risk assessment found no adverse effects to human health associated with elevated concentrations of dissolved metals in French Gulch or the Blue River.

Response Actions

The EPA has separated response actions at the Site into the surface waste action (the Capping Action) and the Water Quality Action. The Water Quality Action is the subject of this FYR Report. The Capping Action is described briefly below; it will not be discussed further in this FYR Report.

Surface Waste (Capping Action)

The U.S. Department of the Interior's Bureau of Reclamation, under an interagency agreement with the EPA, sampled surface waste at the Site in 1996 and identified elevated concentrations of lead and arsenic in the waste material. Following a screening-level risk assessment, the EPA determined that the surface wastes presented an imminent and substantial endangerment warranting response actions including a non-time-critical removal action. In 1998, B&B Mines, a potentially responsible party (PRP), completed an engineering evaluation/cost analysis (EE/CA) for the Wellington-Oro Mine complex that focused on reducing the risks associated with human exposures to waste containing lead and arsenic. The EE/CA addressed areas on the north side of French Gulch. The area was generally referred to as the French Gulch site or the Wellington-Oro Complex, even though the actual Wellington-Oro Mine was only one of the sites discussed. A secondary goal of the proposed action was to reduce the rate of leaching of metals into the surface and groundwater systems at the Site, although existing data indicated that the surface wastes were not significant contributors to groundwater or surface water contamination.

In September 1998, the EPA issued an Action Memorandum that provided for the consolidation and capping of mine waste (i.e., processed fine-grained material, mill tailings and waste rock). The PRP, with the EPA's oversight, performed the removal action under an Administrative Order issued in September 1998. The work included moving mine wastes to an area with reduced potential for human contact and capping with impermeable clay and clean gravel. The PRP also installed drainage ditches to reduce infiltration of rain and snow melt into the mine wastes. This work finished in June 1999. There are no current O&M requirements for this capped area.

Water Quality Action

Beginning in 1989, the EPA and the PRP conducted many investigations into the surface and groundwater near and downgradient of the Wellington-Oro Mine complex. The investigations included sampling to determine the sources and magnitude of metals contamination and migration pathways to French Gulch and the Blue River.

In May 2002, the EPA and the PRP completed a second EE/CA that focused on the impact of metals and acidity being released from the Wellington-Oro Mine complex on the water quality in French Gulch and the Blue River. The 2002 EE/CA Report concluded that the underground workings of the Wellington-Oro Mine constitute the largest source of metals loading to groundwater and surface water and that a natural seep, referred to as FG-6C, was thought to be the primary conduit of mine pool water into French Gulch. At the time of the EE/CA, the seep was reported to flow year-round at a rate ranging between 50 gallons per minute (gpm) and 150 gpm.

In November 2002, the EPA issued an Action Memorandum to address water quality issues at the Site as a non-time-critical removal action. EPA performed the following work as a part of the removal action: collection and treatment of water from seep FG-6C and the use of physical barriers to prevent non-native trout from migrating from the Blue River into upper French Gulch. The EPA updated the 2002 Action Memorandum with Addendum #1 in November 2004. This addendum addressed changes in the proposed action based on site-specific water quality standards for French Gulch (Blue River segment 11) and the Blue River, downstream of the confluence with French Gulch (Blue River segments 2a and 2b), adopted by the Colorado Water Quality Control Commission (CWQCC) after the initial memorandum was issued.⁴ The 2004 Addendum #1 allowed for evaluation of alternative treatment technologies of seep FG-6C. This ultimately resulted in the selection of the current WTP technology (sulfide precipitation without settling ponds) that is being used at the Site. The 2002 Action Memorandum and 2004 Addendum #1 are collectively referred to as the Water Quality Action Memorandum. The goal of EPA's response action was to improve water quality in French Gulch and reduce metals loading from French Gulch into the Blue River. The primary goal was to improve water quality in the Blue River so it will support a population of adult brown trout.

Major components of the selected response action included:

- Collection of water discharging at seep FG-6C, the primary source of acid mine drainage from Wellington-Oro Mine.
- Construction of a WTP where water from seep FG-6C will be pumped and treated to neutralize the acidity of the water and remove zinc and cadmium. The maximum pumping rate will be 150 gpm. During spring runoff, flows are expected to exceed this pumping rate. During that time, flows exceeding 150 gpm will bypass the treatment system.
- Use of physical/chemical processes to remove contaminants from the water. The treatment process will be selected based on cost, performance, reliability, sludge disposal and operator preferences. The effluent water quality discharged is to have a cadmium concentration of less than 4 micrograms per liter (µg/L) and a zinc concentration of less than 225 µg/L.
- Separation of solids generated from the treatment process from the water prior to discharge.
- Discharge of treated water into the French Gulch alluvium.
- Collection and disposal of metal sludges into either the abandoned mine workings or a solid waste landfill, or sale as a metal concentrate.
- If necessary, construction and maintenance of a physical barrier in French Gulch that will prevent non-native trout from migrating from the Blue River into upper French Gulch.
- Operation of the water treatment system for 24 hours a day, seven days a week, until water discharging from seep FG-6C no longer poses a risk to the environment.

The 2002 Action Memorandum specified the following performance standards for the Water Quality Action:

- Limit the concentration of dissolved cadmium in the Blue River to 4 µg/L, as measured at the United States Geological Survey (USGS) gauging station BR-2, located 115 feet downstream of the confluence with French Gulch.

⁴ The site-specific water quality standards approved by the CWQCC were originally proposed by the Summit Water Quality Committee, a group of local governments and major municipal dischargers in Summit County, in the group's May 2003 Use-Attainability Analysis, Lower French Gulch and Blue River Downstream from French Gulch near Breckenridge, Summit County, Colorado.

- Limit the concentration of dissolved zinc in the Blue River to 225 µg/L, as measured at the USGS gauging station BR-2, located 115 feet downstream of the confluence with French Gulch.

The 2004 Addendum #1 further clarified that the performance standards for the Water Quality Action are the CWQCC's water quality standards for zinc and cadmium in Segment 2a of the Blue River (Table 1). The water quality standards support attainment of an adult brown trout fishery in the Blue River for three miles downstream of its confluence with French Gulch. The EPA found that attaining the standards in Segment 2a of the Blue River would result in achieving the water quality standards in subsequent downstream segments. Table 1 summarizes the CWQCC site-specific water quality standards for Blue River Segments 2a and 2b as well as Blue River Segment 11 (French Gulch) in effect at the time of the 2004 Addendum #1 and still current. Figure 3 shows the locations of the stream segments.

Table 1: CWQCC Water Quality Standards for Blue River Segments 2a, 2b and 11 (French Gulch)

COC ^{a,b,c}	Segment 2a ^d	Segment 2b	Segment 11 (French Gulch)
Cadmium	4.0	$0.5e^{(1.016(\ln(\text{hardness}-3.132)))}$	Ambient
Zinc	$e^{(1.25(\ln(\text{hardness})+0.799))}$	$e^{(0.9805(\ln(\text{hardness})+1.402))}$	Ambient
<i>Notes:</i> - Performance standard values listed in the Site Cleanup Goals and Objectives Memorandum issued by the EPA in October 2004. - Based on cadmium and zinc toxicity to the different life stages of brown trout expected to occur in the Blue River below French Gulch. - Standards apply for both acute and chronic and are based on dissolved metals concentrations - Compliance with the CWQCC's water quality standards for zinc and chromium in Segment 2a of the Blue River is the performance standard for the Site's Water Quality Action. All surface water quality standards are in µg/L. ln = natural log			

The EPA's Site Cleanup Goals and Objectives Memorandum, dated October 2004, noted that, based on observed hardness found in the Blue River, the zinc standard in Segment 2a would range from 500 µg/L to 850 µg/L, which is almost twice or more the performance standard of 225 µg/L.⁵

In May 2005, after several years of negotiations, the EPA, the CDPHE, the Town and County, and B&B Mines entered into a Consent Decree requiring that the Town and County build and operate a WTP to address contaminated mine water pursuant to the Water Quality Action Memorandum and Statement of Work. The EPA identified applicable effluent limitations for discharges from the WTP in the Statement of Work, which is included as Appendix 4 to the 2005 Consent Decree. In July 2005, the EPA established the CERCLA-required applicable or relevant and appropriate requirements (ARARs) that the Water Quality Action must meet. The EPA finalized the discharge limitations in the Wellington Oro Mine Water Treatment Plant ARAR Compliance Document Discharge Control Mechanism (DCM) dated November 15, 2008. The DCM established specific discharge requirements for the WTP to ensure compliance with the applicable federal and State ARARs. discussed in the Water Quality Action Memorandum. The WTP's discharge limits were developed to be protective of existing conditions in Blue River Segment 11 (French Gulch) and were predicted to allow for attainment of the water quality standards in Blue River Segment 2a (Table 2).

⁵ Hardness is a characteristic of water defined by the concentration of dissolved minerals, primarily calcium and magnesium carbonates, measured in milligrams per liter (mg/L) as calcium carbonate, and is used as a criterion to classify water as soft, moderately hard, hard, or very hard. In the context of environmental regulations, hardness also serves as a criterion for determining [hardness-dependent metal criteria](#), such as for cadmium and zinc, in freshwater aquatic life criteria. The EPA uses hardness-based criteria to establish benchmark values for metals in discharges into freshwater, as the toxicity of many metals to aquatic life decreases as water hardness increases.

Table 2: Treatment System Effluent Limitations

Parameter ^b	Effluent Limit ^a	
	30-Day Average	Daily Maximum
Cadmium	4 µg/L	NA
Zinc	225 µg/L	NA
pH	NA	6.5 – 9.0
Oil and grease	NA	10 mg/L
Total suspended solids	20 mg/L	NA
<i>Notes:</i> a. The source is the Wellington Oro Mine Water Treatment Plant ARARs Compliance Document DCM, dated November 15, 2008; effluent limits became effective November 18, 2008. b. An additional requirement of the DCM is that “There shall be no discharge of floating solids or visible foam in other than trace amounts.” All metals are in total recoverable form. Limits apply to Outfall 001. No limits apply to discharges through Outfall 002 (bypass). NA = not applicable mg/L = milligrams per liter pH reported in standard units.		

Status of Implementation of the Water Quality Action

EPA initiated the Water Quality Action in 2004 when the EPA determined that two large existing culverts in French Gulch act as the fish barriers required by the Water Quality Action Memorandum. No additional barriers were necessary to prevent the movement of non-native fish in French Gulch.

Under the 2005 Consent Decree, the Town and County implemented the remaining actions required by the 2002 Action Memorandum. The Town and County also agreed to purchase 1,800 acres of land from B&B Mines, including the Wellington-Oro Mine complex, and restrict development on and administer the lands as open space. The Institutional Control Review section of this FYR Report includes further detail on the institutional controls required by the 2005 Consent Decree.

In December 2005, the Town and County submitted plans for the design and construction of a WTP near the FG-6C seep. The EPA and the CDPHE approved pre-final and final designs for the treatment plant in 2006 and 2007, respectively. The control system for the treatment plant was a proprietary system provided by BioteQ Environmental Technologies, Inc. (BioteQ). More details are provided below about the WTP’s operation as well as activities conducted at the Site since system operations began in 2008.

WTP Operation

The Town and County constructed the Wellington-Oro WTP and began operating the plant in November 2008. The WTP is designed to treat up to 150 gpm of water and remove zinc and cadmium collected from mine drainage. Figure C-1 in Appendix C provides an overview of the WTP process. The treatment plant uses a sulfide precipitation process to cause the precipitation of zinc and cadmium sulfides. A small amount of soda ash (sodium carbonate) was initially added to the process to change the pH to the optimal range for sulfide precipitation. Sulfides, in the form of sodium hydrosulfide, were also added in a controlled dose. The Town and County manages dosing so sufficient quantities of zinc and cadmium are removed to meet discharge limits, but excess hydrogen sulfide gas is not created (nor is too much iron precipitated)⁶. The precipitated solids settle to the bottom of a clarification tank while the treated water flows off the top. Solids generated from the treatment process are separated from the water prior to discharge. Soda ash is no longer used in the treatment process and has been replaced with sodium bicarbonate.

⁶ The Town and County aim to keep <15% iron removal (measured after clarifier and before filters) to limit iron in sludge cake, because there have been issues with ignition of sludge cake (under and around filter presses).

Initially, the zinc concentrate was recycled for metals recovery. However, as of 2020⁷, the non-hazardous concentrate is shipped off-site for disposal at a local landfill because the smelter that was recycling the sludge does not meet the requirements of the CERCLA Off-Site Rule.⁸ Treated water is released back to French Gulch via shallow injection well Outfall 1. This injection well was replaced in 2023 due to ongoing issues as described below and in the Systems Operations/Operation and Maintenance (O&M) section of this FYR Report.

Any discharges from the WTP that do not meet the applicable discharge limits are returned to the mine pool. Should the flow rate from the FG-6C seep exceed 150 gpm, the excess, untreated flow passively bypasses the collection structure through Outfall 2 (see Table 5 for a summary of discharge status of the WTP). Influent and effluent flow and pH are monitored continuously in the WTP via flow meter and pH probe, respectively. Grab samples of influent and effluent are used to sample for total suspended solids (TSS), hardness, total dissolved solids (TDS), zinc, and cadmium. TSS is analyzed weekly for effluent and quarterly for influent, and hardness is analyzed monthly for effluent and quarterly for influent. TDS is analyzed monthly for effluent and quarterly for influent. Zinc and cadmium are analyzed weekly for effluent and quarterly for influent. Dissolved zinc is also analyzed daily in influent and effluent grab samples using atomic absorption spectroscopy. The Systems Operations/ O&M and Data Review sections of this FYR Report describe the influent and effluent quality data.

Overall, the WTP has had consistent and considerable issues with achieving the zinc discharge standard, discharging to French Gulch and general issues with O&M activities, as described below. In recent years, EPA, CDPHE, and the Town and County have conducted two Optimization Reviews as well as several investigations, studies and, most recently, a limited treatability analysis, to identify options to optimize treatment and determine if additional actions are needed. The EPA, the CDPHE, and the Town and County are working together to identify ways to optimize the existing WTP and determine next steps.

2013 and 2022 Optimization Review – WTP

Various problems with the WTP have caused frequent and extended periods of time where the WTP fails to meet the applicable effluent standards. These exceedances of the effluent limitations result in diversion of the water back to the mine pool (also referred to as “recycling”). The EPA completed an optimization review of the system in 2013. The 2013 optimization review identified the following key issues:

- The WTP experienced a series of mechanical issues, including corrosion of equipment, clogging of pipes, scaling related to the soda ash system, and operating problems associated with inadequate controls and backfilling capabilities for the pressure filters. The filter system was the primary reason for the WTP failing to meet effluent standards.
- During times when the WTP could not meet the water quality standards, flows were directed back to the Wellington-Oro mine pool. During 2012, the WTP recycled partially-treated water to the mine for about 50% of the time it operated. This return water did not quite meet the zinc performance standard of 225 µg/L, but 99% of the zinc had been removed. An additional operational concern was raised that recycling mode extends the contact time between partially-treated water and the mineralized rock within the mine workings which could solubilize additional zinc and cadmium to generate higher concentrations in the mine-influenced water (MIW).
- The flow rate from seep FG-6C was only about 50 gpm; therefore, the WTP typically operated at less than 50% of its capacity and appeared to have the capacity to handle MIW from additional seeps if they were identified.

As a result of the 2013 optimization review, the EPA, the Town and County, and their contractors addressed some of the issues identified with the WTP. In May 2015, the Town and County began a treatability study for the WTP, with the approval of the EPA and the CDPHE. The treatability study allowed for a two-year modification to the water quality standards to help the system continuously discharge treated water and to help determine whether

⁷ EPA approved the use of Foothills Landfill in Jefferson County, Colorado, which was determined to be acceptable pursuant to the CERCLA Off-Site Rule.

⁸ The Off-Site Rule, promulgated on September 22, 1993 (58 FR 49200), requires that CERCLA wastes may only be placed in a facility operating in compliance with the Resource Conservation and Recovery Act (RCRA) or other applicable federal or state requirements.

treatment goals could be met. The treatability study was extended for a third year, to May 1, 2018, to allow further evaluation. During this time, the Town and County worked closely with BQE Water (formerly BioteQ), the water treatment process design engineers. Since 2013, multiple modifications were implemented to the WTP to correct issues and to improve the plant's efficiency, including: (1) updates to the programmable logic controller and the plant's monitoring software; (2) modifications to piping to prevent plugging; and (3) modifications to the reagent dosing systems. In 2016, the use of sodium hydroxide was tested to replace soda ash as a pH-adjustment reagent. However, sodium hydroxide did not provide the desired results because of the associated precipitation of metal hydroxides. Subsequently, a sodium bicarbonate addition was tested, which provided adequate results. The treatment system process was switched to use sodium bicarbonate in 2016, and it continues to be used instead of soda ash.

In 2015 and 2020, the EPA performed the first and second FYRs for the Site. The FYR reports concluded that the cleanup is not protective of the environment at the cleanup goals established in the 2002 Action Memorandum. Although the remedy was protective of human health and allows for recreational reuse, concentrations of zinc in the surface water of Blue River Segment 2a did not meet the performance standard of 225 µg/L.

The EPA completed a second optimization review in 2022. The optimization review indicated that although the WTP was designed for a flow rate from Seep FG-6C of 150 gpm, it likely could only treat a maximum flow rate of 110 gpm. During spring runoff, which typically lasts two to three weeks, the flow rate from the FG-6C seep occasionally exceeds the WTP's capacity.

The 2022 optimization review identified the following recommendations to improve the remedy's ability to achieve objectives, improve cost-effectiveness and improve technical performance:

- Increase zinc mass removal with capture of all flow at FG-6C and more pumping from shallow wells MW-3 and MW-4 and/or new wells near those locations (Figure 3 shows these locations).
- Consider an alternative treatment option such as in-mine treatment.
- Consider converting to passive treatment including a combination of anaerobic vertical flow wetlands, and aeration ponds.
- Confirm the effectiveness/ineffectiveness of WTP zinc mass removal.
- Replace the injection well with discharge to surface water.
- Produce annual reports with more information, including flow treated by month, influent and effluent concentrations, zinc and cadmium mass removed by month, and discharge disposition.

Based on the recommendation in the 2022 optimization review, the injection well into the shallow alluvium was replaced in 2023. However, issues with discharging to the well are ongoing. Other options, such as discharging directly to French Gulch or into an infiltration gallery, are being considered.

2025 Limited Treatability Assessment – WTP

In 2025, the EPA provided grant funding to the CDPHE for a bench and pilot study to determine if passive or semi-passive treatment would be an effective, less costly alternative to the current plant operations. The CDPHE selected a phased project approach. Phase A1, the initial phase, included review of available and existing information and refining of the Conceptual Site Model to develop the Phase A1 Final Work Plan/Quality Assurance Project Plan for French Gulch Data Gap Investigation for Passive Treatment Evaluation. This plan involved drilling new extraction wells to try to intersect the Bullhide fault, which is thought to be a major conveyance of contaminated groundwater from the mine pool. The goal was to capture another concentrated source of contaminated water for treatment in the current WTP before it discharges into French Gulch. Fieldwork began in September 2024. Two extraction wells (EW-3 and EW-4) were installed next to the two wells that have the highest concentrations of zinc and cadmium (MW-3 and MW-4). Due to issues with location and depth, these extraction wells did not target concentrations sources of contaminated water but will be used as additional monitoring points going forward.

A limited technology assessment was also conducted. It included a review of several passive or semi-passive treatment options, including lime basins, anaerobic wetlands, aeration ponds and a combination of some of these technologies. As summarized in the 2025 Limited Treatability Assessment, passive treatment may be effective at the Site; however, it would likely not be feasible to fully replace the WTP. Site conditions present many challenges for passive or semi-passive approaches, including high elevation, climate (winter weather), periodic high-flow rates, the need for long hydraulic residence times to achieve effluent goals (which may require substantial physical land area), and high contaminant concentrations in influent. The successful design and operation of such technical approaches requires further study. The EPA and CDPHE, along with the Town and County, are considering next steps for optimization of the plant and the ability to implement semi-passive or passive treatment options. If passive treatment appears to be a viable remedy, a bench and pilot study will be implemented and the remedy will be updated, if needed, through an EE/CA and an Action Memorandum.

2018 and 2022 USGS Surface Water Analysis

In 2018, the USGS completed a review of the French Gulch/Wellington-Oro site water quality data and provided suggestions for future work. The findings were presented in a November 2018 memorandum to the EPA and summarized in the Site's 2020 FYR Report. Overall, sampling showed that concentrations of cadmium and zinc increased downstream in French Gulch, particularly between locations FG-5 and FG-5.5 and between FG-8 and FG-9A, indicating that there are sources of metals entering the stream between these locations in the form of groundwater discharge (see Figure 3 for monitoring locations). Water quality in the reach between FG-5 and FG-5.5 is likely affected by several factors, including: (1) upwelling and movement of Wellington-Oro mine-pool water along faults; (2) shallow groundwater flow from the French Gulch alluvial system and near-surface fractured bedrock; (3) pumping of water-treatment influent from the mining-affected FG-6C seep; and (4) discharge of water-treatment effluent into the alluvium along the stream. Downstream sources are less certain, though previous work identified surface flow from the Bullhide fault as a source near FG-9A, and some concentration increases appear to coincide with the former location of the Union Mill.

As a follow-up to the USGS review, the EPA requested that the EPA Region 8 Environmental Services Assistance Team (ESAT) conduct an updated analysis of the WTP's impact on surface water quality in French Gulch and downgradient Blue River. The resulting report, the 2020 Final Surface-Water Quality Analysis Update, included analysis of water quality data from 2017 through 2019. As part of this effort, an attainment evaluation of water quality standards and remediation goals was also conducted. Overall, the results indicate that surface water quality in French Gulch is improving over time, and that water quality improves when the WTP is operating and continuously discharging (i.e., not in recycling mode). However, the concentrations at further downgradient surface water monitoring locations are higher than the concentrations directly downgradient of the mine, indicating there may be other sources of cadmium and zinc to French Gulch other than FG-6C. The results for the Blue River (segment 2a) show that the State water quality standard for dissolved cadmium was not exceeded between 2017 and 2019 and the hardness-based standard for dissolved zinc was only exceeded 11% of the time (four out of 35 samples).⁹ When compared to the Action Memorandum performance standards (also called remediation goals), dissolved cadmium concentrations were below the performance standard of 4 µg/L in all samples and dissolved zinc was measured above the performance standard of 225 µg/L in all samples from 2017 through 2019.

The EPA and the CDPHE tasked the USGS with conducting a tracer injection, synoptic sampling and geophysical evaluation at the Site. The results were summarized in the Site's 2022 Progress Report. The study was conducted in September 2020 to characterize current hydrologic and geochemical conditions along French Gulch and locate sources of cadmium and zinc loading to the stream. For the tracer injection and synoptic sampling, concentrations from a continuous sodium-bromide tracer injection were used to determine streamflow in gaining stream reaches

⁹ Dissolved cadmium concentrations in 2017, 2018 and 2019 surface water samples from Blue River segment monitoring locations (BR-2, BR-EPA1, BR-EPA-2, BR-EPA-2U, and 12304A) were compared to the 4 µg/L standard. Blue River Segment COUCBL2a attainment with the zinc hardness-based water quality standard was assessed by comparing measured concentrations of zinc for each sample collected in Blue River monitoring locations BR-2, BR-EPA1, BR-EPA-2, BR-EPA-2U, and 12304A from 2017 to 2019 to sample-specific hardness-based standards.

and slug injections of sodium chloride were used to determine streamflow in losing reaches using the tracer-dilution method.

Tracer results revealed the stream was losing flow along an 800-meter reach of channel upstream from the Site, possibly as streamflow is lost into the coarse placer deposits on the valley floor. Immediately downstream from the losing reach, there was a short reach (from 824 meters to 900 meters) where streamflow more than doubled (Figure C-2 in Appendix C). This gaining reach likely represents a zone of groundwater discharge where some of the streamflow lost to the shallow alluvial groundwater along the upper reach may be re-emerging.

Results of the study and water-level measurements made in September 2020 indicate that groundwater levels in MW-2, MW-4, MW-9 and MW-11 were greater than the stream elevation, indicating groundwater may be discharging to the stream in the reach downstream from FG-0824 (Figure F-8). In contrast, groundwater elevations at MW-03, MW-07 and MW-20 are less than or near the elevation at the closest stream site, possibly indicating loss of stream water to the alluvial aquifer in this reach and/or active hyporheic exchange between the stream and shallow groundwater.

The Data Review section of this FYR Report describes the sample results. The EPA and CDPHE will utilize these results to further inform future plans for the Site.

Institutional Control Review

Under the 2005 Consent Decree, the Town and County are required to implement institutional controls for the approximately 1,800-acre property that the Town and County purchased from B&B Mines and associated parties. The property includes, among other areas, the Wellington-Oro mine site, the Jessie Mine and Mill site, and the IXL/Royal Tiger site. Specifically, under the 2005 Consent Decree, the Town and County is required to record a restrictive covenant to establish the property as public open space in perpetuity and record environmental covenants specific to the Wellington-Oro site, the Jessie Mine and Mill site, and the IXL/Royal Tiger site. Additional institutional controls are in place for areas west of the Site, which include the Union Mill and Neighborhood Fill and Cover Areas, as required by a 1999 Prospective Purchaser Agreement between the EPA, the State, Brynn Grey V, LLC and Wellington Neighborhood, LLC. Only the environmental covenant for the Wellington-Oro site is addressed further as part of this FYR since it is the only institutional control within the Site boundary and specifically applicable to the Site.

The restrictive covenant for the Wellington-Oro site covers a 4.7-acre portion of the site property in the vicinity of the Wellington-Oro Mine and seep FG-6C. The Town and County recorded this covenant for the subject property with the Summit County Clerk & Recorder's Office in November 2007. Table 3 summarizes the requirements and restrictions of the implemented institutional control. Figure 2 shows the portions of the Site that are covered under the covenant.

The 2005 Consent Decree also requires institutional controls to ensure long-term maintenance of any barriers that exist in French Gulch to impede upstream movement of non-native fish. Under the 2005 Consent Decree, the Town and County are required to consult with the U.S. Fish and Wildlife Service and the Colorado Department of Natural Resources prior to planning any alterations to or removal of the structures. In addition, a placard with the following statement was to be installed on the two barriers/culverts:

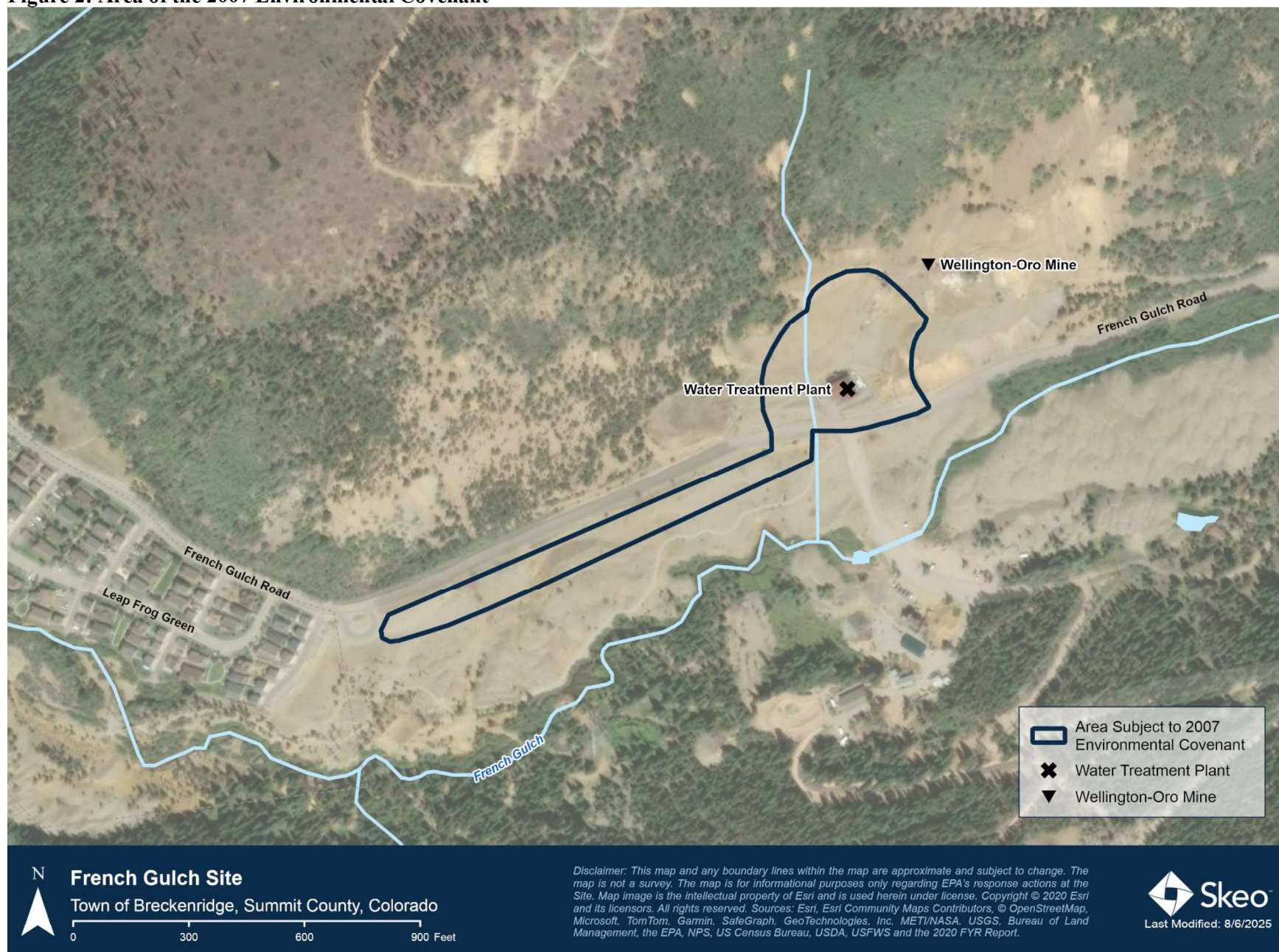
This structure provides a vital function in the protection of threatened aquatic species. Prior to any modification of this structure or its outflows, the Colorado Division of Wildlife and the U.S. Fish and Wildlife must be notified and consulted.

The placards were not observed during the FYR site inspection.

Table 3: Summary of Implemented Institutional Controls (ICs)

Media, Engineered Controls and Areas That Do Not Support UU/UE Based on Current Conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil, surface water, groundwater, WTP	Yes	No ^a	4.7 acres of Wellington-Oro Mine and seep FG-6C property (Figure 2)	Prohibit residential and agricultural uses, restrict excavation, prohibit use of groundwater and surface water, prohibit well construction, and protect the integrity of the cleanup actions; requires that the property be used and maintained as public open space.	Environmental Covenant 2007 Instrument ID: HMC0V00044
<i>Notes:</i> a. Although institutional controls were called for in the 2005 Consent Decree, site decision documents (i.e., the action memoranda) did not call for institutional controls. The environmental covenant is available at: https://oitco.hylandcloud.com/cdphermipop/docpop/docpop.aspx?docid=3256362&vieweronlyforsingle=true.					

Figure 2: Area of the 2007 Environmental Covenant



Systems Operation and Maintenance (O&M)

The Town and County conduct O&M activities associated with the WTP. They also provide monthly discharge monitoring reports and report the status of the water treatment operations to the EPA and the State on a quarterly basis, as required by the Scope of Work included in the 2005 Consent Decree. An annual report summarizing the system's performance, discussing any variances from facility performance goals, identifying O&M procedures conducted during the past year and planned for the next year is also provided. Table 4 provides a summary of the WTP's operational activities. The current annual reports provide minimal information and do not provide any data on effluent quality or provide a summary of the discharge status throughout the year. This FYR included a review of the master logs and calculation of the discharge status percentiles (Table 5). As shown in Table 5, the percent of time the WTP is discharging to French Gulch has decreased during this FYR period, while the percentage of its time in recycling mode has increased. The only time the WTP was in overflow mode was in 2022 (a five-day period in January 2022).

Table 4: WTP Operational Summary, 2020 to 2025

Operation Component	2020	2021	2022	2023	2024	2025^f
Plant availability ^a	98%	98%	96%	97%	99%	99%
Mechanical availability ^b	98%	98%	94%	91%	97%	100%
Process availability ^c	94%	48%	72%	33%	42%	36%
Zinc removal rate ^d	77%	51%	99.7%	99.8%	95.6%	99.5%
Total discharge	25.44 MG	13.63 MG	19.5 MG	8.1 MG	17.1 MG	2.7 MG
# of tons of filter cake ^e	Not reported	Not reported	65 tons	52 tons	9.5 tons	Not reported

Notes:
Sources: The 2020, 2021, 2022, 2023 and 2024 annual reports and the Wellington Oro 1st Quarter Report (2025).
a. Percentage of time FG6C pumps are running.
b. Percentage of time that the plant feed pumps are running relative to the FG6C pumps.
c. Percentage of volume reporting to discharge relative to the total volume of effluent produced.
d. Calculation based on daily readings of feed and effluent.
e. Since 2020, filter cake has been disposed of at the Foothills Landfill in Golden, Colorado.
f. Through March 2025
MG = million gallons

Table 5: Percentage Time Discharging Versus Recycling

Year	% Time Discharging to French Gulch	% Time Recycling to Mine Pool	%Discharge/Recycle^a	Overflow
2020	70.1%	16.9%	13.0%	0%
2021	46.3%	48.2%	5.5%	0%
2022	65.8%	17.5%	15.0%	1.7%
2023	34.8%	61.0%	4.3%	0%
2024	48.6%	45.7%	5.7%	0%
2025 ^b	44.2%	51.9%	3.8%	0%

Notes:
Sources: Created using data provided in the 2020, 2021, 2022, 2023, 2024 and 2025 Wellington Oro masterLog spreadsheets.
a. "Discharge/Recycle" indicates that the WTP was recycling part of the day and discharging part of the day.
b. Data are through April 15, 2025.

The WTP issues from 2020 and 2021 were previously discussed in the Status of Implementation section above and in the 2022 Optimization Review Report. While the zinc removal rate in 2022 and 2023 improved to over 99% removal, the process availability (percentage of volume reporting to discharge relative to the total volume of effluent) was only 33%. This was due to an issue with the injection well pressure. The operator was not able to push effluent water through the line to the well. There were also issues with FG-6C overflowing. The operator

jettied and vacuumed the line and well multiple times, which did not alleviate the issue. The operator indicated the cause may have been high groundwater levels.

In 2024, several issues were reported. In June 2024, an overflow incident was reported to the EPA and the CDPHE in which FG-6C weir overflowed after a pump plug broke loose. The mine seep was unable to be treated for about two hours, resulting in the release of about 25,000 gallons. In July 2024, another incident was reported to the agencies. Both pumps were not operating at the seep and overnight, the mine seep was unable to be treated and overflowed, resulting in the release of about 82,000 total gallons. The spill occurred underground but will ultimately make its way into French Gulch and subsequently the Blue River. As a result, the Town changed the alarm settings to make the level of FC-6C a “hard alarm” that will call out immediately if level approaches overflow. The same change was made regarding the operation of the pumps.

Issues with filters persisted in the fourth quarter of 2024 as well as the first quarter of 2025, which resulted in high zinc concentrations. The issue was resolved in February 2025 when the backwash operations were adjusted. Discharge resumed in early March 2025. The Town and the WTP operators continue to address issues as they arise and to the best of their capacities.

Effluent Discharge

During this FYR period, several violations of the discharge limits have occurred. Zinc and total suspended solids are the most frequent discharge limit exceedances. The most recent violations were reported in January 2024 (zinc effluent concentration of 649 µg/L vs. the discharge limit of 225 µg/L), February 2024 (zinc effluent concentration of 360 µg/L) and April 2024 (zinc effluent concentration of 236 µg/L). The most recently available effluent data from September 2024 showed exceedances of total suspended solids, zinc and cadmium discharge limits (zinc = 6,653 µg/L, cadmium = 6.2 µg/L and total suspended solids = 25.9 mg/L).

III. PROGRESS SINCE THE PREVIOUS REVIEW

This section includes the protectiveness determinations and statements from the 2020 FYR Report as well as the recommendations from the 2020 FYR Report and the status of those recommendations.

Table 4: Protectiveness Determinations/Statements from the 2020 FYR Report

OU #	Protectiveness Determination	Protectiveness Statement
Sitewide	Not Protective	The Water Quality Action, as specified in the 2002 Water Quality Action Memorandum, amended in 2004, and incorporated into the 2005 Consent Decree, is not protective of the environment because concentrations of zinc in surface water at Blue River Segment 2a consistently exceed zinc water quality standards that support attainment of an adult brown trout fishery. In order to be protective, the following actions need to be taken to ensure the protectiveness of the environment: • Address data gaps identified in the understanding of the Site’s Conceptual Site Model, as outlined in the 2018 USGS Memorandum and the 2019 3DVA Technical Memorandum, with a primary goal of identifying other potential sources of significant contaminant loading to French Gulch. • Consider additional response action modification as appropriate to address other significant sources of cadmium and zinc loading to French Gulch.

Table 5: Status of Recommendations from the 2020 FYR Report

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
Water Quality Action	Concentrations of zinc in surface water of Blue River Segment 2a do not consistently meet water quality standards that support the attainment of an adult brown trout fishery. There has been no consistent reduction in dissolved cadmium or zinc concentrations in the Blue River since the WTP began operation in late 2008. Data gaps remain in the understanding of the Site's Conceptual Site Model, including potential sources of significant contaminant loading to French Gulch.	Address data gaps identified in the understanding of the Site's Conceptual Site Model, as outlined in the 2018 USGS Memorandum and the 2019 3DVA Technical Memorandum, with a primary goal of identifying other potential pathways of significant contaminant loading to French Gulch. Consider more response action modification as appropriate to address other significant sources of cadmium and zinc loading to French Gulch.	Completed	The EPA and the CDPHE tasked the USGS with conducting a tracer injection, synoptic sampling and geophysical evaluation at the Site. The results were summarized in the Site's 2022 Progress Report. The study was conducted in September 2020 to characterize the current hydrologic and geochemical conditions along French Gulch and identify sources of cadmium and zinc loading to the stream.	5/3/2022
Water Quality Action	Although significant modifications to the WTP occurred during this period, operational challenges with the WTP continue to arise, which have resulted in sporadic and inconsistent discharge of treated water.	Continue efforts to optimize the WTP operation to address the issues with flow, treatment and recycling minimally impacted water back into the mine pool, and to consistently remove zinc and cadmium to below discharge limits. More evaluation may also be needed to determine if the plant can handle increased flow rates in light of the issues caused in 2019 with higher-than-average flow rates as a result of the 2018/2019 snowpack.	Ongoing	The EPA and CDPHE, along with the Town and County, are considering next steps for optimization of the plant and the ability to implement semi-passive or passive treatment options. If passive treatment appears to be a viable remedy, a bench and pilot study will be implemented and the remedy will be updated, if needed, through an EE/CA and an Action Memorandum.	Not applicable

Several additional recommendations were identified during the 2020 FYR. These recommendations did not affect current and/or future protectiveness.

- The Town and County have concerns regarding the zinc sludge generated as part of the WTP's operations. They are shipping zinc sludge off-site for disposal at cost rather than recycling the sludge. The Town and County should continue to research other possible recycling facilities that can meet the

requirements of the CERCLA off-site rule if they choose to recycle. However, the 2002 Water Quality Action Memorandum does allow for shipment off-site to a solid waste landfill. Any disposal facility receiving the WTP zinc sludge must meet the CERCLA off-site rule requirements.

- *Zinc sludge is still being disposed of off-site at Foothills Landfill.*
- Continue to monitor surface water and groundwater for manganese as well as additional metals. The EPA will reevaluate whether manganese should be included as a site COC after additional site characterization and evaluation efforts are conducted at the Site.
 - *The EPA determined in a 2021 Memorandum that manganese does not warrant inclusion as a site COC because there is no unacceptable risk to ecological or human receptors.*
- Recent genetic analysis indicated cutthroat trout in upper French Gulch were a mix of strains, mostly Yellowstone, and not native species. Appropriate documents that identify native trout species as the predominant strain should be updated to reflect current information known about fish species in French Gulch.
 - *Isolated native trout have been observed above the mine in French Gulch. There are no trout species present in the mine-affected area. In Blue River, brown trout are present. Colorado Parks and Wildlife (CPW) is aware of the fish species present in the Site area.*

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Community Involvement and Site Interviews

The EPA posted a public notice regarding the upcoming FYR in the *Summit County Journal* on 12/13/2024 (Appendix D). The notice stated that the FYR was underway and invited the public to submit any comments to the EPA. The results of the review and the report will be made available at the Site's information repository, Summit County Library, located at 103 South Harris Street in Breckenridge, Colorado, as well as at the Site profile page located here: <https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0801505>.

During the FYR process, the EPA conducted interviews to document any perceived problems or successes with the remedy implemented to date. The interviews are summarized below and responses are included in Appendix E.

Alex Hedgepath, CDPHE Project Manager, and Mary Boardman, CDPHE Section Supervisor, are aware of the ongoing issues pertaining to costs and downtime at the WTP, as well as issues in attaining the water quality standards at the Site. The CDPHE continues to work with the EPA to determine if passive treatment could supplement the WTP. No decisions have been reached. The State believes that there are multiple data gaps at the Site, including further identification of faults/preferential flow pathways transporting mining-influenced water to French Gulch; further optimization of the WTP and collection and discharge systems; cataloguing, reviewing and summarizing historical documents; and considerations related to the protectiveness of water quality standards. The CDPHE's staff indicated that the CWQCC will be reviewing the Blue River basin water quality standards in 2029. The CDPHE believes that standards at the Site should be further evaluated and clarified, due to ongoing issues with water quality standards being set and how historical remedial action objectives (RAOs) were developed.

Laura Lynch and Brian Huber from the Town of Breckenridge Water Department participated in a discussion with the EPA and the CDPHE during the site inspection. Overall, they reported that it has been challenging to keep the WTP in good working order and that the WTP does not appear to be positively impacting the water quality in French Gulch or the Blue River. Ms. Lynch and Mr. Huber provided some details on how they have addressed ongoing issues at the WTP, including jetting of the facility's pipes and changing out filter media on a more frequent basis.

Duke Barlow from Town of Breckenridge Open Space and Trails and Katherine King from Summit County Open Space and Trails all reported a great working relationship with the EPA. Both groups indicated that the community might be interested in learning more about the Site and the WTP and made suggestions on how best to bring this information to the community.

A resident participated in an interview. This resident was not aware of the Site or the cleanup activities and indicated it was the first time they had heard about it. The resident suggested several ways to bring information to the local residents including the local newspaper and the local Homeowners Association.

Data Review

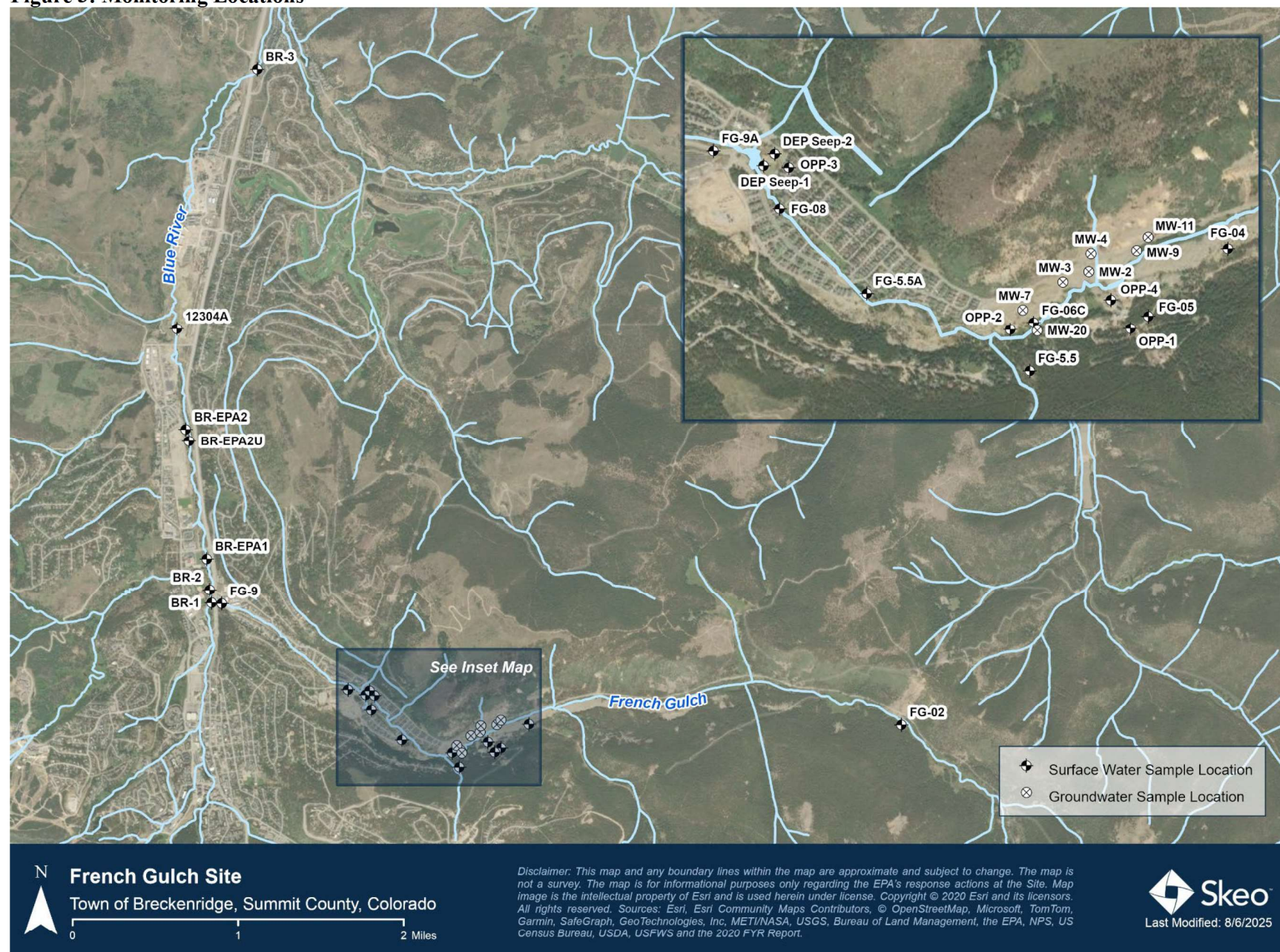
During this FYR period, the agencies and the Town and County collected groundwater, surface water and seep data.

The EPA and its contractors have conducted regular surface water/seep sampling events at the Site since 2009, following implementation of the removal actions. Sampling is conducted to determine if the Water Quality Action (e.g., treatment of water from seep FG-6C) is improving water quality in French Gulch and the Blue River, as well as to identify other sources of metals loading to French Gulch. During this FYR period, surface water samples were collected at locations along Blue River, French Gulch and at many seeps and analyzed for total and dissolved metals, as well as other parameters such as hardness. The EPA added groundwater sampling events to the monitoring program in 2017; groundwater had not been routinely sampled since 2000. Examination of concentrations in groundwater provides information about the mine-pool water and other areas that might be a source of elevated cadmium and zinc to surface water in French Gulch.

As discussed previously, the Town and County samples influent and effluent to inform the treatment process and determine compliance at the point of discharge. They are also required to collect water quality data in Segment 2a of the Blue River (BR-2) to evaluate if the water quality performance standards set forth in the Action Memorandum have been attained. In addition, the USGS collected data as part of its 2022 tracer injection study.

The focus of this data review is on cadmium and zinc, the COCs identified in the 2005 Consent Decree. However, manganese is also evaluated as a contaminant of potential concern. Figure 3 shows the sampling locations.

Figure 3: Monitoring Locations



Surface Water and Groundwater Sampling Activities

French Gulch Sampling Results

Zinc and cadmium concentrations from the mainstem of French Gulch differ significantly between upstream surface water sampling locations FG-02, FG-04 and FG-05 and sampling locations downstream of the mine and WTP (Figures F-1 and F-2). Since at least 2009, the upstream results are an order of magnitude lower than the downstream results. The highest concentrations during this FYR period were from FG-08 (a zinc concentration of 2,820 µg/L and a cadmium concentration of 12.6 µg/L in 2023) and FG-9A (a zinc concentration of 2,800 µg/L and a cadmium concentration of 12.6 µg/L in 2023). Overall zinc concentrations downstream of the Site were greater in 2023 and 2024 than in 2020 at the start of this FYR period.

The highest cadmium and zinc concentrations from seeps and inflows to French Gulch are generally observed from FG-06C. Outside of this seep, which is treated in the WTP, zinc and cadmium concentrations are highest at sample locations Opp-4 (located 30 meters downstream of the WTP), Opp-9 (located near FG-6A) and at Dead Elk Pond (DEP) sample locations DEP Seep-1 and DEP Seep-2.

Blue River Sampling Results

Zinc concentrations upstream of the confluence of French Gulch and Blue River at sampling location BR-1 are an order of magnitude, or more, lower than at sampling locations downstream of the confluence (Figure F-3). The highest zinc concentrations are observed at BR-2 and BR-EPA-1 (located 115 feet and 400 meters downstream of the confluence, respectively). Zinc concentrations at BR-1 are well below the performance standard of 225 µg/L. However, with the exception of a few instances, all zinc concentrations at BR-2 (the point of compliance) are above the performance standard. As shown in Figure F-3, if the hardness based CWQCC water quality standard is applied to the data (using average hardness under various flow conditions), there are much fewer exceedances. The EPA and the CDPHE are considering whether the performance standard of 225 µg/L is appropriate.

Cadmium concentrations at BR-1, upstream of the confluence are below the laboratory method detection limit (with the exception of a single detection in 2009). The detection limit varies but is between 0.1 and 0.5 µg/L. Cadmium concentrations both upstream and downstream of the confluence generally meet the performance standard and CWQCC of 4 µg/L with only two instances of exceedance during this FYR period (4.6 and 4.4 µg/L in 2022 at BR-2) (Figure F-4).

Groundwater Evaluation

The EPA's ESAT contractor collects groundwater data semi-annually. The results are reported in annual sampling activity reports. The EPA's contractor collects groundwater samples from seven observation wells in the vicinity of the WTP (Figure 3). Table F-2 provides the maximum detected concentrations of dissolved cadmium and zinc during each monitoring event as well as the median concentration over the same period. Figures F-5, F-6 and F-7 show the concentrations over time for zinc, cadmium and manganese, respectively. Overall, the highest concentrations of both cadmium and zinc are found in monitoring wells MW-3 and MW-4. Manganese concentrations at MW-3 and MW-4 are also the highest. The lowest concentrations of all three analytes are generally associated with MW-20 which is located on the opposite banks of French Gulch from the Wellington-Oro Mine workings.

Blue River Point of Compliance

The Water Quality Action Memorandum identified Blue River surface water sampling location BR-2 as the point of compliance for the removal action. BR-2 is 115 feet downstream of the confluence with French Gulch (Figure 3). Table F-3 summarizes the dissolved cadmium and dissolved zinc concentrations at BR-2 between 2020 and 2024. Sampling events generally coincide with high-stream flow events (June) and low-stream flow events (September). The results show that cadmium concentrations at BR-2, the point of compliance, were less than the removal action performance standard and Segment 2a water quality standard (4 µg/L) for all but two sampling events during this reporting period. The zinc concentrations were above the performance standard (225 µg/L) and the Segment 2a Performance Standard for all sampling events (Table F-3, Figures F-3 and F-4).

2022 USGS Report

As discussed previously, the USGS conducted a study in September 2020 using a combination of tracer-injection, synoptic sampling and shallow geophysical techniques to characterize current hydrologic and geochemical conditions along French Gulch and help identify sources of cadmium and zinc loading to the stream.

The USGS summarized the cadmium and zinc data in two graphs showing the variation in cadmium concentrations in French Gulch for the stream, left and right-bank inflows, groundwater, influent and effluent to the WTP as well as effective inflows (Figures F-9 and F-10). Effective inflow concentrations are calculated by dividing the increase in load by the increase in streamflow in a single stream reach. The USGS attributed the abrupt increase in dissolved cadmium and zinc concentrations to right and left-bank inflows. The EPA and the CDPHE have used these data to inform future monitoring and ongoing remedy optimization efforts.

Five Year Review Site Inspection

The EPA and State conducted a site inspection on 5/5/2025. Participants from EPA included RPMs Josie Nusz and Liz Stengl and CIC Kate Tribbett. Other participants included Alex Hedgepath from the CDPHE, Laura Lynch and Brian Huber from the Town of Breckenridge's Water Division, Katherine King, Jordan Meade and Duke Barlow from Town of Breckenridge and Summit County Open Space & Trails, and Ali Cattani and Johnny Zimmerman-Ward with EPA FYR contractor Skeo. The purpose of the inspection was to assess the protectiveness of the remedy. The site inspection checklist and photographs are in Appendix G and Appendix H, respectively.

Site inspection participants observed the WTP and discussed the status of O&M activities for the plant. The WTP was not operating due to an issue with the sodium hydrosulfide pump. Overall, the discussion focused on continued issues with the injection well, which results in the plant operating in recycle mode, as well as overall issues with plant maintenance. The WTP is operated by the Town of Breckenridge Water Division employees and there are staffing issues (staff spread across multiple divisions) as well as issues with bringing in contractors to conduct maintenance. There is a general lack of qualified maintenance contractors in the area. Overall, the WTP was in good condition. The building was in good condition; tanks and systems appeared to be well-maintained. The sludge is stored outside the building and disposed of as needed at an off-site landfill. After the WTP tour, site inspection participants observed French Gulch upstream of the Site and proceeded downstream to the confluence with Blue River. Along the way, several sections were observed. Dead Elk Pond and the fish barriers were also observed. No issues that would impact protectiveness were observed during the inspection.

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

Question A Summary:

The Water Quality Action is not functioning as intended by the decision documents. While the Town and County continue to operate and maintain the WTP and addresses issues as they arise, there were significant issues with the system during this FYR period. These issues resulted in long periods when the WTP was not treating and discharging to French Gulch. Effluent discharge limits for total suspended solids, zinc and cadmium, were not met consistently in 2024, and water was recycled back into the mine pool. Optimization efforts are ongoing, and the EPA and CDPHE contractor is conducting a treatability analysis to determine the viability of additional treatment options, such as passive or semi-passive systems, or other optimization approaches for the current WTP. Based on the investigations during this FYR period, it does appear that system operations are improving water quality in French Gulch and at the Blue River point of compliance. However, zinc concentrations remain above performance standards and surface water quality standards at the Blue River point of compliance. The USGS conducted a tracer study in 2020, and reported the results to the agencies in 2022, that show there are significant contributions of contamination along French Gulch downstream of the WTP discharge, making attainment of the zinc performance standard more difficult or potentially unfeasible. The EPA will evaluate the performance standard for zinc, as well as the compliance point location to determine what is appropriate and if changes are needed. This will be evaluated in parallel with revision to the water quality standards in French Gulch (Blue River

Segment 11) and potentially the Blue River Segment 2a, which are anticipated to be considered for adoption by the CWQCC in 2029. The EPA will also consider additional investigations into other potential source areas contributing to contamination of French Gulch.

Groundwater monitoring results also demonstrate that there is significant contamination (zinc, cadmium and manganese) remaining in the mine-pool water near the Wellington-Oro Mine complex that is likely a continuing source of metals to surface water in French Gulch. The EPA and the CDPHE will continue to evaluate the options to upgrade or alter the current WTP as well as the potential for capture of additional sources for treatment. Institutional controls are in place for a 4.7-acre property in the vicinity of the Wellington-Oro Mine and seep FG-06C (Figure 3). The institutional controls prohibit residential and agricultural use, restrict excavation, prohibit use of groundwater and surface water, prohibit well construction, and protect the integrity of the cleanup actions, including the WTP. The 2005 Consent Decree also requires institutional controls to ensure long-term maintenance of any barriers that exist in French Gulch to impede upstream movement of non-native fish. The 2005 Consent Decree requires that the Town and County consult with the U.S. Fish and Wildlife Service and the Colorado Department of Natural Resources prior to planning any alterations to or removal of the structures. In addition, a placard was to be installed on the two barriers/culverts; however, the placards were not observed during the FYR site inspection.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels and RAOs used at the time of the remedy selection still valid?

Question B Summary:

The exposure assumptions, toxicity data, cleanup levels and RAOs remain valid.

Response actions are required to comply with the ARARs identified in the Water Quality Action Memorandum Addendum #1, which the EPA approved in November 2004. Appendix H includes a summary of the ARARs. Water Quality Action Memorandum Addendum #1 further clarified that the performance standards for the water quality action are compliance with the CWQCC's water quality standards for zinc and cadmium in Segment 2a of the Blue River. Water quality standards for French Gulch below the Wellington-Oro Mine (French Gulch Segment 11) and Blue River Segment 2b also apply as these reaches are affected by site-related contamination. The site-specific water quality standards in Blue River Segments 2a and 2b are protective of an adult brown trout fishery in the Blue River. In 2019, the CWQCC proposed revised water quality standards (acute and chronic table value standards for cadmium and zinc) in Blue River Segments 2a and 2b and lower French Gulch (Blue River Segment 11). However, following the proposed rulemaking proceedings in 2024, the CWQCC retained the existing standards due to potential issues with feasibility of attaining an updated standard. Therefore, the existing performance standards in the 2004 Addendum #1 and the Action Memorandum remain valid.

The CWQCC also noted that they will work with interested parties to complete a use attainability analysis for Segment 11 (French Gulch), including a comprehensive alternatives analysis that meets the requirements in the Code of Colorado Regulations 31.7(1)(b)(ii), prior to an anticipated 2029 rulemaking hearing. The CWQCC intends that the Water Quality Control Division and interested parties will work to identify appropriate cadmium and zinc standards to protect the highest attainable use on Blue River segments 2a and 2b as part of the effort to develop site-specific standards on Segment 11. If site-specific water quality standards change at that time, the next FYR will evaluate their effect on the protectiveness of the remedy.

The EPA also set effluent limitations for discharge from the WTP in the Wellington Oro Mine Water Treatment Plant ARARs Compliance Document DCM, dated November 15, 2008. The discharge limits were protective of existing conditions in Blue River Segment 11 (French Gulch) and would allow for attainment of the water quality standards in Blue River Segment 2a. The effluent limits set in the DCM have not changed and remain valid. Additionally, the cadmium effluent limit of 4 µg/L is also protective of human health (below federal maximum contaminant level [MCL] of 5 µg/L).

The goal of the response action was to improve water quality in French Gulch and reduce metals loading from French Gulch into the Blue River. The primary goal was to improve water quality in the Blue River so that it would support a population of adult brown trout. It is unclear if water quality is improving in French Gulch and Blue River, and concentrations of zinc remain above both the performance standard and the CWQCC water quality standard at the point of compliance, BR-2.

QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?

No other information has come to light that could call into question the protectiveness of the remedy.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations	
OU(s) without Issues/Recommendations Identified by the FYR:	
None	

Issues and Recommendations Identified by the FYR:

OU(s): Water Quality Action	Issue Category: Remedy Performance			
	Issue: Zinc concentrations remain above performance standard and surface water quality standards at the Blue River point of compliance.			
	Recommendation: Evaluate the performance standard for zinc to determine if it is appropriate. Evaluate the point of compliance for zinc and cadmium. Provide relevant information to help support the CDPHE 2029 update of water quality standards for lower French Gulch (Blue River Segment 11) and/or Blue River Segment 2a. Update the DCM and/or Consent Decree, as needed.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
Yes	Yes	EPA/CDPHE	EPA/State	9/30/2028

OU(s): Water Quality Action	Issue Category: Remedy Performance			
	Issue: The USGS conducted a tracer study in 2020 and reported the results to the agencies in 2022 that show there are significant contributions of contamination into French Gulch downstream of the WTP discharge, making attainment of the performance standards more difficult or potentially unfeasible using the existing remedy.			
	Recommendation: Consider additional investigations into other potential source areas contributing to contamination of French Gulch.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
Yes	Yes	EPA/CDPHE	EPA/State	9/30/2028

OU(s): Water Quality Action	Issue Category: Remedy Performance			
	Issue: While the Town continues to operate and maintain the WTP and addresses issues as they arise, there were significant issues with the system during this FYR period. These issues resulted in long periods when the plant was not treating and discharging to French Gulch but, rather, recycling the effluent to the mine pool. Effluent discharge limits for total suspended solids, zinc and cadmium were not met consistently in 2024 forcing WTP operators to recycle the effluent water back into the mine pool.			
	Recommendation: Determine if the WTP operations can be optimized further to achieve the zinc, cadmium and suspended solid discharge standards and/or if the remedy can be augmented or replaced with a passive or semi-passive treatment technology as imagined in the 2022 Optimization Review.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	Other Town and County	EPA/State	9/30/2029

OTHER FINDINGS

Several additional recommendations were identified during the FYR. These recommendations do not affect current and/or future protectiveness.

- *The EPA should consider condensing and streamlining the WTP reporting process to include issues, performance, influent and effluent, discharges and recycling.*
- *Community members and local stakeholders requested additional information be provided to the community including through the local newspaper or homeowners associations. The EPA is considering these options as well as other ways to inform the public about the Site.*
- *Consider installing placards on the two culverts as required in the Consent Decree.*

VII. PROTECTIVENESS STATEMENT

Sitewide Protectiveness Statement	
<i>Protectiveness Determination:</i> Not Protective	
<i>Protectiveness Statement:</i> The Water Quality Action, as specified in the 2002 Water Quality Action Memorandum, amended in 2004, and incorporated into the 2005 Consent Decree, is not protective of the environment because concentrations of zinc in surface water at Blue River Segment 2a consistently exceed zinc water quality standards that support attainment of an adult brown trout fishery. To be protective, the following actions need to be taken to ensure the protectiveness of the environment: • Evaluate the performance standard for zinc to determine if it is appropriate. Evaluate the point of compliance for zinc and cadmium. Provide relevant information to help support the CDPHE 2029 update of water quality standards for lower French Gulch (Blue River Segment 11) and/or Blue River Segment 2a. Update the DCM and/or Consent Decree as needed. • Consider additional investigations into other potential source areas contributing to contamination of French Gulch. • Determine if the WTP operations can be optimized further to achieve the zinc, cadmium and suspended solid discharge standards and/or if the remedy can be augmented or replaced with a passive or semi-passive treatment technology as imagined in the 2022 Optimization Review.	

VIII. NEXT REVIEW

The next FYR Report for the French Gulch site is required five years from the completion date of this review.

APPENDIX A – REFERENCE LIST

2018 Sampling Events Final, French Gulch, Wellington-Oro Mine Site, Sampling Activities Report, Breckenridge, Colorado. Prepared by TechLaw, Inc. April 2019. (SEMS 100007158)

2019 Sampling Events Final, French Gulch, Wellington-Oro Mine Site, Sampling Activities Report, Breckenridge, Colorado. Prepared by TechLaw. March 2020. (SEMS 100007496)

Administrative Order for Non-Time Critical Removal Action in the Matter of French Gulch/Wellington-Oro Mine Site. Docket No. CERCLA-VIII-98-6754. September 24, 1998. (SEMS 1989773)

Annual Report for Wellington Oro (WEO) Mine Site Water Treatment Plant. Prepared by Laura Lynch, Town of Breckenridge Water Division Manager. January 29, 2020. (SEMS 100007253)

Annual Report for Wellington Oro (WEO) Mine Site Water Treatment Plant. Prepared by Gregg Altimari, Town of Breckenridge Water Division Assistant Manager. January 13, 2021. (SEMS 100009471)

Annual Report for Wellington Oro (WEO) Mine Site Water Treatment Plant. Prepared by Gregg Altimari, Town of Breckenridge Water Division Assistant Manager. February 2, 2022.

Annual Report for Wellington Oro (WEO) Mine Site Water Treatment Plant. Prepared by Mike Hennigan, Town of Breckenridge Water Division Assistant Manager. January 31, 2023. (SEMS 100012553)

Annual Report for Wellington Oro (WEO) Mine Site Water Treatment Plant. Prepared by Mike Hennigan, Town of Breckenridge Water Division Assistant Manager. January 31, 2024. (SEMS 100015817)

Annual Report for Wellington Oro (WEO) Mine Site Water Treatment Plant. Prepared by Mike Hennigan, Town of Breckenridge Water Division Assistant Manager. January 17, 2025. (SEMS 100017410)

Approval Memorandum for the Engineering Evaluation/Cost Assessment for the French Gulch/Wellington-Oro Site. Prepared by the EPA's Region. May 12, 1998. (SEMS 6596 or 1302179)

Approval of Addendum #1 of the November 24, 2002 Action Memorandum for a Non-Time Critical Removal Action at the French Gulch/Wellington Oro Site, Summit County, Colorado. Prepared by the EPA's Region 8. November 30, 2004.

Consent Decree, United States of America and The State of Colorado v. The B&B Mines, French Gulch Mines, Inc., Diamond Dick Co., Eckart Patch Co., Little Lizzie Limited Liability Company, and Wire Patch Limited Liability Company. May 31, 2005. (SEMS 2007626)

Discharge Monitoring Reports, Wellington Oro Water Treatment Plant. Prepared by Town of Breckenridge, Summit County, January through December 2019. (SEMS 100005965, January; 100006630, June; 100006727, July; 100006957, September; 100006990, October)

Ecological Risk Assessment for French Gulch/Wellington-Oro Mine Site. Prepared by the EPA's Region 8. May 2002. (SEMS 200018)

Enforcement Addendum to Action Memorandum for French Gulch/Wellington Oro Non-Time Critical Removal Action. Prepared by the EPA's Region 8. June 4, 1998. (SEMS 3000005)

EPA Optimization Review Memorandum of French Gulch/Wellington-Oro Mine Site. Prepared by BQE Water. May 9, 2023.

First Five-Year Review Report for French Gulch, Breckenridge, Summit County, Colorado. Prepared by the EPA's Region 8. September 2015. (SEMS 1828653)

First Quarter (2025) Report for Wellington Oro (WEO) Mine Site Water Treatment Plant. Prepared by Mike Hennigan, Town of Breckenridge Assistant Water Division Manager. April 10, 2025. (SEMS 100017411)

Final Surface-Water Quality Analysis Update French Gulch/Wellington-Oro Site, Summit County, CO. Prepared by: United States Environmental Protection Agency, Region 8. December 2020. (SEMS 100009244)

Final Sampling and Analysis Plan/Quality Assurance Project Plan French Gulch Wellington-Oro Mine Site, Breckenridge, Colorado. Prepared by TechLaw. June 2024. (SEMS 100015758)

French Gulch Superfund Site 3DVA Technical Memorandum. Prepared by Cascade Technical Services. June 24, 2019. (SEMS 100008882)

French Gulch Surface Waste Removal Action, Engineering Evaluation/Cost Analysis. Prepared for French Gulch Mines, Inc. by L.F. Brown & Associates, Inc. August 3, 1998. (SEMS 1302301 or 6705)

French Gulch Wellington-Oro Mine Site Sampling Activities Report, Breckenridge, Colorado, 2019 Sampling Events Final. Prepared by TechLaw. March 2020. (SEMS 100007496)

French Gulch Wellington-Oro Mine Site Sampling Activities Report, Breckenridge, Colorado, 2020 Sampling Events Final. Prepared by TechLaw. March 2021. (SEMS 100010599)

French Gulch Wellington-Oro Mine Site Sampling Activities Report, Breckenridge, Colorado, 2021 Sampling Events Draft. Prepared by TechLaw. February 2022.

French Gulch Wellington-Oro Mine Site Sampling Activities Report, Breckenridge, Colorado, 2024 Sampling Events Draft. Prepared by TechLaw. February 2025.

Limited Treatability Assessment for the French Gulch Site. Prepared by Tetra Tech. February 11, 2025.

Memorandum: Manganese at the French Gulch Site. Prepared by EPA. September 27, 2021. (SEMS 100010951)

Optimization Review for French Gulch/Wellington-Oro Mine Site Water Treatment Plant. Prepared by Tetra Tech. April 8, 2013.

Optimization Review for French Gulch/Wellington-Oro Mine Site. Prepared by Tetra Tech. September 13, 2022. (SEMS 100012072)

Progress Report on results of tracer-injection, synoptic-sampling, and geophysical investigations at the Wellington-Oro Mine site, Breckenridge, Colorado, September 2020. Prepared by U.S. Geological Survey. May 3, 2022.

Removal Action for the French Gulch/Wellington Oro Site, Summit County, Colorado. Prepared by the EPA's Region 8. November 24, 2002. (SEMS 3000000)

Review of French Gulch/Wellington-Oro Site water-quality data and suggestions for future work, Memorandum. Prepared by the USGS. November 29, 2018. (SEMS 100008883)

Second Five-Year Review Report for French Gulch Site, Summit County, Colorado. Prepared by U.S. Environmental Protection Agency Region 8. September 8, 2020. (SEMS 100008602)

Statement of Work for Engineering Evaluation/Cost Analysis, Mine Pool and Surface and Groundwater, French Gulch/Wellington-Oro Site, Breckenridge, Colorado. Prepared by the EPA's Region 8. January 29, 1999. (SEMS 388778)

Summary of WEO Site Trip #2. Prepared by BQE Water. September 27, 2019. (SEMS 100007245)

The Wellington Oro/French Gulch Site Cleanup Goals and Objectives. Prepared by the EPA's Region 8. October 4, 2004. (SEMS 2007617)

URS, 2002. Wellington-Oro Mine Pool Engineering Evaluation/Cost Analysis. Prepared by URS Operating Services, Inc. for the EPA's Region 8. May 29, 2002. (SEMS 200017 or 2003450)

Use-Attainability Analysis, Lower French Gulch and the Blue River Downstream from French Gulch near Breckenridge, Colorado. May 2003. (SEMS 1006705)

Wellington Oro Mine, Summit County, Colorado. Applicable or Relevant and Appropriate Requirements Compliance Document. July 13, 2005. (SEMS 1038579)

Wellington Oro Mine Water Treatment Plant ARARs Compliance Document. Prepared by the EPA's Region 8. November 15, 2008. (SEMS 1199572)

APPENDIX B – SITE CHRONOLOGY

Table B-1: Site Chronology

Event	Date
Underground and placer mining operations began in the area	1850s
B&B Mines Group, Diamond Dick Co., Eckart Patch Co., French Gulf Mines, Inc., Little Lizzie Limited Liability Co. and Wire Patch Limited Liability Co., collectively referred to as the B&B Mines, conducted mining and milling operations at the Site	1940s – 1970s
The EPA and the State of Colorado began evaluating the area near the Wellington-Oro Mine complex	Late 1980s
The EPA conducted a preliminary assessment and site investigation	1995-1996
The EPA conducted a site inspection	April 1997
The EPA issued an Administrative Order to B&B Mines directing the entity to conduct an EE/CA for surface wastes	April 1998
The EPA, the State, B&B Mines, and the Town and County began negotiations for a Prospective Purchaser Agreement	June 1998
B&B Mines submitted a final EE/CA Report to the EPA	August 1998
The EPA issued an Administrative Order to B&B Mines to conduct a non-time-critical removal action for the surface wastes	September 1998
B&B Mines conducted the removal action for surface wastes	October 1998 – June 1999
The EPA issued an Administrative Order to B&B Mines to conduct an EE/CA for the mine pool	July 1999
The EPA notified the PRP that the EPA would complete the EE/CA for the mine pool	April 2002
The EPA completed the EE/CA for the mine pool	May 2002
The EPA issued the Water Quality Action Memorandum for the mine pool	November 2002
The Summit Water Quality Committee completed a Use Attainability Analysis	May 2003
The CWQCC revised water quality standards for French Gulch and the Blue River	September 2003
The EPA issued a Site Cleanup Goals and Objectives Memorandum	October 2004
The EPA issued Addendum #1 to the Water Quality Action Memorandum	November 2004
The EPA, the State, B&B Mines and the Town and County signed a Settlement Agreement, Covenants Not to Sue and Consent Decree	May 2005
The Town and County submitted plans for the design and construction of the WTP	December 2005
The Town and County filed an environmental covenant with the Summit County Clerk & Recorder's Office	November 2007
Effluent limitations for the WTP were finalized in the Wellington Oro Mine Water Treatment Plant ARARs Compliance Document, Discharge Control Mechanism; the Wellington-Oro WTP began operating	November 2008
The EPA issued an Optimization Review Report for French Gulch/Wellington-Oro Mine Site Water Treatment Plant	May 2013
The Town and County began a treatability study for the WTP with approval from the EPA and the State	May 2015
The EPA released the Water Quality and Treatment Plant Data Summary Report	June 2013
The EPA issued the Site's first FYR Report	September 2015
The USGS issued a memorandum documenting the review of the Site's surface water quality data and suggestions for future work	November 2018
The EPA's contractor issued the French Gulch 3DVA technical memorandum	June 2019
The EPA issued the Site's second FYR Report	September 8, 2020
The EPA issued an Optimization Review Report for French Gulch/Wellington-Oro Mine Site Water Treatment Plant	September 13, 2022
The Town of Breckenridge replaced the injection well	2023
The CDPHE conducted a bench and pilot study to be documented in a Limited Treatability Assessment	February 11, 2025

APPENDIX C – SITE MAPS

Figure C-1: Wellington-Oro Mine Water Treatment Plant Process Flow Schematic

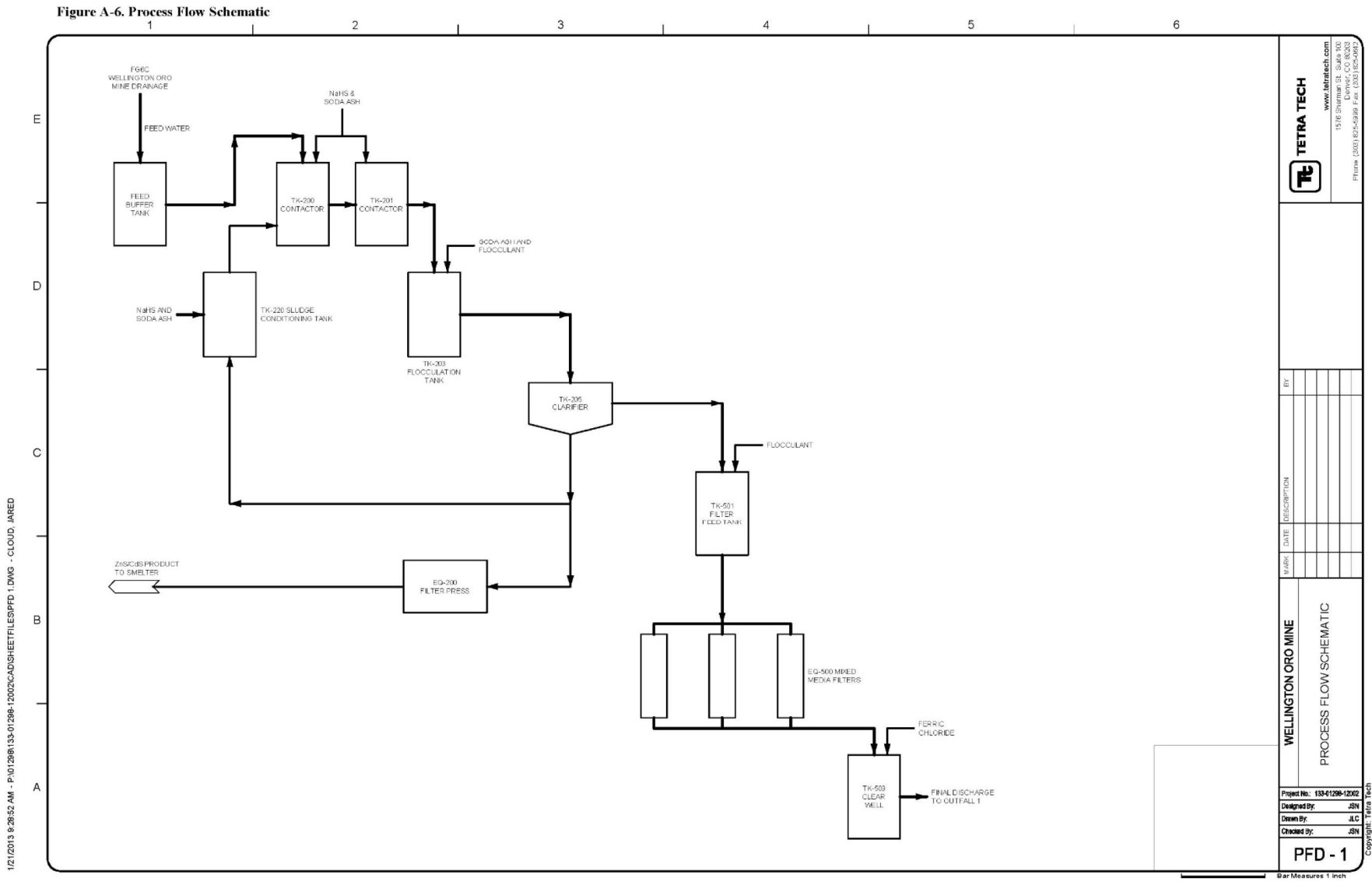


Figure C-2: USGS Sample Locations

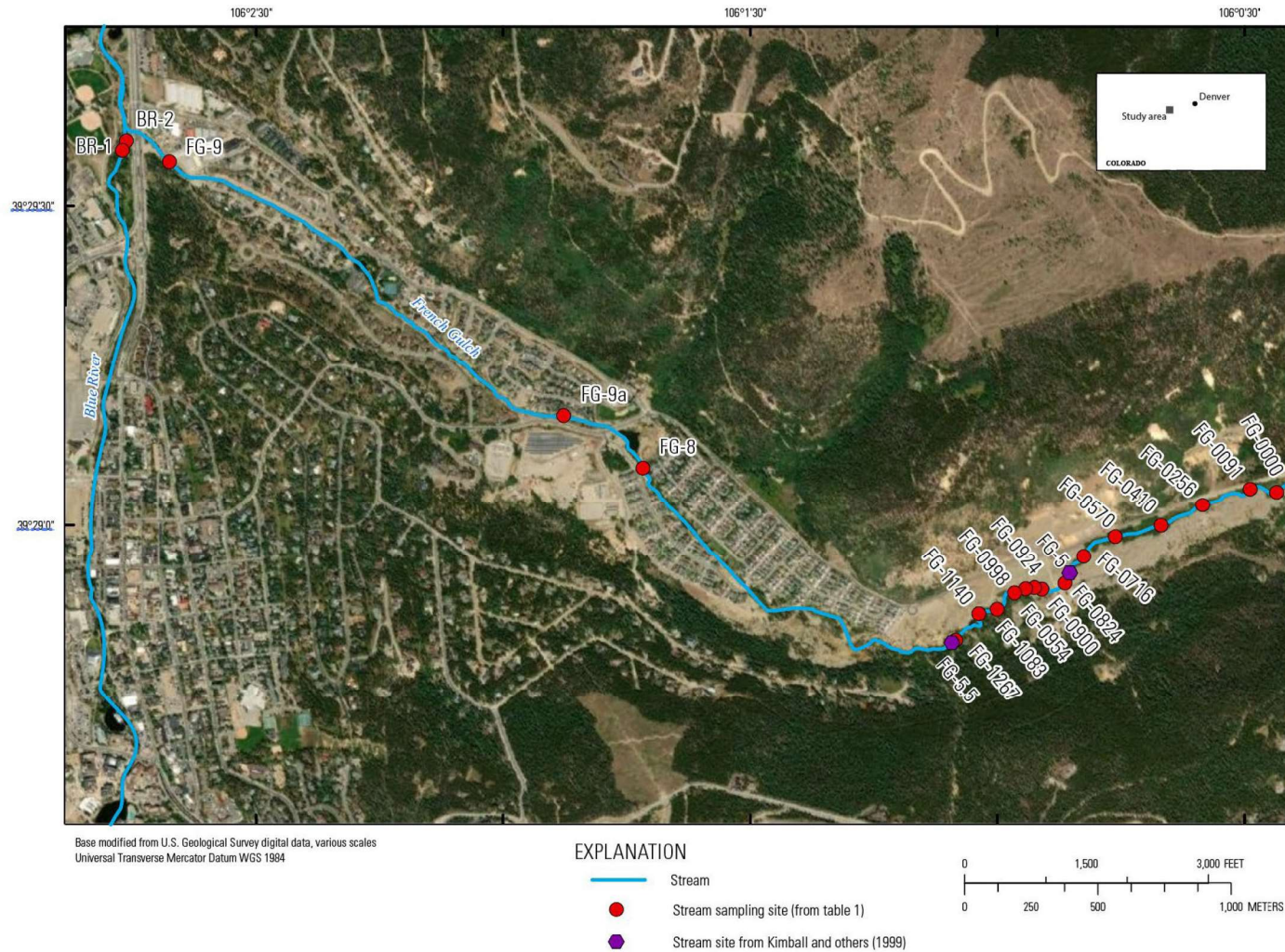


Figure 1. Location map of French Gulch study area showing stream sites sampled by U.S. Geological Survey in September 2020 and the FG-5 and FG-5.5 stream sites sampled by Kimball and others (1999).

APPENDIX D – PRESS NOTICE

The U.S. Environmental Protection Agency, Region 8 Announces the Third Five-Year Review for the French Gulch Site In Summit County, Colorado

The U.S. Environmental Protection Agency (EPA), in cooperation with the State of Colorado, is conducting the third five-year review of the French Gulch Site in Summit County, Colorado. Five-year reviews provide an opportunity to evaluate the implementation and performance of a remedy to determine whether it remains protective of human health and the environment. The third five-year review will be completed in 2025.

The Site includes mine wastes and the flooded mine pool associated with the former Wellington-Oro Mine complex, located near the town of Breckenridge in Summit County, Colorado. The Wellington-Oro Mine complex is 2.2 miles upstream of the confluence of French Creek and the Blue River near Breckenridge, Colorado. The Site is not listed on the National Priorities List, but EPA has addressed the Site through community-based environmental protection framework. EPA's cleanup goal at the Site is to reduce metals loading from French Creek into the Blue River to support sustainable brown trout fishery in the Blue River directly downstream of the confluence with French Creek. A water treatment plant at the Wellington-Oro Mine collects and treats water from the mine and discharges it into French Creek watershed. Operation and maintenance activities are ongoing.

We want to hear from you! Community members are encouraged to share information that may be helpful in the five-year review process. Community members who have questions or who would like to participate in a community interview, are asked to contact Kate by February 15, 2025:

Kate Tribbett
EPA Community Involvement Coordinator
Phone: 303-312-6661
Email: tribbett.kate@epa.gov

**PUBLISHED IN THE SUMMIT COUNTY JOURNAL
ON FRIDAY, DECEMBER 13, 2024.**

APPENDIX E – INTERVIEW FORMS

FRENCH GULCH SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: French Gulch	
EPA ID: CO0001093392	
Interviewer name: Skeo/EPA	Interviewer affiliation: Skeo/EPA
Subject name: Alex Hedgepath / Mary Boardman	Subject affiliation: CDPHE
Subject contact information: alex.hedgepath@state.co.us / mary.boardman@state.co.us	
Interview date: 5/2/25	Interview time: 8:00 a.m.
Interview location: Remote	
Interview format (circle one): In Person Phone Mail <u>Email</u> Other:	
Interview category: State Agency	

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

Overall, it appears that the project has continued as expected since the last FYR. The State is aware that there are ongoing issues revolving around maintenance costs and downtime associated with the WTP as well as issues attaining water quality standards at the Site. The State, through an EPA grant, has contracted with a consultant, Tetra Tech, to evaluate the feasibility of a passive remedy to replace the WTP based on a 2022 Optimization Report. This evaluation concluded that passive treatment likely would not work as a standalone remedy; the State, in coordination with the EPA, has had continued discussions to determine if passive treatment could supplement the WTP. No decisions have been reached.

2. What is your assessment of the current performance of the remedy in place at the Site?

The State is aware that maintenance and downtime are concerns for the WTP and are likely to increase as the system ages. Based on Tetra Tech's 2025 passive treatment evaluation, it does not appear that passive treatment could replace the WTP, but the agencies are discussing whether passive treatment could supplement the WTP to decrease maintenance costs and increase system efficacy.

The State believes that multiple data gaps exist at the Site, including further identification of faults/preferential flow pathways transporting mining-influenced water to French Gulch; further optimization of the WTP and collection and discharge systems; cataloguing, reviewing and summarizing historical documents; and considerations regarding the protectiveness of water quality standards.

3. Are you aware of any complaints or inquiries regarding site-related environmental issues or remedial activities from residents in the past five years?

No.

4. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

In 2023, the EPA and the State set up a cooperative agreement to evaluate if passive treatment could feasibly replace the current WTP. Based on Tetra Tech's 2025 passive treatment evaluation, it does not appear that

passive treatment could replace the WTP, but the agencies are discussing whether passive treatment could supplement the WTP to decrease maintenance costs and increase system efficacy.

The State has received and reviewed monthly discharge monitoring reports and other correspondence regarding the WTP operations. Additionally, the State participates in meetings and calls with interested parties, when coordinated by the EPA.

5. Are you aware of any changes to State laws that might affect the protectiveness of the Site's remedy?

The State is aware that the Water Quality Control Commission will be reviewing the Blue River basin water quality standards in 2029. The standard for arsenic in the Blue River below the confluence with French Gulch currently has a temporary modification that will expire on 12/31/2029.

6. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues?

Yes.

7. Are you aware of any changes in projected land use(s) at the Site?

No.

8. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy?

The State believes that further consideration should be given to the implementation of passive treatment at the Site to supplement the current WTP.

The State further believes that standards at the Site should be further evaluated and clarified, due to ongoing issues with water quality standards being set and how historical RAOs were developed.

9. Do you consent to have your name included along with your responses to this questionnaire in the FYR Report?

Yes.

FRENCH GULCH SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: French Gulch	
EPA ID: CO0001093392	
Interviewer name: Kate Tribett	Interviewer affiliation: EPA
Subject name: Laura Lynch and Brian Huber	Subject affiliation: Town of Breckenridge Water Department
Subject contact information:	
Interview date: May 5, 2025	Interview time: 11 a.m.
Interview location: Water Treatment Plant	
Interview format (circle one): <u>In Person</u> Phone Mail Email Other:	
Interview category: O&M Contractor	

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

A lot of work and money has been spent for not much gain. Maintenance at the Site has been very challenging to keep in good working order. We respect what the EPA does, but it seems this WTP is not making a dent in the entire watershed.

2. What is your assessment of the current performance of the remedy in place at the Site?

It is not working as we end up bypassing approximately 50% of the time. We remove zinc but it does not seem to be working that well as seen in the monthly results in the river.

3. What are the findings from the monitoring data? What are the key trends in contaminant levels that are being documented over time at the Site?

See above.

4. Is there a continuous on-site O&M presence? If so, please describe staff responsibilities and activities. Alternatively, please describe staff responsibilities and the frequency of site inspections and activities if there is not a continuous on-site O&M presence.

There are typically two operators on site daily, which is more than in the past. We have preventative maintenance daily, weekly, monthly and yearly that we are taking care of. We complete checklists and have the lab on site as well. We are a bit behind on maintenance, as we anticipated a passive treatment. There are components that need attention as they age, including the forklift and clarifier. There will be other WTP components that need attention if we continue to run it. We recently recoated the drinking water tanks, as they are from the 1970s. We are water treaters, but not plumbers, electricians, or mechanics, and have to rely on contracting those tasks out. We do not have redundancy to keep the plant running when a portion needs attention.

5. Have there been any significant changes in site O&M requirements, maintenance schedules or sampling routines since start-up or in the last five years? If so, do they affect the protectiveness or effectiveness of the remedy? Please describe changes and impacts.

We have to stay on top of jetting, which we have started to do annually in the last five years. We installed the new injection well. We have increased the frequency of changing out the filter media (now annually). We

continually update and add to the checklists. The extra jetting keeps the WTP open and we can discharge more water, but we are not seeing much difference in the water quality. We have performed updates to the WTP to help staff safety, including performing an industrial cleaning of the WTP, adding dust curtains to the filter press and installing new H₂S sensors. Staff members have asked if exposure to zinc dust could cause health issues, but we have not received the report addressing those questions yet.

6. Have there been unexpected O&M difficulties or costs at the Site since start-up or in the last five years? If so, please provide details.

We have replaced drive pumps and probes as well as updates listed above.

7. Have there been opportunities to optimize O&M activities or sampling efforts? Please describe changes and any resulting or desired cost savings or improved efficiencies.

We switched to bicarbonate to save seals, have a new PLC and SCADA system, conduct regularly scheduled filter changeouts, maintain a regular jetting schedule, and scoped the injection well with a camera to try to determine issues.

8. Do you have any comments, suggestions or recommendations regarding O&M activities and schedules at the Site?

It would be helpful if we had a different way to discharge water, as the injection well is not working as well as hoped. We should have hired water treatment operators specifically for this plant. Currently, our time is divided between the plant and regular Water Division duties. It is hard to keep employee morale up with a system that constantly has challenges. It is also stinky and dirty.

9. Do you consent to have your name included along with your responses to this questionnaire in the FYR Report?

Yes.

FRENCH GULCH SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: French Gulch	
EPA ID: CO0001093392	
Interviewer name: Kate Tribett	Interviewer affiliation: EPA
Subject name: Duke Barlow	Subject affiliation: Town of Breckenridge Open Space and Trails
Interview date: 5/5/2025	Interview time: 4:00 p.m.
Interview location: Town of Breckenridge Open Space and Trails office	
Interview format (circle one): In Person Phone Mail Email Other:	
Interview category: Local Government	

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

Generally yes. I started this position in July and started learning about the Site then. I was on the Open Space Advisory Commission, but there wasn't much discussion about the WTP then.

2. Do you feel well-informed regarding the Site's activities and remedial progress? If not, how might the EPA convey site-related information in the future?

I do feel well informed. The monthly meetings have been great. If the meetings end, it would be nice to have some regular communication with new information.

3. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

Not that I'm aware of.

4. Are you aware of any changes to state laws or local regulations that might affect the protectiveness of the Site's remedy?

No.

5. Are you aware of any changes in projected land use(s) at the Site?

No. I know that the owner of the Country Boy Mine has ideas for new development (commercial). They do tours currently. They have the informal trail network that crosses their property.

6. Has the EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can the EPA best provide site-related information in the future?

Like we talked about a bit ago, would be curious to hear what the HOA board member would say. Not sure how many of the nearby residents understand what happens at the WTP. Putting a sign up by the WTP might be beneficial and would support that. The Town has social media and QR codes.

7. Do you have any comments, suggestions or recommendations regarding the project?

One consideration with the passive treatment optimization is that something could be done to help the WTP work more effectively, and some concern about the political opinion on that. A comment would be to not be scared of any political opinion and try to get public support.

8. Do you consent to have your name included along with your responses to this questionnaire in the FYR Report?

Yes.

FRENCH GULCH SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: French Gulch	
EPA ID: CO0001093392	
Interviewer name:	Interviewer affiliation:
Subject name: Katherine King	Subject affiliation: Summit County Open Space and Trails
Interview date: 5/5/2025	Interview time: 3:45 p.m.
Interview location: Town of Breckenridge Open Space and Trails office	
Interview format (circle one): In Person Phone Mail Email Other:	
Interview category: Local Government	

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

I am. I replaced the previous director in fall 2021. Since he left, we have been trying to learn and read up when we can. I was here at the time of the Consent Decree and when the WTP was built. I understand why it came to be and what we are trying to do there.

2. Do you feel well-informed regarding the Site's activities and remedial progress? If not, how might the EPA convey site-related information in the future?

I do feel well informed. I'm pleased with the collaborative working relationship. I have been primarily focused on the passive treatment study. The best way to communicate is by email.

3. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

Not that I'm aware of. Have had vandalism and trespassing on French Gulch (upstream of the Site) such as graffiti.

4. Are you aware of any changes to state laws or local regulations that might affect the protectiveness of the Site's remedy?

I don't know of any, with the exception of the ongoing conversation about the water quality standards for French Creek. That's what we are working towards for the 2029 water quality standards review.

5. Are you aware of any changes in projected land use(s) at the Site?

I'm not. Directly across the street at Country Boy Mine, they are trying to build more developed infrastructure (commercial use).

6. Has the EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can the EPA best provide site-related information in the future?

Yes, they have. I think filtering any new information through staff and helping us figure out how to get that information out to the community (e.g., an open house, social media posts). There are a lot of more recent

community members who don't know what the WTP building is and why it exists, and it could be interesting for the community to know about and talk about the goals.

7. Do you have any comments, suggestions or recommendations regarding the project?

I don't know that I do. We really appreciate the patience with turnover at the county and being willing to think collaboratively on the next steps. Feels like there is a good working relationship and looking forward to that continuing.

No recommendations.

8. Do you consent to have your name included along with your responses to this questionnaire in the FYR Report?

Yes.

FRENCH GULCH SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: French Gulch	
EPA ID: CO0001093392	
Interviewer name: Kate Tribbett and Josie Nusz	Interviewer affiliation: EPA
Subject name: REDACTED	Subject affiliation: Resident
Subject contact information:	
Interview date: June 3, 2025	Interview time: 1:30 PM MDT
Interview location: Phone	
Interview format (circle one): In Person <u>Phone</u> Mail Email Other:	
Interview category: Resident	

- Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

No, not aware
- What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

This is the first time she has heard about it, did not know there was a water treatment going on, not new to the community has lived there for over 20 years. Lives on High Point Drive, parallel to the Wellington neighborhood.
- What have been the effects of this Site on the surrounding community, if any?

She heard that the run-off that comes from the tailings into the French Creek is toxic but did not know there was a treatment plant.
- Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

No. She asked a question about the location of the site.
- Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future?

No, she has not seen anything relevant to the site, but if they wanted to improve, some ways would be post in the paper (Summit Daily) or send out an emergency alerts if possible, notify Wellington HOA (have them reach out to all residents via email), social media, websites (Gobreck.com or TownofBreckenridge.com to post updates/site history)
- Do you own a private well in addition to or instead of accessing city/municipal water supplies? If so, for what purpose(s) is your private well used?

She owns a domestic well on her property but does not have access to Upper Blue's water. The town has access but her property is within the county, so she is not connected to Breckenridge municipal water. She uses the well for drinking and household use.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

She asked a question about environmental dangers. The cleanup was explained. She is happy the work is being done and is happy to answer any other questions or provide further assistance if needed.

APPENDIX F – DATA REVIEW TABLES AND FIGURES

Table F-1: Monitoring Locations

Location ^a	Description	Sampling Frequency	Sampling Party
French Gulch Main Stem Surface Water (Segment COUCBL11, upstream to downstream)			
FG-2	Downstream of McLeod Tunnel.	June and September	ESAT
FG-4	About 240 meters up gradient from the Wellington-Oro (W-O) Mine Complex; not expected to be impacted by W-O Mine Complex discharges.	June and September	ESAT
FG-5	Directly upgradient from the W-O Mine Complex; not expected to be impacted by W-O Mine Complex discharges.	June and September	ESAT
FG-5.5	Downgradient from the W-O Mine Complex. First monitoring location that could be impacted by W-O Mine Complex discharges.	June and September	ESAT
Opp-5	Downstream of FG-5 and upstream of FG-5.5.	June and September	ESAT
FG-8	About 50 meters upstream of Dead Elk Pond. About 1 kilometer downstream from W-O Mine Complex.	June and September	ESAT
FG-9A	About 140 meters downstream from Dead Elk Pond.	June and September	ESAT
FG-9	About 50 meters upstream of the confluence with Blue River.	June and September	EPA
		Annual during high flow	Town
Blue River Main Stem Surface Water (upstream to downstream)			
BR-1	About 50 meters upstream of the confluence with French Gulch.	June and September	The EPA
		Annual during high flow	Town
BR-2	About 115 feet downstream of the confluence with French Gulch. First Blue River monitoring location that could be impacted by discharge from French Gulch.	June and September	The EPA
		Annual during high flow	Town
BR-EPA1	About 400 meters downstream of the confluence with French Gulch.	June and September	The EPA
BR-EPA2U	About 1.6 kilometers downstream of the confluence with French Gulch.	June and September	The EPA
BR-EPA2	About 80 meters downstream from BR-EPA2U.	June and September	The EPA
12304A	About 170 meters downstream from BR-EPA2. Just upstream from the Coyne Valley Road bridge.	June and September	The EPA
BR-3	About 2.5 kilometers downstream from 12304A. Most downriver monitoring location on the Blue River.	June and September	The EPA
Monitoring Wells			
MW-2	Alluvial well, downgradient of mine treatment plant and is expected to be impacted by the W-O Mine. Total depth of 50 feet below ground surface (ft-bgs) with two screened intervals; the top is between 22 ft-bgs and 27 ft-bgs and the bottom is between 33 ft-bgs and 43 ft-bgs.	June and September	ESAT
MW-3	Alluvial well below mill tailings, downgradient of mine site. Located roughly between MW-4 and MW-7. Total depth of 55 ft-bgs with two screened intervals; the top is between 15 ft-bgs and 20 ft-bgs and the bottom is between 45 ft-bgs and 50 ft-bgs.	June and September	ESAT
MW-4	Alluvial and shale bedrock wells at the mine site. Near and potentially downgradient from the treatment plant. Expected to be directly impacted by the W-O Mine Complex.	June and September	ESAT

Location ^a	Description	Sampling Frequency	Sampling Party
	Total depth of 64 ft-bgs with four screened intervals; the top is between 20 ft-bgs and 30 ft-bgs, the middle is between 38 ft-bgs and 51 ft-bgs, and the bottom is between 58 ft-bgs and 63 ft-bgs.		
MW-7	Alluvial well far downgradient mine site and mill tailings. May be impacted by the W-O Mine Complex. Total depth of 52 ft-bgs with two screened intervals; the top is between 18 ft-bgs and 23 ft-bgs and the bottom is between 38 ft-bgs and 48 ft-bgs.	June and September	ESAT
MW-9	Alluvial well upgradient mine site that is expected not to be impacted by the W-O Mine Complex. Total depth of about 55 ft-bgs with one screened interval between 43 ft-bgs and 53 ft-bgs.	June and September	ESAT
MW-11	Alluvial well and shale bedrock well upgradient mine site that is expected not to be impacted by the W-O Mine Complex. Total depth of 43 ft bgs with two screened intervals; the top is between 23 ft-bgs and 28 ft-bgs and the bottom is between 38 ft-bgs and 46 ft-bgs.	June and September	ESAT
MW-20	Alluvial well south side valley downgradient mine site. Expected not to be impacted by the W-O Mine Complex. Total depth of 50 ft-bgs with one screened interval between 15 ft-bgs and 25 ft-bgs.	June and September	ESAT
French Gulch Inflows			
DEP Seep-1	Seep on the southeast side of Dead Elk Pond, northeast of Gazebo, east of Opp Seep-3 (rip rap).	June and September	ESAT
DEP Seep-2	Seep from the culvert on the east side of Dead Elk Pond.	June and September	ESAT
FG-6C	Seep that is treated at WTP. The sample location is 5 feet below the blue pipe.	June and September	ESAT
FG-8A	About 150 meters west of FG-5.5A, seep from small wetland adjacent to the W-O neighborhood.	June and September	ESAT
Opp-1	Seep from underneath rock pile about 5 meters south of the FG-5 culvert outflow.	June and September	ESAT
Opp-3	Seep coming from the west end of the W-O neighborhood.	June and September	ESAT
Opp-4	Small trickle of water on the north side of the road, 30 meters downstream of the WTP.	June and September	ESAT
Opp-9	Downstream of FG-6A near the gate. Orange pond is forming under the rocks by the new trail and is flowing next to the road.	June and September	ESAT
Dead Elk Pond Opportunity Samples			
Opp Seep-1	Seep is trickle drainage that runs along the west side of French Gulch, along Bridge Street, just upstream of Dead Elk Pond.	June and September	ESAT
Opp Seep-3	Seep is located on the south side of Dead Elk Pond, 15 meters east of where French Gulch enters pond (rip-rap).	June and September	ESAT
Opp Seep-4	Large Seep located just upstream of FG-8, under footbridge (east side).	June and September	ESAT
Opp Seep-5	Seep is flowing into the OPPp-3 pond.	June and September	ESAT
Opp Seep-6	Seep is flowing into the OPP-3 pond, west of OPP Seep-7.	June and September	ESAT

Location ^a	Description	Sampling Frequency	Sampling Party
Opp Seep-7	Seep is flowing into the wetland south of DEP Seep-2, just east of Opp Seep-6.	June and September	ESAT
Opp Seep-8	Seep is located just upstream of FG-8, under the bridge on the west bank of French Gulch.	June and September	ESAT
Opp Seep-9	Seep is located just upstream of FG-8, downstream of the bridge on the west bank of French Gulch.	June and September	ESAT
<i>Notes:</i> <i>Sources:</i> The table is adapted from monitoring locations provided in the 2024 Sampling and Analysis Report and the 2020 Surface-Water Quality Analysis Update. a. While other surface water and seep locations are sampled occasionally, these are the locations that are most routinely sampled and are used to determine remedy effectiveness.			

Table F-2: Median and Maximum Detected Dissolved Cadmium and Zinc Concentrations in Groundwater, 2020 to 2024

Date	Dissolved Cadmium			Dissolved Zinc		
	Median (µg/L)	Maximum (µg/L)	Location	Median (µg/L)	Maximum (µg/L)	Location
June 2020	20.1	260	MW-3	17,550	162,000	MW-3
September 2020		46.1	MW-4		125,000	MW-3
June 2021		42	MW-4		116,000	MW-3
Sept. 2021		41	MW-4		112,000	MW-3
June 2022		90.5	MW-3		136,000	MW-3
September 2022		41.4	MW-4		111,000	MW-3
June 2023		147	MW-3		156,000	MW-3
September 2023		74.8	MW-11		118,000	MW-3
June 2024		383	MW-3		173,000	MW-3
September 2024		53.4	MW-11		106,000	MW-3
Notes: Source: FG ESAT Data 250414 File. The median was calculated using data from 2020 to 2024.						

Table F-3: Surface Water BR-2 Dissolved Cadmium and Zinc Concentrations, 2020 to 2024

Sample Date	Dissolved Cadmium	Dissolved Zinc
	Performance Standard = 4 µg/L Segment 2a Water Quality Standard = 4.0 µg/L	Performance Standard = 225 µg/L Segment 2a Water Quality Standard = 507 µg/L (High Flow) and 640 µg/L (Base Flow) ^a
6/16/2020	1.56	457
9/14/2020	1.03	286
9/14/2020	1.02	281
6/16/2021	1.03	327
9/15/2021	2.61	731
9/15/2021	2.8	763
4/21/2022	4.6	1,251
5/17/2022	1.3	359
6/15/2022	1.02	323
6/28/2022	1.04	372
7/12/2022	1.3	344
8/19/2022	0.8	204
9/7/2022	1.39	300
10/31/2022	1	258
11/16/2022	2.1	587
12/28/2022	4.4	1,270

Sample Date	Dissolved Cadmium	Dissolved Zinc
	Performance Standard = 4 µg/L Segment 2a Water Quality Standard = 4.0 µg/L	Performance Standard = 225 µg/L Segment 2a Water Quality Standard = 507 µg/L (High Flow) and 640 µg/L (Base Flow) ^a
6/14/2023	1.52	370
6/14/2023	1.46	366
9/18/2023	3.16	663
9/18/2023	3.33	662
6/18/2024	0.957	258
6/18/2024	0.942	262
9/24/2024	3.82	809
9/24/2024	3.59	818

Notes:

Data obtained from 2024.03.12.French.Gulch.Scribe.dataset and FG ESAT Data 250414.

a. Average hardness under high flow conditions was 65.7 mg/L and 79 mg/L under base flow conditions.

Concentrations reported in µg/L.

Results in ***bold and italics*** text indicate the concentration exceeds the performance standards and the water quality standards.

Figure F-1: French Gulch Dissolved Zinc Concentrations Over Time

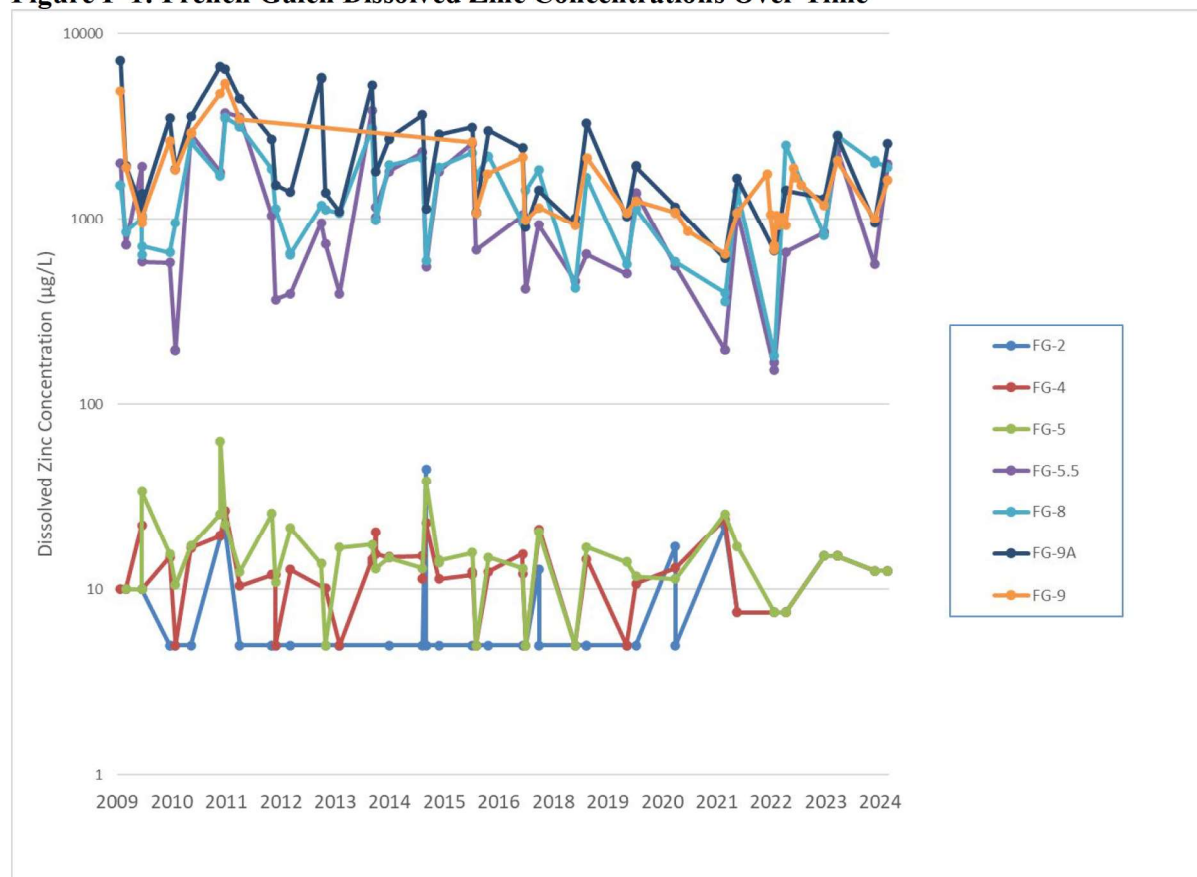


Figure F-2: French Gulch Dissolved Cadmium Concentrations Over Time

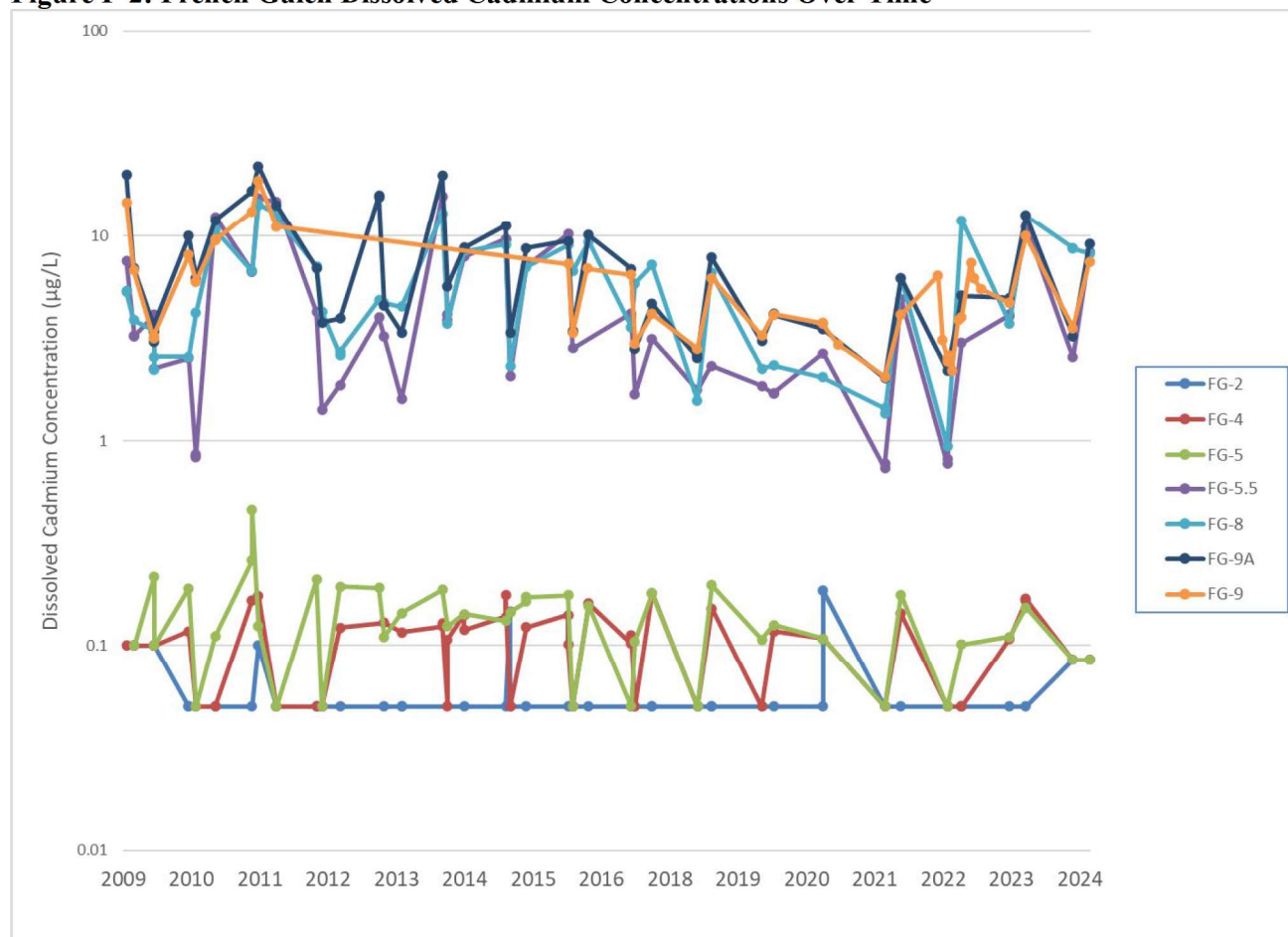


Figure F-3: Blue River Dissolved Zinc Concentrations Over Time

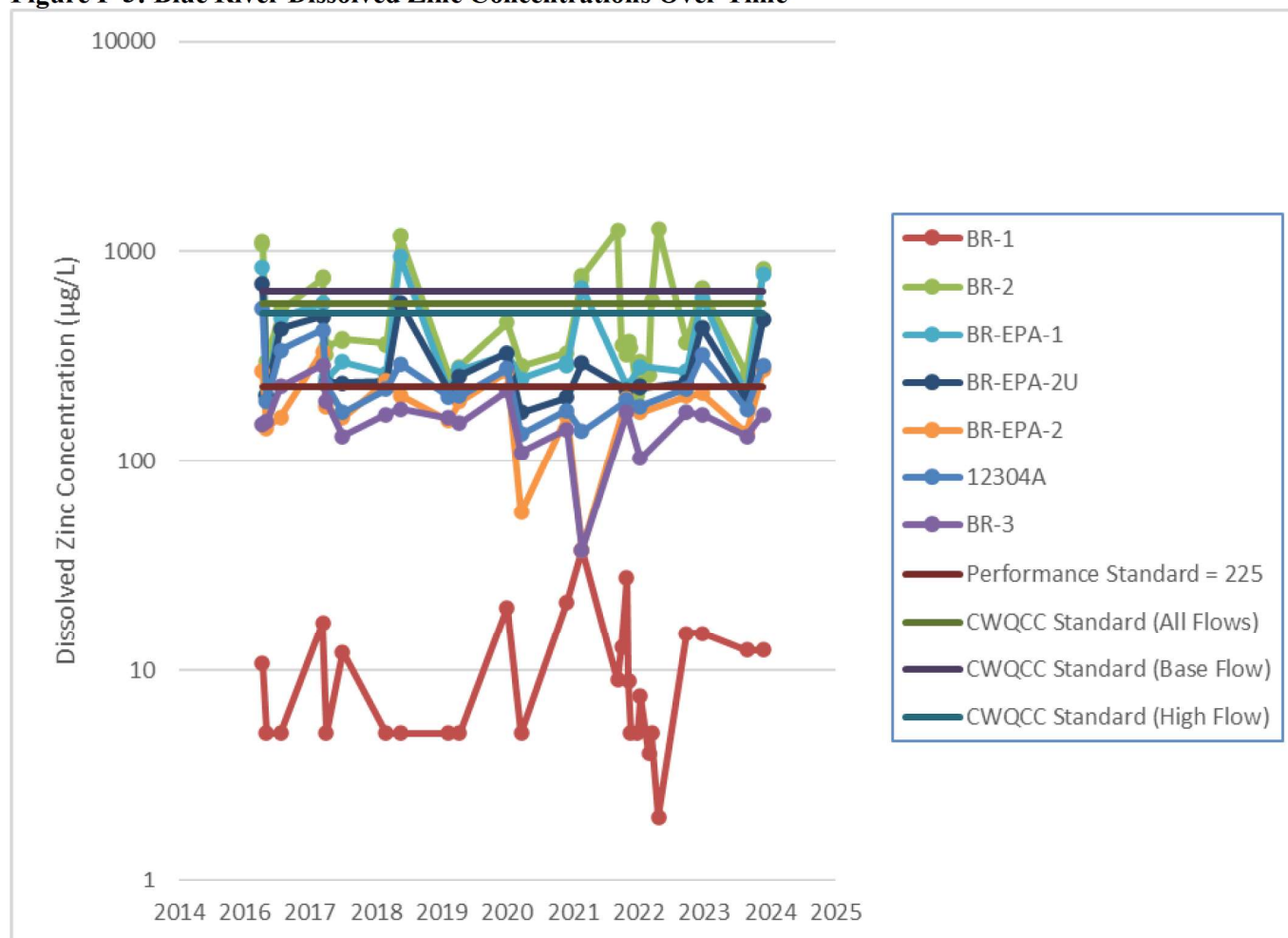


Figure F-4: Blue River Dissolved Cadmium Concentrations Over Time

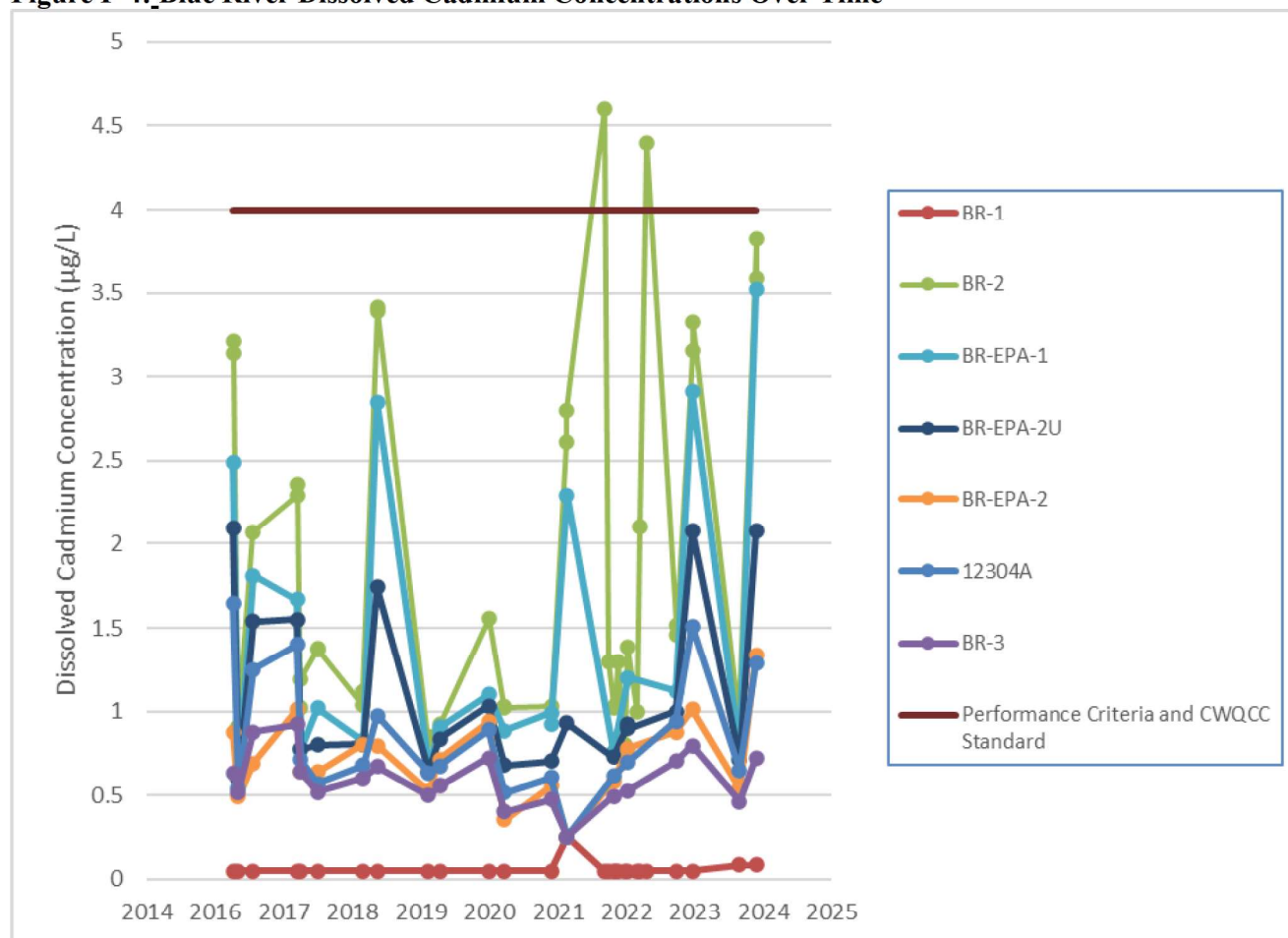


Figure F-5: Dissolved Zinc Concentrations in Groundwater Over Time

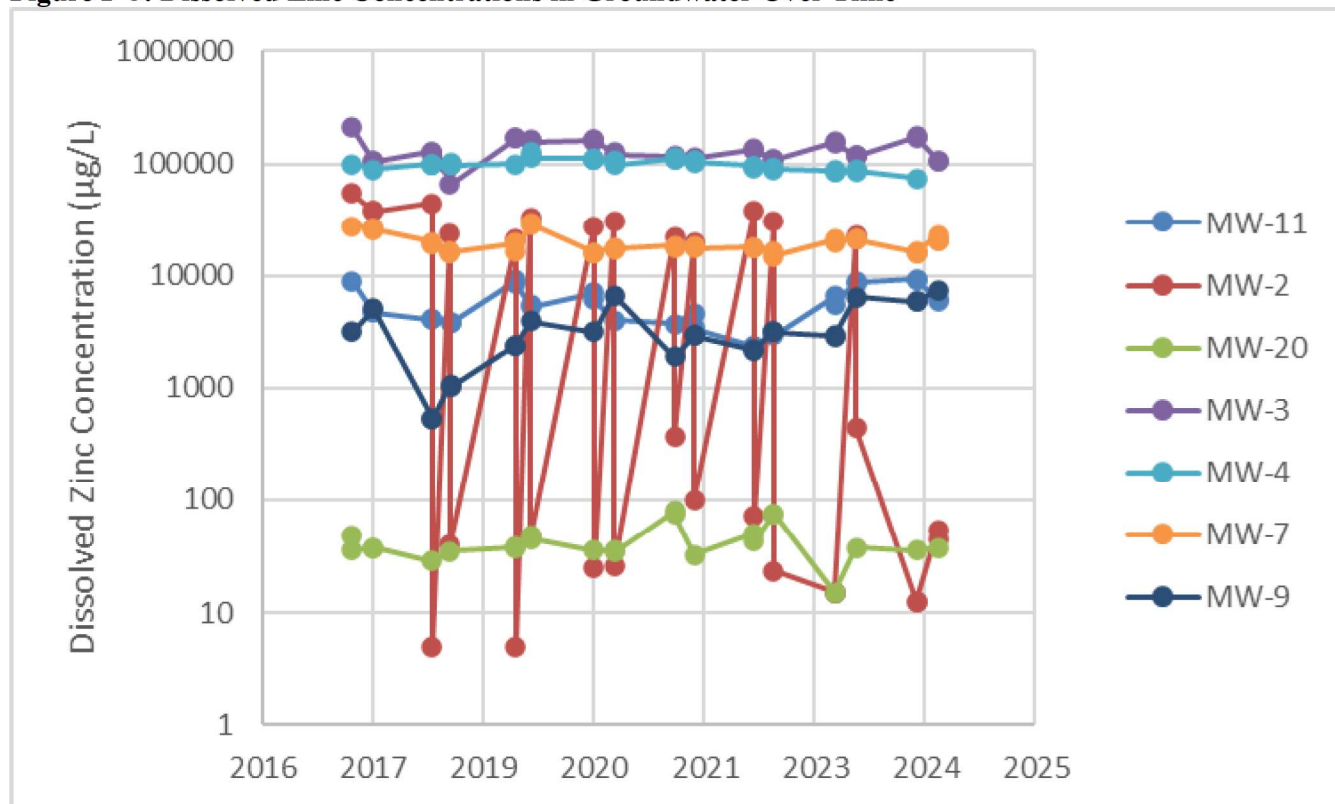


Figure F-6: Dissolved Cadmium Concentrations in Groundwater Over Time

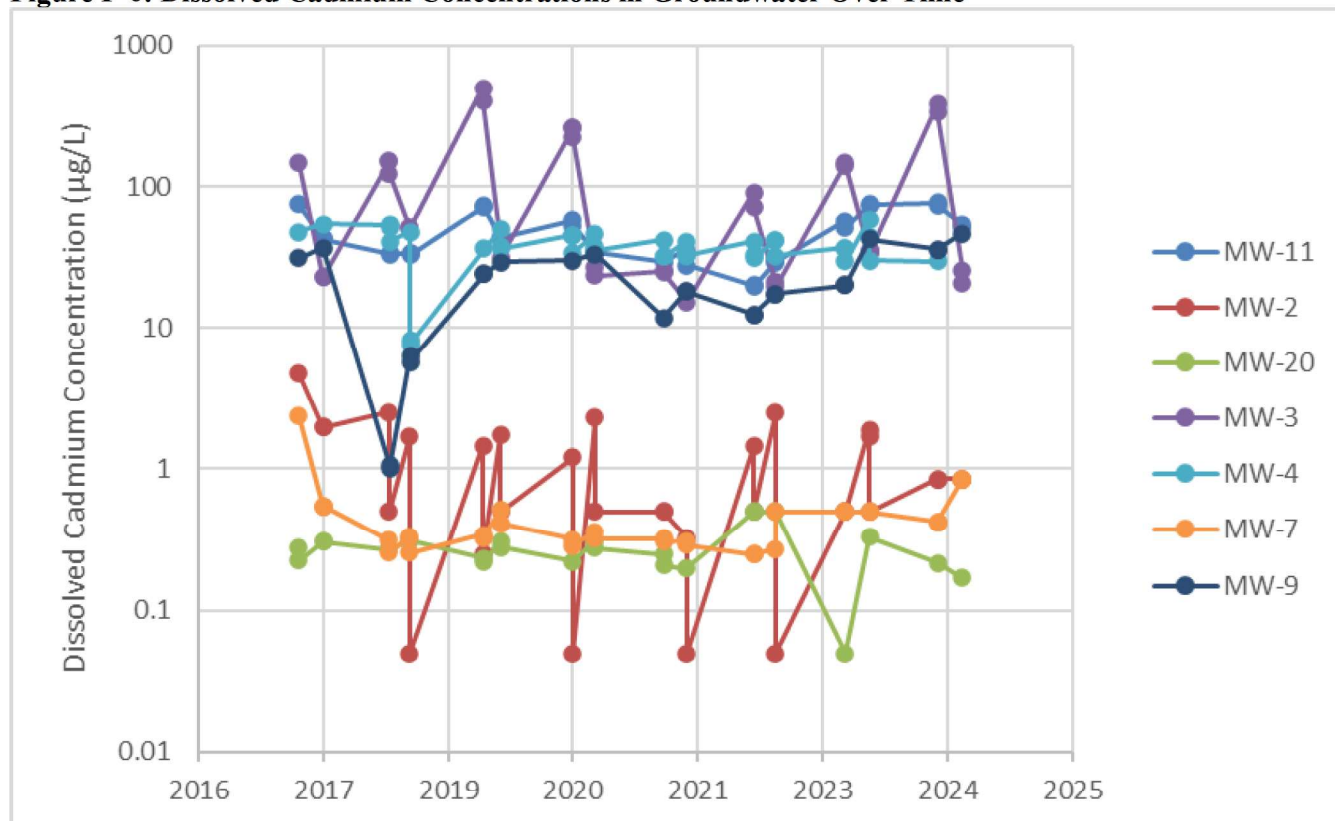


Figure F-7: Dissolved Manganese Concentrations in Groundwater Over Time

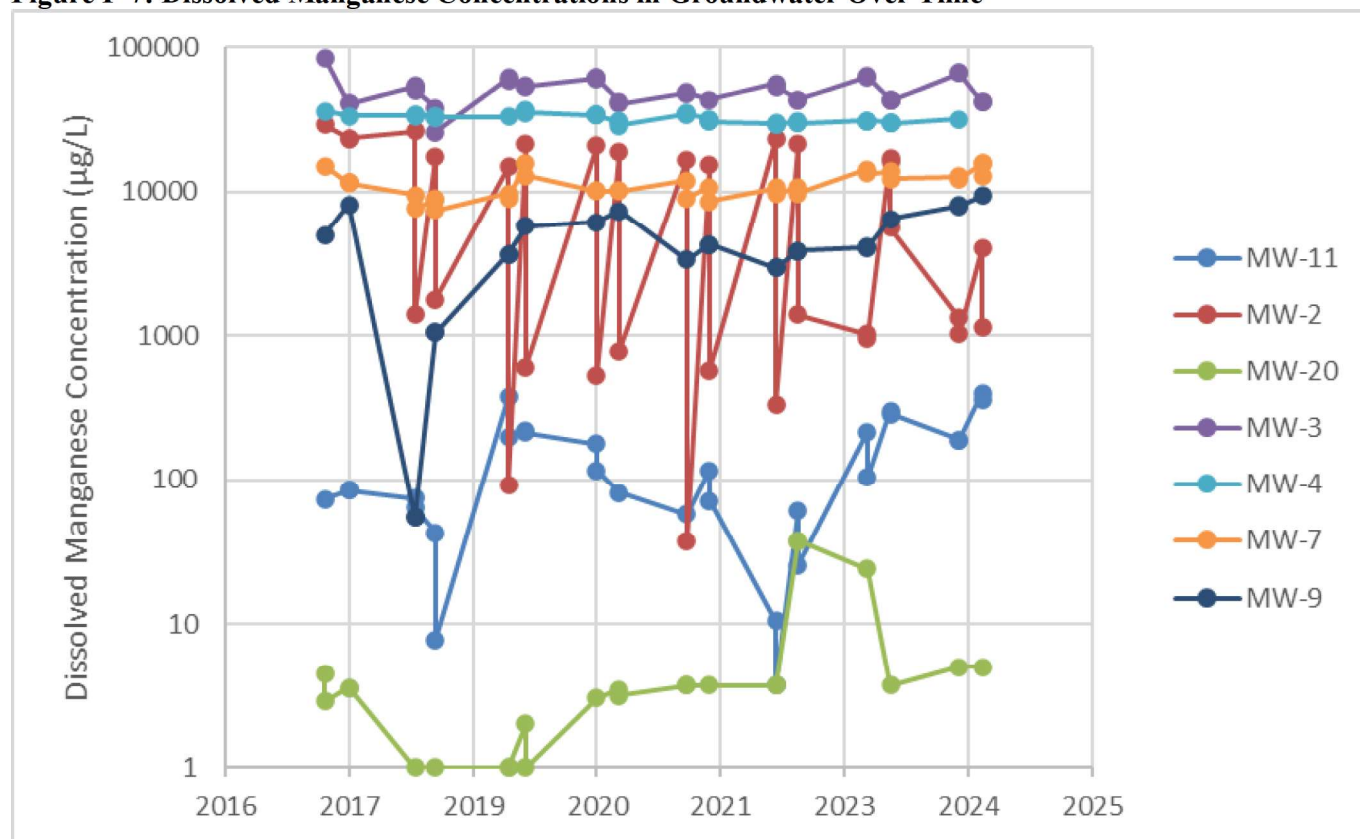
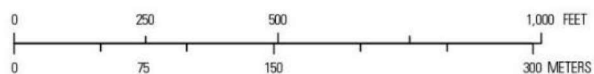


Figure F-8: USGS Study Locations



Base modified from U.S. Geological Survey digital data, various scales
Universal Transverse Mercator Datum WGS 1984



EXPLANATION

- | | |
|---|---|
| ■ Groundwater | ▲ Sodium-rich right bank inflow |
| ▶ Left bank inflow | ● Stream sites from Kimball and others (1999) |
| ▶ Right bank inflow | — Stream |
| ● Stream | --- Faults from Wallace and others (2003) |
| ★ Effluent/Influent | --- Faults from Lovering (1934) |
| ◆ Effluent Injection | |

Figure F-9: Cadmium Concentrations, Upstream to Downstream

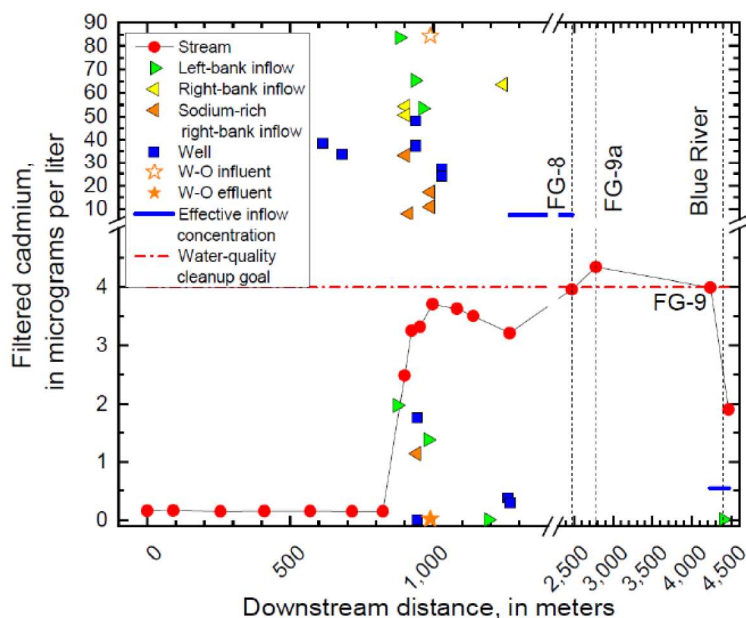


Figure 13. Graph showing variation in cadmium concentrations in water samples from the stream, left- and right-bank inflows, groundwater, the Wellington-Oro (W-O) influent and effluent, and effective inflow concentrations in the FG-8 reach and at the confluence with the Blue River for samples collected in French Gulch in September 2020. Water-quality cleanup goal from Walton-Day and others (2018).

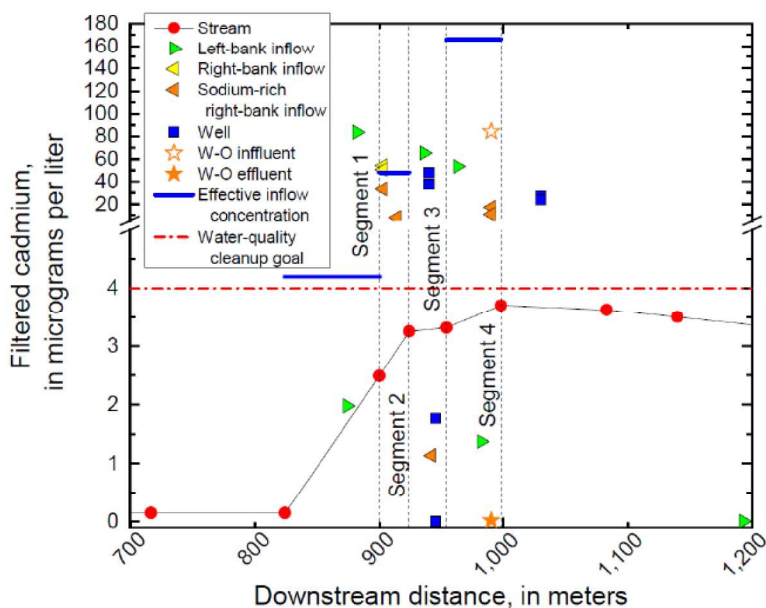


Figure 14. Graph showing variation in cadmium concentrations in the French Gulch for stream, left- and right-bank inflows, groundwater, the Wellington-Oro (W-O) influent and effluent, and effective inflow concentrations in the reaches ending at 900, 924, and 998m for samples collected in French Gulch in September 2020. Water-quality cleanup goal from Walton-Day and others (2018).

Figure F-10: Zinc Concentrations, Upstream to Downstream

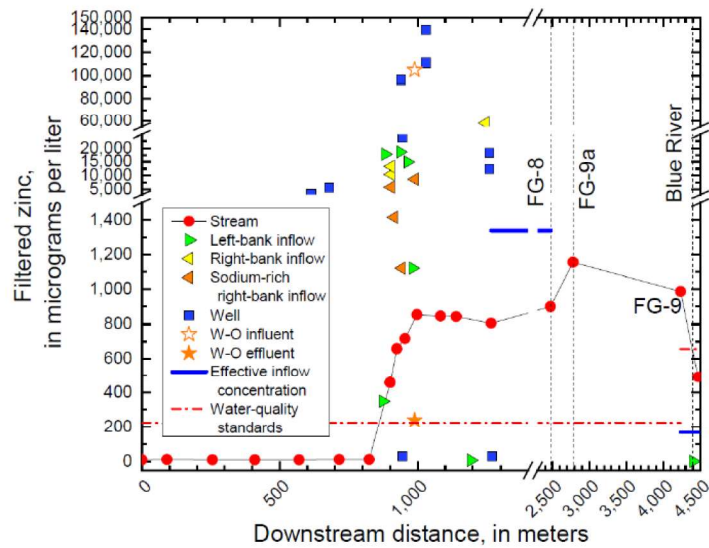


Figure 15. Graph showing variation in zinc concentrations in water samples from the stream, left- and right-bank inflows, groundwater, the Wellington-Oro (W-O) influent and effluent, and effective inflow concentrations in the FG-8 reach and at the French Gulch Blue River confluence for samples collected in French Gulch in September 2020. Water-quality standard for French Gulch is water-quality cleanup goal from Walton-Day and others (2018). Water-quality standard in Blue River is chronic and acute standard (same value) from Colorado Department of Public Health and Environment, Water Quality Control Commission (2021).

4.3

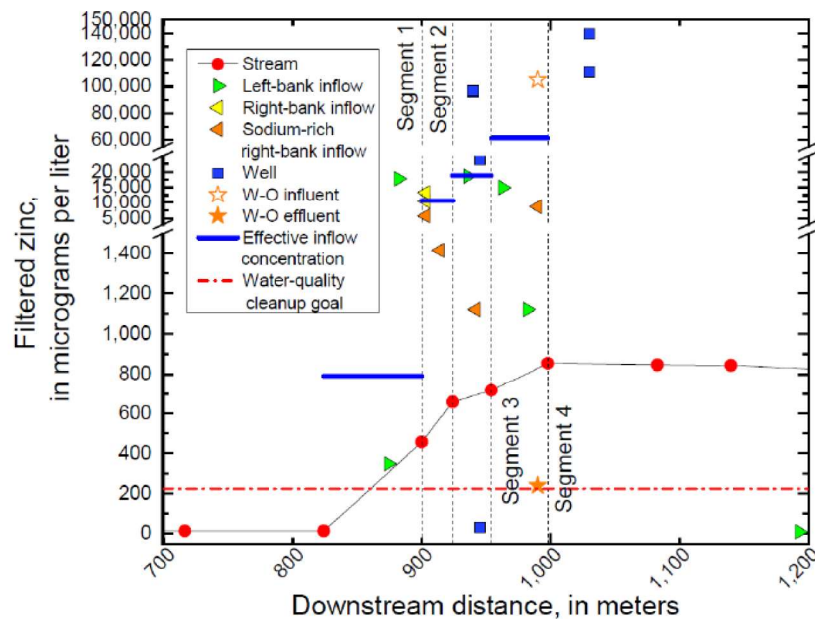


Figure 16. Graph showing variation in zinc concentrations in the French Gulch for stream, left- and right-bank inflows, groundwater, the Wellington-Oro (W-O) influent and effluent, and effective inflow concentrations in the reaches ending at 900 m, 924 m, 954 m, and 998m for samples collected in French Gulch in September 2020. Water-quality standard for French Gulch is water-quality cleanup goal from Walton-Day and others (2018).

APPENDIX G – SITE INSPECTION CHECKLIST

FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST			
I. SITE INFORMATION			
Site Name: French Gulch		Date of Inspection: <u>05/05/2025</u>	
Location and Region: Breckenridge, Colorado, 8		EPA ID: CO0001093392	
Agency, Office or Company Leading the Five-Year Review: <u>The EPA</u>		Weather/Temperature: <u>Sunny, passing snow showers and 45 degrees Fahrenheit</u>	
Remedy Includes: (check all that apply) ☐ Landfill cover/containment ☐ Access controls ☒ Institutional controls ☐ Groundwater pump and treatment ☐ Surface water collection and treatment ☒ Other: <u>Seep collection and treatment</u> ☐ Monitored natural attenuation ☐ Groundwater containment ☐ Vertical barrier walls			
Attachments: ☐ Inspection team roster attached ☐ Site map attached			
II. INTERVIEWS (check all that apply)			
1. O&M Site Manager <u>Laura Lynch and Brian Huber</u> <u>Town of Breckenridge</u> <u>05/05/2025</u> Name Affiliation Date Interviewed ☒ at site ☐ at office ☐ by email Phone: _____ Problems, suggestions ☒ Report attached: <u>Appendix E includes a completed interview form.</u>			
2. Local Regulatory Authorities and Response Agencies (i.e., state and tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices). Fill in all that apply. Agency <u>CDPHE</u> Name <u>Alex Hedgepath</u> <u>Project Manager</u> <u>05/05/2025</u> <u>alex.hedgepath@state.co.us</u> Title Date Email Problems/suggestions ☒ Report attached: <u>Appendix E includes the completed interview form.</u> Agency <u>Summit County</u> Name <u>Katherine King</u> <u>Director of Trails & Open Spaces</u> <u>05/05/2025</u> <u>Katherine.King@summitcountyco.gov</u> Title Date Email Problems/suggestions ☒ Report attached: <u>Appendix E includes the completed interview form.</u> Agency <u>Town of Breckenridge</u> Contact <u>Duke Barlow</u> <u>Open Space & Trails Manager</u> <u>05/05/2025</u> _____ Name Title Date Phone Problems/suggestions ☒ Report attached: <u>Appendix E includes the completed interview form.</u>			
III. ON-SITE DOCUMENTS AND RECORDS VERIFIED (check all that apply)			
1. O&M Documents ☒ O&M manual ☒ Readily available ☒ Up to date ☐ N/A			

	☒ As-built drawings	☒ Readily available	☒ Up to date	☐ N/A
	☒ Maintenance logs	☒ Readily available	☒ Up to date	☐ N/A
Remarks: _____				
2.	Site-Specific Health and Safety Plan	☒ Readily available	☒ Up to date	☐ N/A
	☒ Contingency plan/emergency response plan	☒ Readily available	☒ Up to date	☐ N/A
Remarks: _____				
3.	O&M and OSHA Training Records	☒ Readily available	☒ Up to date	☐ N/A
Remarks: _____				
4.	Permits and Service Agreements			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	☒ N/A
	☒ Effluent discharge	☒ Readily available	☒ Up to date	☐ N/A
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☒ N/A
	☐ Other permits: _____	☐ Readily available	☐ Up to date	☒ N/A
Remarks: _____				
5.	Gas Generation Records	☐ Readily available	☐ Up to date	☒ N/A
Remarks: _____				
6.	Settlement Monument Records	☐ Readily available	☐ Up to date	☒ N/A
Remarks: _____				
7.	Groundwater Monitoring Records	☒ Readily available	☒ Up to date	☐ N/A
Remarks: _____				
8.	Leachate Extraction Records	☐ Readily available	☐ Up to date	☒ N/A
Remarks: _____				
9.	Discharge Compliance Records			
	☐ Air	☐ Readily available	☐ Up to date	☒ N/A
	☒ Water (effluent)	☒ Readily available	☒ Up to date	☐ N/A
Remarks: _____				
10.	Daily Access/Security Logs	☐ Readily available	☐ Up to date	☒ N/A
Remarks: _____				
IV. O&M COSTS				
1.	O&M Organization			
	☐ State in-house	☐ Contractor for state		
	☐ PRP in-house	☐ Contractor for PRP		
	☐ Federal facility in-house	☐ Contractor for Federal facility		
	☒ Town and County operate the WTP			
2.	O&M Cost Records			

☐ Readily available ☒ Funding mechanism/agreement in place	☐ Up to date ☒ Unavailable		
Original O&M cost estimate: <u>The 2002 Action Memorandum estimated annual O&M costs of \$192,000.</u> ☐ Breakdown attached			
Total annual cost by year for review period if available			
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached

3.	Unanticipated or Unusually High O&M Costs during Review Period Describe costs and reasons: _____
V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A	
A. Fencing	
1.	Fencing Damaged ☐ Location shown on site map ☐ Gates secured ☒ N/A Remarks: <u>There are no fences on Site.</u>
B. Other Access Restrictions	
1.	Signs and Other Security Measures ☐ Location shown on site map ☒ N/A Remarks: <u>The WTP is secured.</u>
C. Institutional Controls (ICs)	

1. Implementation and Enforcement Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A Site conditions imply ICs not being fully enforced ☐ Yes ☒ No ☐ N/A Type of monitoring (e.g., self-reporting, drive by): <u>Self-reporting</u> Frequency: <u>Daily presence on Site</u> Responsible party/agency: <u>State</u> Contact <u>Alex Hedgepath</u> <u>CDPHE Project Manager</u> Name Title Reporting is up to date ☐ Yes ☐ No ☒ N/A Reports are verified by the lead agency ☐ Yes ☐ No ☒ N/A Specific requirements in deed or decision documents have been met ☒ Yes ☐ No ☐ N/A Violations have been reported ☐ Yes ☒ No ☐ N/A		
2. Adequacy ☒ ICs are adequate ☐ ICs are inadequate ☐ N/A Remarks: <u>See Section II of this FYR Report.</u>		
D. General		
1. Vandalism/Trespassing ☐ Location shown on site map ☒ No vandalism evident Remarks: _____		
2. Land Use Changes On-Site ☒ N/A Remarks: _____		
3. Land Use Changes Off-Site ☒ N/A Remarks: _____		
VI. GENERAL SITE CONDITIONS		
A. Roads ☐ Applicable ☒ N/A		
B. Other Site Conditions		
Remarks: <u>None.</u>		
VII. LANDFILL COVERS ☐ Applicable ☒ N/A		
VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A		
IX. GROUNDWATER/SURFACE WATER REMEDIES ☒ Applicable (water treatment of seep) ☐ N/A		
A. Groundwater Extraction Wells, Pumps and Pipelines ☒ Applicable ☐ N/A		
1. Pumps, Wellhead Plumbing and Electrical ☒ Good condition ☒ All required wells properly operating ☐ Needs maintenance ☐ N/A Remarks: _____		
2. Extraction System Pipelines, Valves, Valve Boxes and Other Appurtenances ☒ Good condition ☐ Needs maintenance Remarks: _____		

3.	Spare Parts and Equipment	☒ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided	Remarks: _____
B. Surface Water Collection Structures, Pumps and Pipelines		☐ Applicable ☒ N/A	
C. Treatment System		☒ Applicable ☐ N/A	
1.	Treatment Train (check components that apply) ☒ Metals removal (sulfide precipitation process) ☐ Oil/water separation ☐ Bioremediation ☐ Air stripping ☐ Carbon adsorbers ☒ Filters: _____ ☒ Reagents: <u>Sodium hydrosulfide, sodium bicarbonate</u> ☐ Others: _____ ☒ Good condition ☐ Needs maintenance ☒ Sampling ports properly marked and functional ☒ Sampling/maintenance log displayed and up to date ☒ Equipment properly identified ☐ Quantity of groundwater treated annually: _____ ☐ Quantity of surface water treated annually: _____ Remarks: <u>WTP operations data are presented in the Data Review section of the FYR Report.</u>		
2.	Electrical Enclosures and Panels (properly rated and functional) ☐ N/A ☒ Good condition ☐ Needs maintenance Remarks: _____		
3.	Tanks, Vaults, Storage Vessels ☐ N/A ☒ Good condition ☐ Proper secondary containment ☐ Needs maintenance Remarks: _____		
4.	Discharge Structure and Appurtenances ☐ N/A ☒ Good condition ☐ Needs maintenance Remarks: _____		
5.	Treatment Building(s) ☐ N/A ☒ Good condition (esp. roof and doorways) ☐ Needs repair ☒ Chemicals and equipment properly stored Remarks: _____		
6.	Monitoring Wells (pump and treatment remedy) ☒ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☒ Good condition ☒ All required wells located ☐ Needs maintenance ☐ N/A Remarks: _____		
D. Monitoring Data			

1. Monitoring Data	
☒ Is routinely submitted on time	☒ Is of acceptable quality
2. Monitoring Data Suggests:	
☐ Groundwater plume is effectively contained	☐ Contaminant concentrations are declining
E. Monitored Natural Attenuation	
1. Monitoring Wells (natural attenuation remedy)	
☐ Properly secured/locked	☐ Functioning
☐ All required wells located	☐ Needs maintenance
	☐ Routinely sampled
	☐ Good condition
	☒ N/A
Remarks: _____	
X. OTHER REMEDIES	
If there are remedies applied at the site and not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.	
XI. OVERALL OBSERVATIONS	
A. Implementation of the Remedy	
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is designed to accomplish (e.g., to contain contaminant plume, minimize infiltration and gas emissions). <u>The Water Quality Action is not functioning as intended by the decision documents. While the Town continues to operate and maintain the WTP and addresses issues as they arise, there were significant issues with the system during this FYR period. These issues resulted in long periods when the plant was not discharging. Effluent discharge limits for total suspended solids, zinc and cadmium were not met consistently in 2024 and water was recycled back into the mine pool. Optimization efforts are ongoing and the CDPHE is conducting a treatability analysis to determine the viability of additional treatment options such as passive or semi-passive systems. Zinc concentrations remain above performance standards and periodically above surface water quality standards at the Blue River point of compliance. The USGS conducted a tracer study in 2020 and reported the results to the agencies in 2022 that show there are significant contributions of contamination along French Gulch downstream of the WTP discharge, making attainment of the zinc performance standard more difficult or potentially unfeasible. The EPA will evaluate the performance standard for zinc to determine if it is appropriate and take appropriate steps as need to update the performance standard and DCM/CD accordingly.</u> <u>Groundwater monitoring results also demonstrate that there is significant contamination remaining in mine-pool water near the Wellington-Oro Mine complex that is likely a continuing source of metals to surface water in French Gulch. The EPA and the CDPHE will continue to evaluate the options to upgrade or alter the current WTP as well as the potential to add passive or semi-passive treatment. Institutional controls are in place for a 4.7-acre property in the vicinity of the Wellington-Oro Mine and seep FG-6C. The environmental covenant prohibits residential and agricultural use, restrict excavation, prohibit use of groundwater and surface water, prohibit well construction, and protect the integrity of the cleanup actions, including the WTP.</u>	
B. Adequacy of O&M	
Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. <u>The FYR Report addresses issues identified with the WTP during this FYR period and actions taken to address them.</u>	
C. Early Indicators of Potential Remedy Problems	
Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future. <u>The FYR Report describes issues and observations associated with the operation of the WTP.</u>	
D. Opportunities for Optimization	
Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. <u>The EPA, the CDPHE, and the Town and County are continuing to identify opportunities for optimization of the WTP and the overall remedy.</u>	

APPENDIX H – SITE INSPECTION PHOTOS



Entrance to the Wellington-Oro Mine, located uphill of the WTP



The WTP building



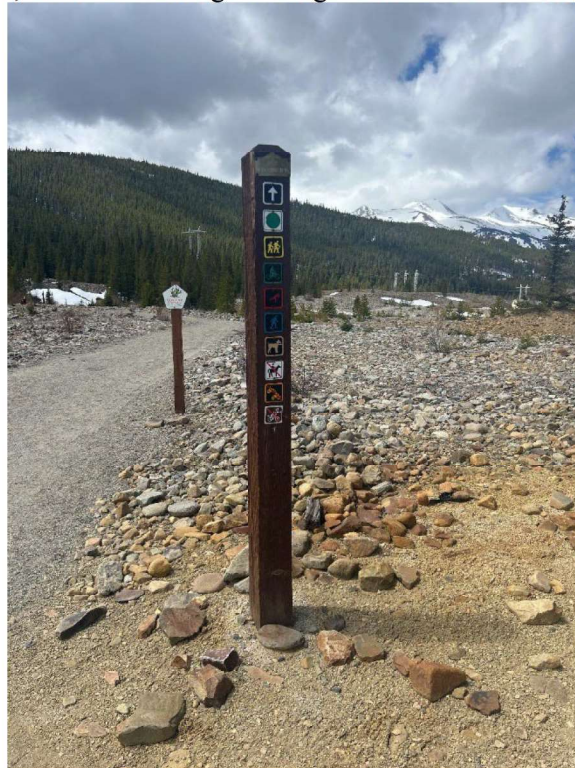
Interior of the WTP



New injection well in foreground and old injection well and mining structure in background



FG-6C, with the Wellington Neighborhood in the background



Trail sign near the WTP in an area with an institutional control in place



French Gulch, with inflow downstream of the mine



Dead Elk Pond



Fish barrier downstream from Dead Elk Pond



Confluence of French Gulch (left) and the Blue River



The Blue River, downstream of the confluence

APPENDIX I – DETAILED ARARS REVIEW

Water Quality Action Memorandum Addendum #1, dated November 2004, identified the following ARARs as practicable for the Site:

- The Federal Clean Water Act
- Colorado Water Quality Standards
- The Safe Drinking Water Act, Underground Injection Control Program
- The Colorado Solid Waste Disposal Regulation
- The Colorado Mine Land Reclamation Act
- The Endangered Species Act
- Colorado Environmental Covenant Requirements – CRS 25-15-317-327

Surface Water

Water Quality Action Memorandum Addendum #1 further clarified that the performance standards for the water quality action are to comply with CWQCC's water quality standards for zinc and cadmium in Segment 2a of the Blue River. Table 1 summarizes the water quality standards for Segment 2a of the Blue River as well as water quality standards for French Creek below the Wellington-Oro Mine (Blue River Segment 11) and Blue River Segment 2b, which are also affected by site-related contamination. The water quality standards were presented in the EPA's memorandum, Wellington Oro/French Gulch Site Cleanup Goals and Objectives, dated October 2004. Figure 3 shows the locations of the Blue River stream segments.

In 2019, the CWQCC proposed revised water quality standards for the Blue River and lower French Creek (e.g., acute and chronic Table Value Standard for cadmium and zinc). Following the proposed rulemaking proceedings, the CWQCC retained the existing standards. In 2024, the CWQCC again retained the existing standards.¹⁰ The following language was included:

“The commission intends that the division will work with interested parties, which include EPA, CPW, and local governments, to leverage existing studies and ongoing data collection efforts to develop site-specific standards on Blue River segments 2a, 2b and 11 prior to the next basin review.”

The division is planning to work with the Town and County and EPA to develop appropriate feasibility-based water quality standards for Blue River Segment 11 to propose to the CWQCC by 2029.

Groundwater

The Water Quality Action Memorandum did not specify performance standards for groundwater.

¹⁰ <https://www.coloradosos.gov/CCR/GenerateRulePdf.do?ruleVersionId=11782&fileName=5%20CCR%201002-33>.