THIRD FIVE-YEAR REVIEW REPORT FOR EUREKA MILLS SUPERFUND SITE EUREKA, JUAB COUNTY, UTAH

Prepared by

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For

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Region 8
Denver, Colorado

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Date

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LIST OF ABBREVIATIONS & ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
BHHRA	Baseline Human Health Risk Assessment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COPC	Contaminant of Potential Concern
DERR	Division of Environmental Response and Remediation
DOGM	Division of Oil, Gas and Mining
EBB	Eagle Blue Bell Mine, Transition & Dump
EC	Environmental Covenant
FYR	Five Year Review
FS	Feasibility Study
HQ	Hazard Quotient
KC	Knightsville Channel
NPL	National Priorities List
O/M	Operation and Maintenance
OU	operable unit
PRG	preliminary remediation goal
PRP	Potentially Responsible Party
QC	Quality Control
RA	Remedial Action
RAO	Remedial Action Objective
RAS	Response Action Structure
RAWP	Remedial Action Work Plan
RD	Remedial Design
RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
SARA	Superfund Amendments and Reauthorization Act
SHPO	State Historic Preservation Office
SSC	State Superfund Contract
UAO	Unilateral Administrative Order
UDEQ	Utah Department of Environmental Quality
UDOH	Utah Department of Health
UEG	Upper Eureka Gulch
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
WIC	Women, Infants & Children

I. INTRODUCTION

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy in order 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 review reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The Utah Department of Environmental Quality (UDEQ), Division of Environmental Response and Remediation (DERR), in coordination with the U.S. Environmental Protection Agency (EPA), conducted this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP)(40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the third FYR for the Eureka Mills Superfund Site (Site). The triggering action for this statutory review is the completion of the Second FYR in September 2013. The FYR has been prepared due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site consists of five Operable Units (OUs) and all five OUs will be addressed in this FYR.

- Operable Unit 00 (OU00) addresses the entire Site including the residential areas.
- Operable Unit 01 (OU01) addresses the May Day Waste Pile and Godiva Shaft and Tunnel.
- Operable Unit 02 (OU02) addresses the Bullion Beck and Gemini Mine Waste Piles.
- Operable Unit 03 (OU03) addresses the Central Eureka Mining Areas.
- Operable Unit 04 (OU04) addresses the Ecological Risk Assessment and Groundwater/Surface Water.

The Eureka Mills Superfund Site Five-Year Review began on August 2, 2017 and was led by Michael Storck, Environmental Scientist for DERR. Participants included Dave Allison (DERR), Scott Everett (DERR), and Armando Saenz (EPA).

Site Background

The Eureka Mills Superfund Site is a historic mining site that comprises much of the town of Eureka and some of the adjacent areas in Juab County, Utah (Figure 1). Eureka is situated in a southwest trending valley on the west side of the East Tintic Mountains in Juab County about 80 miles southwest of Salt Lake City, Utah. Elevations range from 6,300 feet to 6,700 feet above mean sea level. Eureka was founded in 1870 upon the discovery of a high-grade mineralized outcrop containing silver and lead, as well as other minerals including gold, copper and arsenic. The area was extensively mined until 1958.

The Site remediation encompasses approximately 450 acres and includes the residential and commercial parts of Eureka and some adjoining areas outside of the city limits (see Figure 2). Numerous large waste rock piles and associated waste materials from mining operations remain in the area. They are located primarily on the south side of the Eureka valley and at the western edge of Eureka, near the town's residences and businesses. The current land use of the Site is primarily residential with some associated commercial uses (gas stations, convenience stores, restaurant, etc.). Eureka currently has approximately 800 residents. There are some open areas within the Eureka city limits that are being individually developed into residential properties.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Eureka Mills Superfund Site		
EPA ID: UT0002240158		
Region: 8	**State:** UT	**City/County:** Eureka/Juab County

SITE STATUS	
NPL Status: Final	
Multiple OUs? Yes	**Has the site achieved construction completion?** Yes

REVIEW STATUS	
Lead agency: ***[If "Other Federal Agency", enter Agency name]*:**	State
Author name (Federal or State Project Manager): Michael Storck	
Author affiliation: UDEQ Project Manager for the Site	
Review period: 8/2/2017 – 6/6/2018	
Date of site inspection: 8/2/2017	
Type of review: Statutory	
Review number: 3	
Triggering action date: 9/30/2013	
Due date *(five years after triggering action date)*: 9/30/2018	

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

The hazardous substances that have been identified as contaminants of concern at the Site are lead and arsenic in surface and subsurface soils. The State of Utah discovered contamination at the Site when conducting a site inspection in July 2000 and collected many mine waste and residential soil samples for analysis. Lead is the primary contaminant of concern for soils; however, other metals, including arsenic, are also present. Concurrent with the site inspection, the Central Utah Public Health Department conducted blood lead testing on 18 children in Eureka under the Women, Infants and Children (WIC) Program. Eleven of the 18 children had elevated blood lead levels above the health-based level of concern established by the United States Centers for Disease Control (10 µg/dL). All the mine waste and soil samples showed extremely high levels of lead and arsenic.

Based on the results of the initial blood lead testing and soil sampling, EPA and the State initiated an extensive blood lead testing program for Eureka residents in the summer of 2000. In addition, EPA's Emergency Response program initiated an extensive soil sampling program of residential properties and mine waste areas. In 2002, EPA completed a Baseline Human Health Risk Assessment (BHHRA) for the Site that evaluated the current and future risks to human health associated with elevated concentrations of metals in soils and mine waste within the Site. The BHHRA concluded that there was risk to both adults and children from lead and arsenic contaminated

soils. The most likely pathways for contaminated soils to enter the body were from eating the soil or inhaling contaminated dust. Children, particularly those under the age of seven, were the most vulnerable group because of their size and the fact that their bodies are still developing. In addition, because children play outside, they are more likely to ingest contaminated soils when they are putting their fingers and toys that have been in contact with contaminated soil into their mouths. Also, older children who ride ATVs were at risk because they were exposed to dust that could be inhaled or ingested.

Response Actions

The Site was proposed for the National Priorities List (NPL) on June 14, 2001 and finalized on the NPL on September 5, 2002.

As noted above, in 2002 EPA completed a BHHRA for the Site. The BHHRA identified the following contaminants of potential concern (COPC) in the soils and mine waste materials: lead, arsenic, antimony, mercury and thallium. The COPC are co-located in the soils and mine waste materials: therefore, all contaminants were addressed through the same remedial actions.

EPA issued a Record of Decision (ROD) in 2002. The remedy selected in the ROD for OUs 00-03 only addresses the remediation of the mine waste areas and residential soils as they relate to human exposure. EPA did not address the groundwater, surface water or ecological pathways in the 2002 ROD because of the urgency of exposures to lead contaminated soils evident from blood lead testing of children in Eureka.

In 2010, EPA completed an investigation and ecological risk assessment. In 2011, EPA issued a No Action ROD for OU4. EPA and the State concluded that while there was a small risk to certain avian species, addressing the contamination would result in the destruction of valuable habitat for other avian species and wildlife that were not at risk.

OUs 00 – 03

The 00-03 ROD was signed in September 2002. The Remedial Action Objectives (RAOs) were as follows:

- Prevent exposure of children to lead in surface soil within current and future developmental properties and adjacent mine waste areas at the Eureka Mills Superfund Site where soil is determined to be the source of lead and the ingestion of soil is predicted to result in a greater than 5% chance that an individual child or a group of similarly exposed children will have a blood lead level greater than 10 µg/dL.
- Prevent exposure of adolescents and adults engaging in recreational activities to lead in surface soil within non-residential properties at the Eureka Mills Superfund Site where ingestion of soil is predicted to result in a greater than 5% chance that an individual or a group of similarly exposed individuals will have blood lead level greater than 11.1 µg/dL.

The COPCs Preliminary Remediation Goals (PRGs) for residential and recreational exposure were developed based on the RAOs and the results of the BHHRA. The PRGs are listed in the table below:

Table 1 – Preliminary Remediation Goals for

Contaminants of Potential Concern (COPC)

CHEMICAL	RESIDENTIAL PRG	RECREATIONAL PRG
Lead (mg/kg)	231	735
Antimony (mg/kg)	110	86
Arsenic (mg/kg)	77.4	118
Mercury (mg/kg)	82	65
Thallium (mg/kg)	22	17

OU 04

OU04 was addressed in the ROD signed in September 2011. OU04 includes groundwater, surface water and ecological risk. The groundwater/surface water RI was conducted in 2007-2009. An ecological risk assessment was conducted in 2006-2010.

Surface water resources are very limited due to the arid conditions at the Site. There is only one very small pond, approximately 24 feet in diameter, fed by a spring. Eureka Gulch, which flows through the city, is an ephemeral drainage with water present only during precipitation events or spring runoff. For surface waters, the State of Utah developed State Designated Use codes which provide numeric standards and are applied to surface waters based on surface water characteristics and potential uses. Analysis of the surface water samples collected during the RI met the Utah State Criteria for agricultural and recreational use. See Table 2-1 below for surface water criteria including 2B (secondary recreational) and 4 (agricultural).

Table 2-1

Numeric Criteria for Surface Water

Chemical	Concentration micrograms per liter (ug/L)	Applicable Use Designation
Arsenic	100	Agricultural (4)
Cadmium	10	Agricultural (4)
Chromium	100	Agricultural (4)
Copper	200	Agricultural (4)
Lead	100	Agricultural (4)
Selenium	50	Agricultural (4)
pH	6.5-9.0	Recreational (2B)

During the RI, EPA conducted groundwater sampling in two phases. In phase I, EPA compiled information on existing private wells by obtaining access from seven of the ten well owners (wells within site boundaries) and sampling their wells. During phase II, four shallow monitoring wells were installed and sampled to investigate the potential for elevated metal concentrations downgradient of the major mine waste piles and to provide additional groundwater elevation data to determine an inferred groundwater flow direction. Manganese, iron, arsenic and lead were detected above the PRGs in select private and monitoring wells. EPA determined that the manganese and iron concentrations found are not Site-related but were due to the well casings. Lead was detected at a lower concentration in the filtered samples collected from each of the other monitoring wells when compared to the unfiltered sample. This indictated that at least some of the lead found in the groundwater is from suspended solids in the water samples and, therefore, naturally occurring. Arsenic above screening guidelines was found in one well during one event. Four subsequent sampling events showed detections of arsenic and lead at concentrations below the screening guidance. Table 2-2 below lists the numeric criteria for groundwater:

Table 2-2

Numeric Criteria for Groundwater

Metal	MCL (ug/L)[1]	PRG (ug/L)[1]
Aluminum (Al)	NA	3,600
Antimony (Sb)	6	15
Arsenic (As)	10	0.0045
Barium (Ba)	2,000	2,600
Beryllium (Be)	4	73
Cadmium (Cd)	5	18
Chromium (Cr)	100	NA
Chromium VI	NA	110
Cobalt (Co)	NA	730
Copper (Cu)	1,300	1,500
Iron (Fe)	NA	11,000
Lead (Pb)	15	NA
Manganese (Mn)	NA	880
Mercury (Hg)	2	11
Nickel (Ni)	NA	730
Selenium (Se)	50	180
Silver (Ag)	NA	180
Thallium (Tl)	2	2.4
Vanadium (V)	NA	36
Zinc (Zn)	NA	11,000

Notes:

1. NA indicates that no standard or guidance value has been established

Eureka's drinking water comes from several wells located approximately 1.5 miles east of the City in an area known as Homansville and another well located approximately 4 miles to the west of the city limits in the west Tintic valley. The City's drinking water wells were completed in different geologic formations than the wells sampled within Eureka. The City also has a well located at the high school; however, the well is only used for irrigation of assorted ball fields. The City regularly samples its drinking water wells as part of the State's requirements for municipal water supplies. Sampling results show consistently high quality of water with no metals exceeding Maximum Contaminant Levels (MCLs). EPA concluded that Eureka City's drinking water does not pose a risk to human health.

In 2010 a Baseline Ecological Risk Assessment (BERA) was completed for OU4 and predicted potential for risk for some avian receptor groups. A subsequent risk evaluation was completed using the Spatially Explicit Exposure Model (SEEM), which relies on estimating species' specific use of the habitat in order to reflect more representative exposures to species using the Site. The results of the second assessment concluded that exposure and risks were much lower than predicted by the original risk assessment.

Status of Implementation

OUs 00-03

The remedy chosen for both the mine waste and residential areas was containment (capping), to prevent direct contact with contaminated materials. Sampling and analysis during the RI found that the materials are not readily leachable. The action levels selected in the ROD were based on the risks defined by the BHHRA. The areas remediated on-Site were based on sampling results that showed lead levels in the surface soils greater than the following:

- Residential areas: 231 ppm (parts per million)
- Recreational areas: 735 ppm (parts per million)

The ROD selected the remedy for the mine waste areas and non-residential areas to include:

- Prior to mine waste pile re-grading and capping, implementation of temporary measures to control dust from mine waste piles.
- Re-grading of existing waste piles. Includes option to excavate and relocate all or part of the mine waste piles to the Chief Mine #1 or a secondary location within Eureka.
- Covering mine waste piles with a rock or vegetative cover designed to prevent blowing of contaminated dust or contamination of surface water due to runoff.
- Addressing lead contamination in non-residential areas located primarily in the southeast quadrant of the Site in one of two ways: 1) excavate and dispose of lead contaminated soils up to a depth of 18 inches or 2) leave lead contaminated soils in place with appropriate institutional controls (i.e., local ordinance) until the cleanup can be undertaken by individual property owners at the time of development. For the immediate future, the non-residential areas were addressed through implementation of appropriate institutional controls and where appropriate, fencing.
- Implementation of institutional controls, in cooperation with the State and local government at all mine waste areas and non-residential areas.

The ROD selected the remedy for the residential and commercial areas to include:

- Clean up lead-contaminated soils in yards where contamination was found in the top 18 inches.
- A marker barrier to delineate between the contaminated soil below the barrier and the clean soil (backfilled with 18-inches of protective cover material) above the barrier.
- Re-vegetate yards to prevent erosion.
- Disposal of contaminated soils excavated from yards.
- Construction of an open cell to accept contaminated soils generated during future development.
- Implement public health actions like blood lead testing/health education during the remedial action (RA).
- Implementation of institutional controls (e.g.; zoning and/or building ordinances) to control the handling and disposal of contaminated soils that may be excavated during future construction activities.

The RA was completed in 2010.

OU04

OU04 includes groundwater, surface water and ecological risks at the Site. These pathways were not addressed in the 2002 ROD because of the urgency to address exposures to lead contaminated soils evident from blood lead testing of children residing in Eureka. EPA addressed these three exposure pathways in a ROD issued in September 2011.

EPA concluded there were no groundwater impacts due to historical mining that presented a concern for human health. EPA and UDEQ selected the no further action alternative for the groundwater exposure pathway.

For surface waters, the State of Utah developed State Designated Use codes which provide numeric standards and are applied to surface waters based on surface water characteristics and potential uses. Analysis of the surface water samples collected during the RI met the Utah State Criteria for agricultural and recreational use. The no further action alternative was selected by EPA and UDEQ for the surface water exposure pathway.

EPA and UDEQ selected the no further action alternative for ecological risk. The rationale for the no further action alternative for ecological risk is based on several factors:

- The potentially at-risk avian wildlife is limited to a few individuals observed using the contaminated areas.
- The contaminated area makes up a small portion of the overall surrounding uncontaminated habitat that is also being used by these individuals.
- The exceedances of HQs (Hazard Quotients) for the potentially at-risk populations were only slightly greater than 1.
- The difficulty and cost associated with capping and restoring the habitat in areas that are currently vegetated.
- The presence and use by co-existing species assumed to use the same habitat but that are not predicted to be at risk.

IC Summary

Table 3: Summary of Planned and/or Implemented 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	Yes	Yes	OUs 00-03	Land use restrictions	Various Environmental Covenants filed at various times (2005 – 2012)
Soil	Yes	Yes	OUs 00-03	Land use restrictions	Eureka Excavation Ordinance (October 2010)

The final remedy requires ICs because contaminated materials remain at the Site above levels that allow for unlimited use and unrestricted exposure. The ICs at the Site include environmental covenants and a local excavation ordinance.

Environmental covenants (ECs) were filed for each land parcel wholly or partially within the footprint of remediated mine waste areas referred to as remedial action structures (RAS) at various times. RAS include the capped mine waste piles, drainage control features (sedimentation ponds/constructed drainages) and access roads. Filed by the property owner (usually a potentially responsible party or PRP), the ECs limit the type of land uses on RAS. Residential/public/agricultural uses and uses that could compromise the integrity of the remedy are prohibited. The ECs also prohibit any disturbance or alteration of the RAS without prior approval by EPA/UDEQ and require compliance with Eureka's excavation ordinance. Future property owners will have to comply with the requirements of the ECs given that the ECs run with the land.

There was an exception to the filing of the environmental covenants on land parcels within the surveyed foot print of the RAS. The owner of parcel XE 4848, GCL Eureka Properties LLC, refused to file an environmental covenant on the property. EPA issued a unilateral administrative order (UAO) requiring GCL Eureka Properties LLC and its member, Grant Loader, to abide by certain land use restrictions. EPA also filed a "Notice of Environmental Conditions" on July 29, 2013 with the Juab County Recorder's Office on the property to notify future owners of the existence of a RAS on the property. GCL Eureka Properties LLC and Mr. Loader are in compliance with the conditions of the UAO.

In October 2010, Eureka adopted a local ordinance that governs future excavation activities in areas that have been remediated and that have not been developed. Undeveloped areas were not remediated at the time of RA because of thick vegetation (and limited exposure to contaminated soils). The 00-03 ROD determined that the most appropriate time to remediate undeveloped areas would be at the time of development. The ordinance requires property owners to obtain a permit for certain excavation activities defined as "restricted activities." All contaminated materials that are displaced during excavation must either be disposed of at the open cell or capped with 18 inches of clean topsoil/road base material or capped with a structure or paved surface (minimum 2-inch hard cover surface). UDEQ provides technical/financial support to Eureka for the administration and enforcement of the ordinance.

Systems Operations - Operation/Maintenance

The Operations and Maintenance Plan (O/M Plan) and the Operations and Maintenance Manual (O/M Manual) were completed and approved on July 31, 2009, as attachments to the amended Superfund State Contract (SSC). The SSC requires the State to perform Operation and Maintenance for the fund-lead areas at the Site, including oversight of the City's excavation. In addition, EPA's consent decree with potentially responsible party (PRP) Spenst Hansen and his affiliated companies requires the PRP to perform operation and maintenance activities at specified RAS to the extent of the PRP's financial capability. On October 19, 2016, DERR received a letter from EPA indicating that the PRP was no longer able to perform O/M activities for the RAS and access roads that are on the PRP's properties. DERR agreed in a letter to EPA dated December 1, 2016 to assume the O/M related responsibilities outlined in the O/M Manual for the PRP properties located within the Site (see Appendix C).

The O/M Plan outlines the responsibilities of the State that includes performing O/M on RAS, haul/access roads and sedimentation ponds (Figures 3, 4 and 5). The State conducts annual inspections and necessary maintenance/repairs of the mine waste cap systems/access roads like grading and slope repair, and erosion control.

The City of Eureka performs the following for O/M: (1) administration/enforcement of its ordinance to govern future excavation activities in the City; (2) day-to-day operation of the Open Cell and the management of the stockpiled material for excavation permits; and (3) maintenance of the Upper/Lower Eureka Gulch.

III. PROGRESS SINCE THE LAST REVIEW

This section includes the protectiveness determinations and statements from the last FYR (Table 4) as well as the recommendations from the last FYR and the status of those determinations (Table 5).

Table 4: Protectiveness Determinations/Statements from the 2013 FYR

OU #	Protectiveness Determination	Protectiveness Statement
00	Short-term Protective	The remedy at OU 00 is currently protective of human health and the environment.
01	Protective	The remedy at OU 01 is protective of human health and the environment.
02	Short-term Protective	The remedy at OU 02 is currently protective of human health and the environment.
03	Short-term Protective	The remedy at OU 03 is currently protective of human health and the environment.
04	Protective	The remedy at OU 04 is protective of human health and the environment.
Sitewide	Short-term Protective	The remedy at OU00, OU02 and OU03 is currently protective of human health and the environment. The remedy at OU 01 and 04 is protective of human health and environment.

Table 5: Status of Recommendations from the 2013 FYR

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
00	City's Implementation of Excavation Ordinance	Meet with City on annual basis to discuss permit issues and construction activities	Completed	City Hired Permit Coordinator and DERR meets with him as needed to solve permit issues and construction activities that need to meet excavation ordinance	4/30/2014
00	Noxious weeds, trees and sediment Upper Eureka Gulch	Remove weeds, trees and sediment Upper Eureka Gulch	Completed	City removed trees and sprayed broadleaf herbicide to remove weeds	11/15/2017
01	Sections of fence missing/broken on north side of May Day Access Road	Repair/replace fencing on north side of May Day Access Road	Considered but not implemented	It was later determined that the issue was miscellaneous and did not impact protectiveness of remedy	
02	Noxious weeds, trees and sediment Lower Eureka Gulch	Remove weeds, trees and sediment Lower Eureka Gulch	Completed	City removed trees and applied broadleaf herbicide to remove weeds	11/15/2017
02	Operations/Maintenance of PRP Properties	Ensure PRP conducts annual operations maintenance inspections	Completed	DERR will conduct annual operations/maintenance inspections of PRP properties (Appendix C)	12/01/2017
03	Sections of fence missing/broken on west Side of Knightsville Rd & south side of Chief Mine No. 2 Access Road Gate	Repair/replace fencing on west Side of Knightsville Rd &south side of Chief Mine No. 2 Access Road Gate	Considered but not implemented	It was later determined that the issue was miscellaneous and did not impact protectiveness of remedy	
03	Locks on Chief Mine No. 1 Entrance Gate, Eagle Blue Bell Access Rd, Snowflake Access Gate, are not linked preventing EPA/State Access	Link Gate Locks on Chief Mine No.1 Entrance Gate, Eagle Blue Bell Access Rd, Snowflake Access Gate	Completed	City removed all locks and replaced with one master lock	11/30/2017
03	Breakthrough to water bars on west side of Eagle Blue Bell Mine Waste Pile resulted in erosion rills	Repair erosion rills on west side of Eagle Blue Bell Mine Waste Pile	Not completed	DERR will procure contractor to repair erosion rills	
03	Easement not negotiated on Land Parcel XE-5445	File Easement on Land Parcel XE-5445	Completed	Easement acquired by EPA	8/27/2014
03	Repair Knightsville Rd and Ditch	UDEQ ensure Juab County repairs Knightsville Rd and Ditch	Completed	UDEQ contacted Juab County and they repaired Knightsville Rd and Ditch (Juab County will inspect and repair on annual basis)	11/30/2013

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

A FYR public notice was published in the Eureka Review Newsletter on March 1, 2018. The announcement described the five-year process and objectives and informed the public of how to contact the UDEQ and the EPA for additional information or to provide comments. A copy of the announcement is provided in Appendix B.

As part of the FYR, the UDEQ interviewed stakeholders to discuss the review and address concerns or issues with the Site. Community Interviews were conducted on March 1 through April 15, 2018. The UDEQ contacted representatives from the Eureka City Council, Eureka City Officials and surrounding property owners. Specific interview questions and responses are provided in Appendix B.

As indicated in Appendix B, none of the interviewees expressed any health or environmental concerns with the remedy and felt the remedy remains protective. Although not concerned with the protectiveness of the remedy, the City of Eureka was concerned that there was possible residual damage to sewer/water lines, roads, drainage areas and historic head frames from the implementation of the remedy. Property owners interviewed either approved of the necessity of a cleanup for a healthy community or disapproved of the rock appearance extensively used for cover of mine waste areas. Interviewees approved of EPA's proposal and State concurrence to delete the Site from the NPL by the end of the federal fiscal year 2018 (see Appendix D).

Data Review

Since there are no active operating systems, there is no data to review.

Site Inspection

An inspection of the Site was conducted on August 2, 2017. In attendance were Michael Storck (UDEQ) and Fred Garbett (Eureka City Permit Coordinator). The purpose of the inspection was to assess the protectiveness of the remedy.

The O/M Manual provides checklists for inspection of all RAS including capped mine waste piles, drainages, sediment ponds and haul/access roads. These inspection checklists were completed by UDEQ as part of the third FYR inspection and are included in Appendix E.

The purpose of the third FYR inspection is to assess the protectiveness of the remedy including the integrity of the capped areas, sedimentation ponds access/haul roads that has been constructed. Overall, the RAS appear intact and protective of human health and the environment. Erosion rills/exposed marker barriers (caused by weather) were observed at several access roads and RAS. (Appendix E includes attached inspection report and a few photos.) The DERR is working with the Division of State Purchasing on developing a scope of work to procure a contractor to conduct the maintenance repairs and anticipates that the work will be completed in the summer of 2018.

The city removed trees and applied herbicide to kill bushes/shrubs/weeds in several areas of the Upper/Lower Eureka Gulch to facilitate effective drainage flow. The work was completed in November 2017.

Also, at the Chief Mine No. 1 Waste Pile, a sinkhole associated with mining activities was observed on the eastern surface of the waste pile. The sinkhole was initially observed and reported by Eureka City in November 2016.

The diameter is approximately 100 ft. and the depth is approximately 60 ft. DERR is working with the Division of Oil, Gas and Mining (DOGM) and the property owner (Enirgi Group) to stabilize the sinkhole. DOGM and the Enirgi Group plan on backfilling the sinkhole with excavated soil from the Open Cell Repository and capping the sinkhole in place with material that may come from the Lime Peak Quarry. DOGM plans on completing the work in the summer of 2018.

V. TECHNICAL ASSESSMENT

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

Question A Summary:

Yes. The review of documents and results of the Site inspection indicates that the remedies at OU00, OU01, OU02 and OU03 are functioning as intended by the ROD.

Remedial Action Performance

The stabilization and capping of the contaminated soils and mine waste areas and the construction of specific drainage features is achieving the remedial action objectives by preventing exposure of lead contaminated soils and mine waste through direct contact or inhalation of air-borne dust.

Because this is a containment remedy, maintenance of the Site focuses on the effectiveness of the remedy. During the Site inspection, several access roads and waste pile area showed erosion rills and exposed marker barrier that will require repair work. The sinkhole observed on the Chief Mine No. 1 RAS will be mitigated by DOGM in the summer of 2018.

To ensure that the excavation ordinance is being properly administrated/enforced by the City, DERR meets with the Permit Coordinator regularly to discuss new permit applications related to new construction development.

One redevelopment activity that was completed in Eureka was the upgrading of the City's infrastructure. The pipelines of the water and wastewater treatment systems were replaced throughout Eureka. The water system included a new well, well house, water storage tank and booster station. The wastewater system included new/replacement manholes and upgraded components at the treatment facility. The work was completed in November 2016.

System Operations/O&M

There are no active operating systems for OU00, OU01, OU02, OU03 and OU04 and there are no O&M requirements for OU04. O&M activities for OU00, OU01, OU02 and OU03 include annual inspections (DERR performed annual inspections in 2014, 2015, 2016 and 2017) and necessary maintenance/repair of the mine waste cap systems such as grading and slope repair, and erosion control. As noted in the 2017 annual inspection report repairs will be conducted on access roads and mine waste piles where erosion has occurred.

Implementation of Institutional Controls and Other Measures

In October 2010, the City adopted an ordinance that governs future excavation activities in remediated and undeveloped areas of Eureka. The City is responsible for the administration and enforcement of its local ordinance. The ordinance requires property owners to obtain a permit from the City for all defined "Restricted Activities". All contaminated materials displaced during excavation must either be disposed of at the Open Cell or capped with 18 inches of clean topsoil or roadbase material or capped with a structure or paved surface. DERR is providing technical support and funding via cooperative agreement with EPA to support the City's

administration and enforcement of the ordinance under the ICs Funding Agreement signed in August 2010, between UDEQ and the City.

To support the administration and enforcement of the excavation ordinance, EPA and DERR worked with the city to hire a Permit Coordinator. The current Permit Coordinator has done a very good job to ensure the Excavation Ordinance requirements are followed when a permit for a new construction development is initiated.

For the RAS located within OUs 01-03, ECs are required in addition to compliance with the local excavation ordinance. ECs are required for each land parcel that is wholly or partially within the footprint of an RAS. RAS include the capped mine waste piles, drainage control features (i.e., sedimentation ponds and constructed drainages) and access roads. Land use controls have been filed on all the parcels where RASs have been constructed.

There was an exception to the filing of the environmental covenants on land parcels within the foot print of one RAS. The owner of parcel XE 4848, GCL Eureka Properties LLC, refused to file an environmental covenant on the property. EPA issued a unilateral administrative order (UAO) requiring GCL Eureka Properties LLC and its member, Grant Loader, to abide by certain land use restrictions. EPA also filed a "Notice of Environmental Conditions" on July 29, 2013 with the Juab County Recorder's Office on the property to notify future owners of the existence of a RAS on the property. GCL Eureka Properties LLC and Mr. Loader are in compliance with the requirements of the UAO.

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

Yes.

Question B Summary

The soil cleanup levels selected in the ROD were based on the estimated risks defined in BHHRA (September 2001). The assumptions for toxicity and risk assessment methods have not changed since the risk assessment in 2001. No new contaminants of concern or contaminant sources have been identified since the ROD and the commencement of the RA. There have been changes to the exposure assumptions and toxicity information since the document was issued. Because these documents were developed prior to EPA's RAGS Part F (2009) guidance, the exposure assumptions for the inhalation exposure pathway were conducted differently. The exposure metric that was used in the RODs and the BHHRA used inhalation concentrations that were based on ingestion rate and body weight (mg/kg-day). The updated methodology uses the concentration of chemical in the air, with the exposure metric of µg/m3. The inhalation pathway is minor compared to the soil ingestion pathway, which is the major risk factor at this Site. Revising the inhalation calculations to be consistent with the most recent EPA guidance would not change the current cleanup levels for OU00, OU01, OU02 and OU03.

Under the current EPA Office of Land and Emergency Management policy, the soil lead screening level was established so that a typical child or similarly exposed group of children would have an estimated probability of no more than 5 percent of exceeding a blood lead level (BLL) of 10 micrograms per deciliter (µg/dL). The 10 µg/dL BLL target concentration is based (in part) on the 1991 Center for Disease Control's (CDC) blood lead "level of concern." In 2012, CDC accepted the recommendations of its Advisory Committee on Childhood Lead Poisoning Prevention that the "level of concern" be replaced by a reference value based on the 97.5th percentile of the National Health and Nutrition Examination Survey-generated BLL distribution in children 1-5 years old (currently 5 µg/dL).

EPA is in the process of updating its policy based on recent studies. The most recent scientific literature on lead toxicology and epidemiology provide evidence that adverse health effects are associated with BLL less than 10 µg/dL and there is no apparent threshold level for adverse effects. EPA Region 8 will continue to use the current EPA policy, until the Agency finalizes and updates its policy.

In 2009-10, a Baseline Ecological Risk Assessment (BERA) was conducted and predicted a level of risk for some avian species at the Site. A subsequent risk evaluation was completed using the Spatially Explicit Exposure Model (SEEM), which relies on modeling of species 'specific use of the habitat and resulted in more representative exposures to species using the Site. The results of the second SEEM assessment concluded that exposure and risks were much lower than predicted by the BERA and a "no further action" alternative was selected.

The remedial actions implemented are still considered valid since site-specific results indicate risks to most other receptor groups are not likely, thus habitat disruption that would be needed for removal of contaminated soil at this Site would cause undue impacts to many species that are not considered at risk.

The current land use and reasonably expected future land use has not changed. If the current land use in some undeveloped areas within the limits of Eureka were to change, the ICs (both the ordinance and ECs) would ensure that future development occurs in a manner that protects human health against exposure to contaminants of concern.

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

No. There is no other information that calls into question the protectiveness of the remedy.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
OUs 00, 01, 02, 03 and 04

Other Findings

The following are recommendations that were identified during the FYR, but do not affect current and/or future protectiveness:

- Erosion rills/exposed marker barriers (caused by weather) were observed at several access roads and RASs. The DERR is working with the Division of State Purchasing on developing a scope of work to procure a contractor to conduct the maintenance repairs by the summer of 2018.

- A sinkhole associated with mining activities was observed on the eastern surface of the Chief Mine No. 1 Waste Pile. The Division of Oil, Gas and Mining (DOGM) and the property owner (Enirgi Group) are planning to backfill/cap the sinkhole by the summer of 2018.

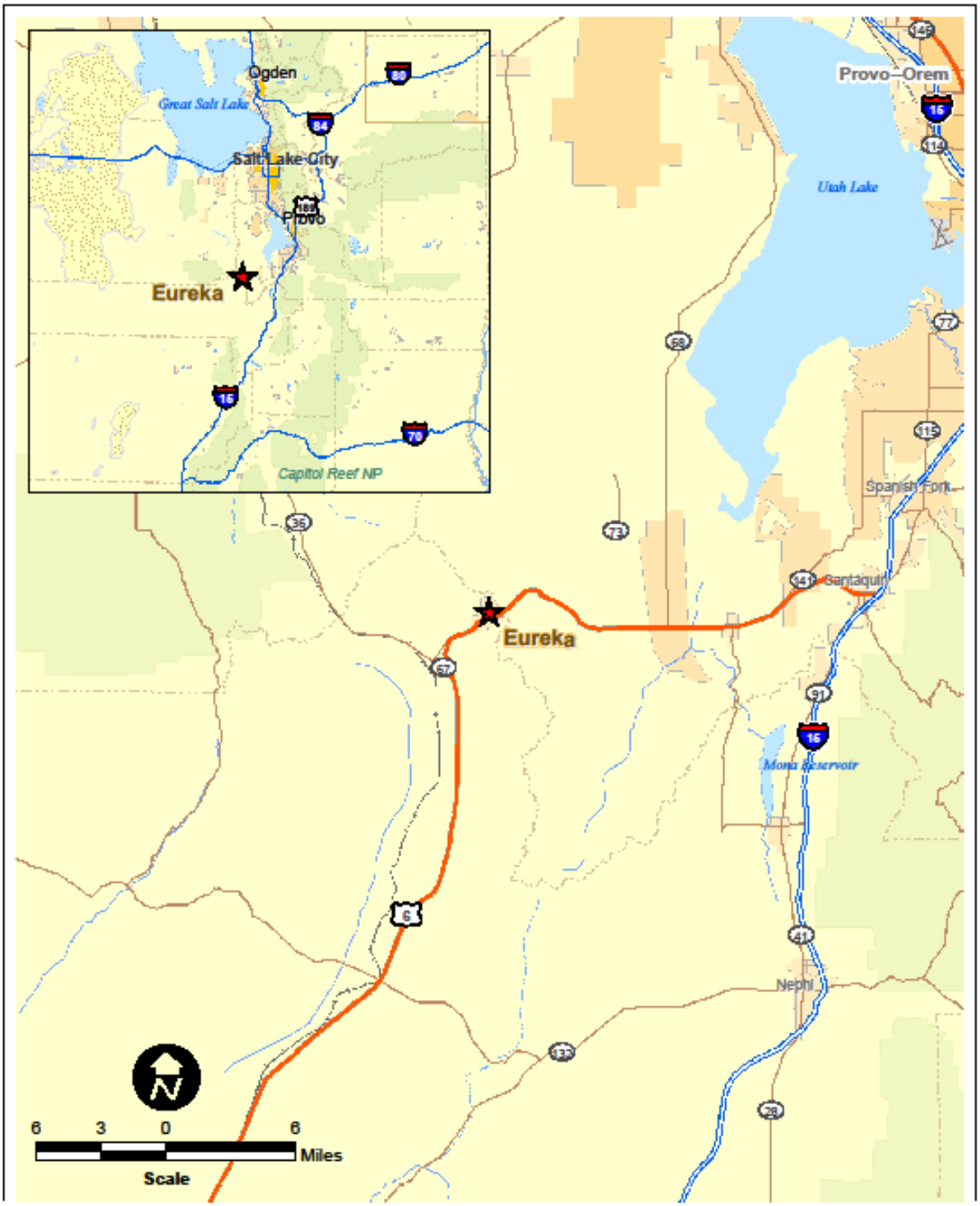
VII. PROTECTIVENESS STATEMENT

Protectiveness Statement(s)
Operable Unit: **OU00** ***Protectiveness Determination:*** **Protective**
Protectiveness Statement: The remedy at OU-00 is protective of human health and the environment. Contaminated soils at the residential properties have been excavated and capped and the ICs are being implemented.
Operable Unit: **OU01** ***Protectiveness Determination:*** **Protective**
Protectiveness Statement: ***The remedy at OU-01 is protective of human health and the environment. All the RAS have been capped and the ICs have been implemented.***
Operable Unit: **OU-02** ***Protectiveness Determination:*** **Protective**
Protectiveness Statement: ***The remedy at OU-02 is protective of human health and the environment. The material has been capped.***
Operable Unit: **OU-03** ***Protectiveness Determination:*** **Protective**
Protectiveness Statement: ***The remedy at OU-03 is protective of human health and the environment because existing contamination has been capped or otherwise addressed..***
Operable Unit: **OU-04** ***Protectiveness Determination:*** **Protective**
Protectiveness Statement: ***The remedy at OU-04 is protective of human health and the environment. The remedy at OU-04 for groundwater, surface water and ecological risk is No Further Action.***
Sitewide Protectiveness Statement (if applicable)
Protectiveness Determination: **Protective**
Protectiveness Statement: ***Because the remedial actions at all OUs are protective, the Site is protective of human health and the environment.***

VIII. NEXT REVIEW

The next five-year review for the Eureka Mills Superfund Site is required five years from the completion date of this review.

FIGURES

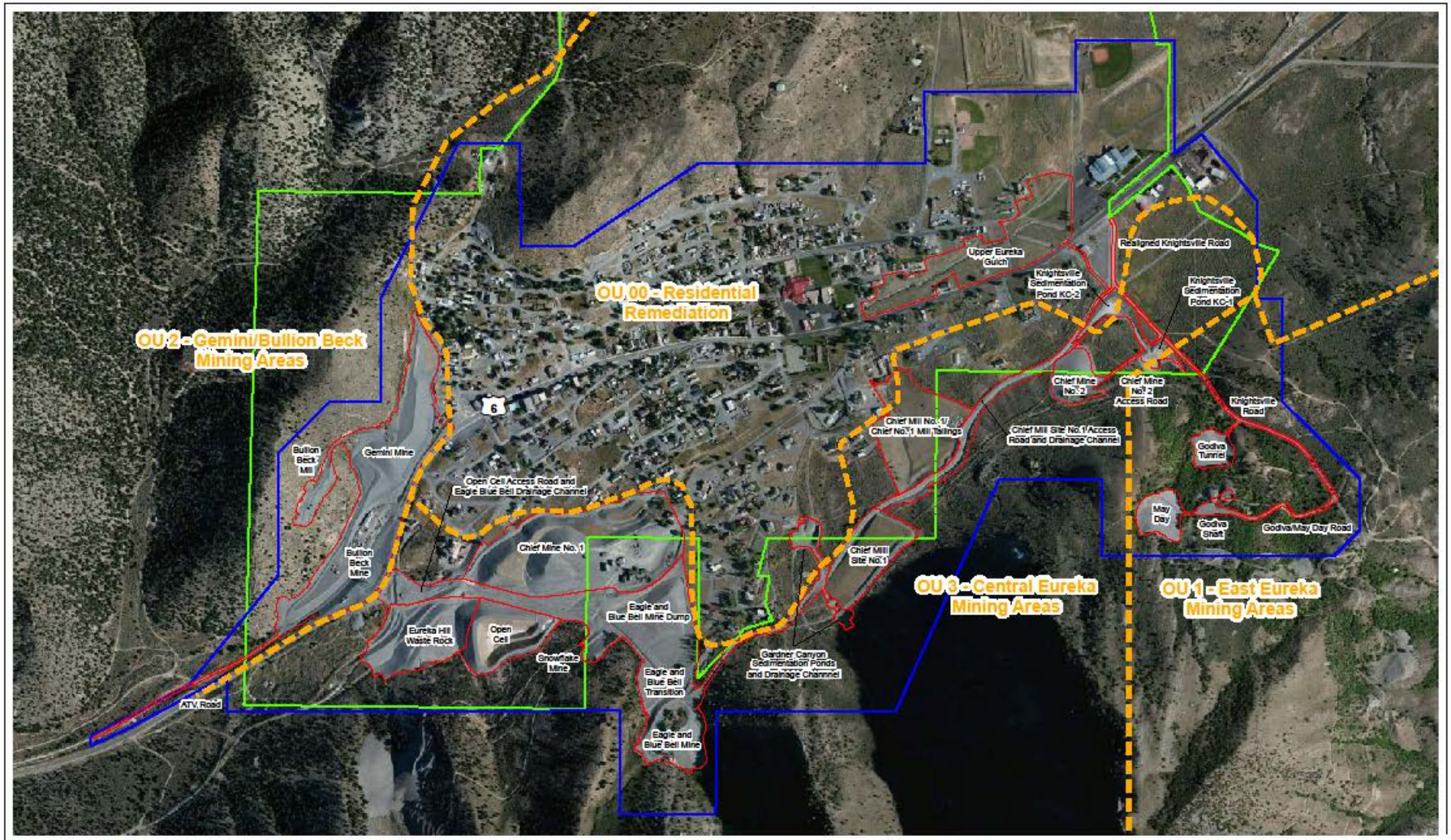


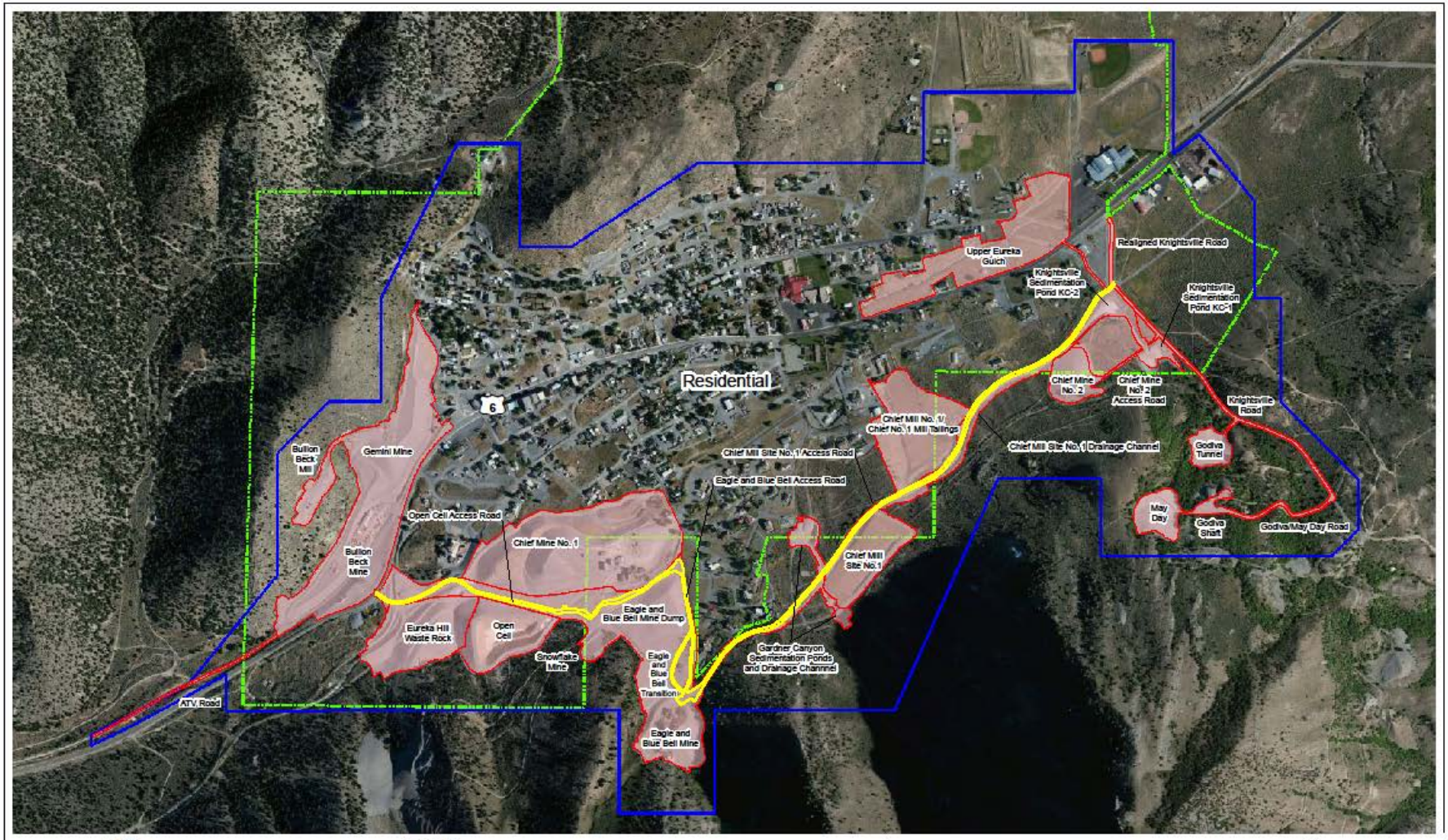
General Location of Eureka

5-Year Review Report
Eureka Mills Superfund Site
Eureka, UT

DATE
2018

FIGURE
1


OU 00 - Residential Remediation
OU 2 - Gemini/Bullion Beck Mining Areas
OU 3 - Central Eureka Mining Areas
OU 1 - East Eureka Mining Areas
Upper Eureka Gulch
Knightsville Sedimentation Pond KC-2
Realigned Knightsville Road
Knightsville Sedimentation Pond KC-1
Chief Mine No. 2
Chief Mine No. 2 Access Road
Knightsville Road
Chief Mill No. 1/ Chief No. 1 Mill Tailings
Chief Mill Site No. 1 Access Road and Drainage Channel
Godiva Tunnel
May Day
Godiva Shaft
Godiva/May Day Road
6
Bullion Beck Mill
Gemini Mine
Open Cell Access Road and Eagle Blue Bell Drainage Channel
Bullion Beck Mine
Chief Mine No. 1
Chief Mill Site No. 1
Eagle and Blue Bell Mine Dump
Eureka Hill Waste Rock
Open Cell
Snowflake Mine
Gardner Canyon Sedimentation Ponds and Drainage Channel
Eagle and Blue Bell Transition
ATV Road
Eagle and Blue Bell Mine
N
0
500
1,000
Feet
Legend
Response Action Structures
Operable Unit Boundary
Site Boundary
City Corporate Limits
Site Map & Operable Unit Boundaries
5-Year Review Report
Eureka Mills Superfund Site
Eureka, UT
DATE
2018
FIGURE
2


Residential
6
Upper Eureka Gulch
Realigned Knightsville Road
Knightsville Sedimentation Pond KC-2
Knightsville Sedimentation Pond KC-1
Chief Mine No. 2
Chief Mine No. 2 Access Road
Knightsville Road
Chief Mill No. 1/ Chief No. 1 Mill Tailings
Chief Mill Site No. 1 Drainage Channel
Godiva Tunnel
Chief Mill Site No. 1 Access Road
Eagle and Blue Bell Access Road
May Day
Godiva Shaft
Godiva/May Day Road
Bullion Beck Mill
Gemini Mine
Open Cell Access Road
Chief Mine No. 1
Bullion Beck Mine
Chief Mill Site No.1
Eagle and Blue Bell Mine Dump
Eureka Hill Waste Rock
Open Cell
Snowflake Mine
Eagle and Blue Bell Transition
Gardner Canyon Sedimentation Ponds and Drainage Channnel
ATV Road
Eagle and Blue Bell Mine
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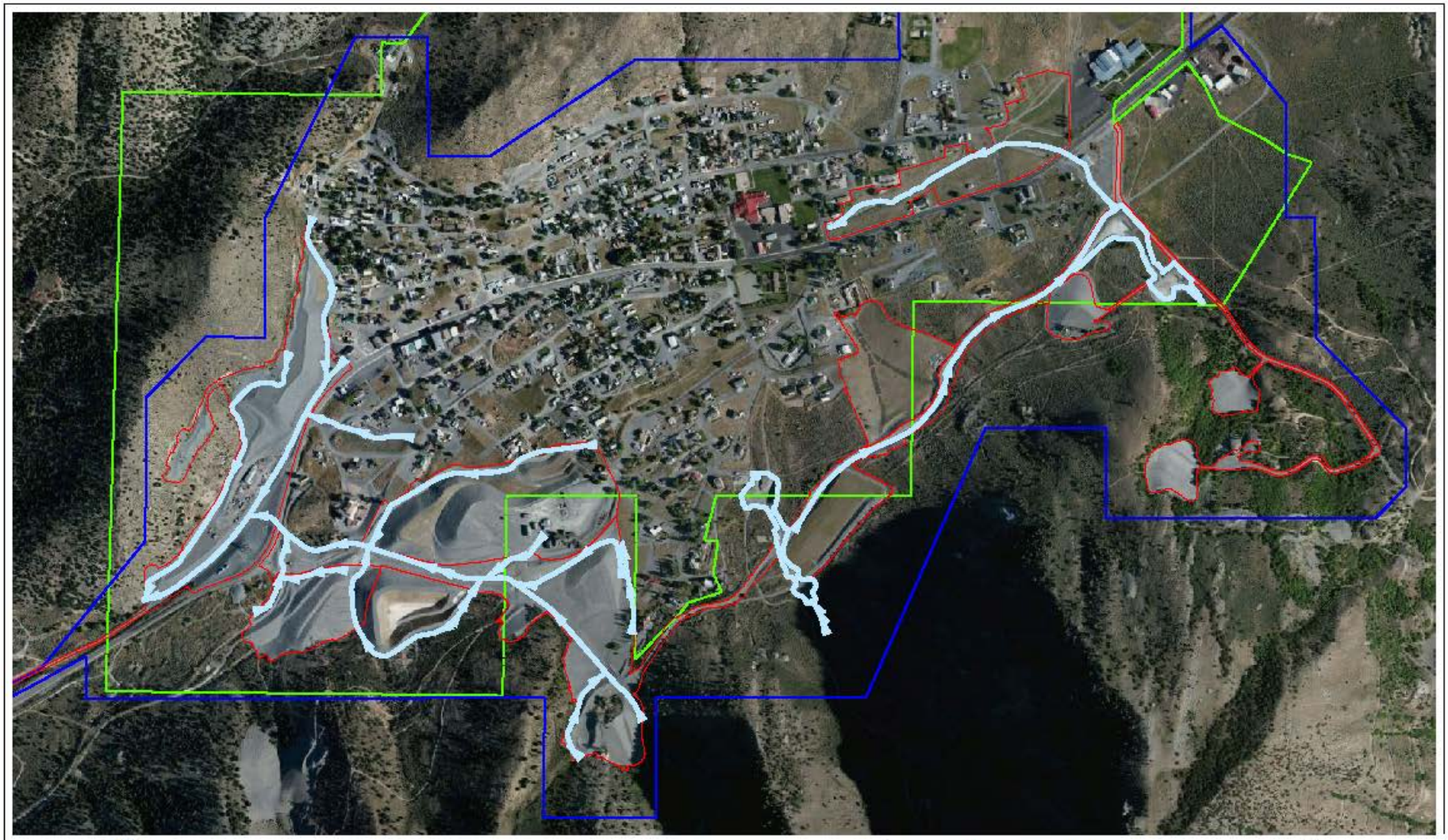
Completed Access Roads Being Used During RA
Constructed Response Action Structures
Site Boundary
City Corporate Limits
Response Action Structures Subject to O&M
5-Year Review Report
Eureka Mills Superfund Site
Eureka, UT
DATE
2018
FIGURE
3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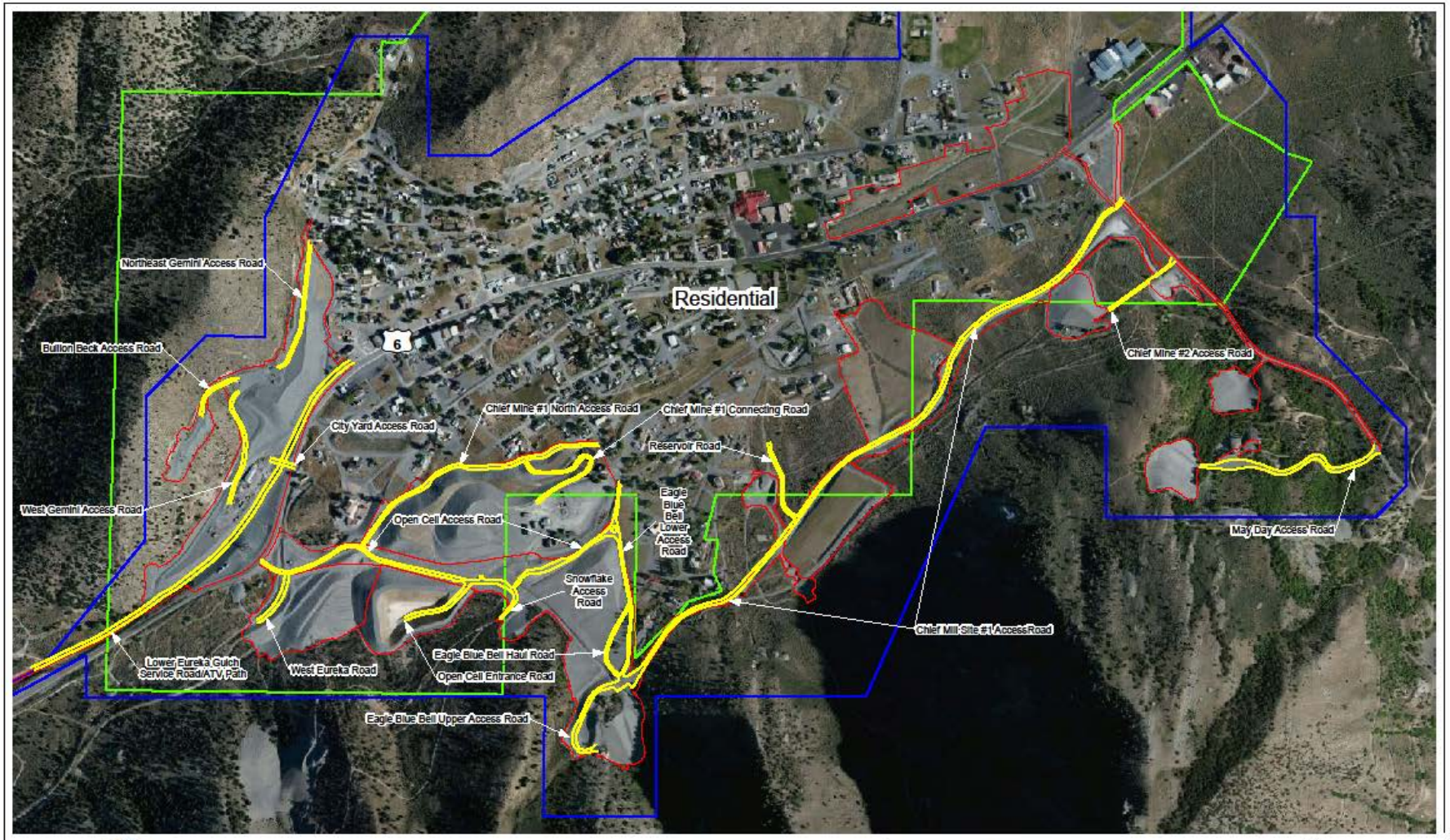
Drainage Channels Requiring Operation & Maintenance
Response Action Structures
Site Boundary
City Corporate Limits
Remedial Action Structures -
Drainage Features Subject to O & M
5-Year Review Report
Eureka Mills Superfund Site
Eureka, UT
DATE
2018
FIGURE
4


Northeast Gemini Access Road
Residential
Bullion Beck Access Road
6
Chief Mine #2 Access Road
Chief Mine #1 North Access Road
Chief Mine #1 Connecting Road
City Yard Access Road
Reservoir Road
West Gemini Access Road
Eagle Blue Bell Lower Access Road
Open Cell Access Road
May Day Access Road
Snowflake Access Road
Chief Mill Site #1 Access Road
Lower Eureka Gulch Service Road/ATV Path
West Eureka Road
Eagle Blue Bell Haul Road
Open Cell Entrance Road
Eagle Blue Bell Upper Access Road
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Legend
Roads Requiring Operation & Maintenance
Response Action Structures
Site Boundary
City Corporate Limits
Response Action Structures -
Access Road Features Subject to O&M
5-Year Review Report
Eureka Mills Superfund Site
Eureka, UT
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FIGURE
5

APPENDIX A
RELEVANT DOCUMENTS REVIEWED DURING THE FIVE-YEAR REVIEW

Appendix A
Documents Referenced for Five Year Review

Basis for the Response Action

- Record of Decision for Lead-Contaminated Soils for OUs 00-03, September 2002.
- Record of Decision for Groundwater, Surface Water and Ecological Risk for OU-04, September 2011.

Implementation of the Response

- Remedial Action Work Plan (RAWP) – 2003 and amended in 2004/2005/2009.
- 2004 Remedial Action Report for OU-01 – submitted by Atlantic Richfield Company in August 2005.
- 2004 Remedial Action Report for OU-02 – submitted to EPA by USACE/Shaw Environmental Inc. – September 2005.
- 2005 Remedial Action Report – submitted to EPA by USACE/Shaw Environmental Inc. – 2006.
- 2006 Remedial Action Report – submitted to EPA by USACE/Shaw Environmental Inc. – 2008.
- Final 2007 Remedial Action Report – submitted to EPA by USACE/Shaw Environmental Inc. – 2009
- Final 2008 Remedial Action Report – submitted to EPA by USACE/Shaw Environmental Inc. – 2010
- Final 2009 Remedial Action Report – submitted to EPA by USACE/Shaw Environmental Inc. – 2010
- Final 2010-2011 Remedial Action Report – submitted to EPA by USACE/Shaw Environmental Inc. – 2011
- State Superfund Contract amended July 31, 2009
- Operation and Maintenance Plan, incorporated into the amended State Superfund Contract – July 31, 2009
- Operation and Maintenance Manual, incorporated into the amended State Superfund Contract – July 31, 2009
- UDEQ IC Funding Agreement with City of Eureka – August 2010
- City of Eureka Chapter 13 Excavation Ordinance, adopted October 12, 2010
- Eureka Mills Superfund Site Remedial Action Report – September 2011
- Second Five Year Review Report for Eureka Mills, September 2013

APPENDIX B
PUBLIC NOTICE AND COMMUNITY INTERVIEWS

Public Notice
Five-Year Review
Eureka Mills Superfund Site
Juab County, Utah

The Utah Department of Environmental Quality, Division of Environmental Response and Remediation (UDEQ/DERR)—in cooperation with the U.S. Environmental Protection Agency (EPA)—is conducting a Five Year Review of the Eureka Mills Superfund Site located in the East Tintic Mountains approximately 80 miles southwest of Salt Lake City in Juab County, Utah.

The purpose of a Five-Year Review is to determine whether or not the cleanup and other actions taken at the site remain protective of human health and the environment. EPA completed cleanup of all properties within the city of Eureka in October 2010. A total of more than 700 properties have been addressed by remedial and removal programs since 2001. Cleanup included capping and stabilizing thirteen large mine waste areas, construction of sediment ponds and other drainage control features.

This is the third Five-Year Review for site. During this review, UDEQ/DERR will examine current information, conduct a site inspection, and community interviews to evaluate all remedy components. The Review will be completed by September 2018. UDEQ and EPA will prepare a report summarizing the results. There are several ways to review information on this site. The Administrative Record, which includes EPA decision documents used for selecting the cleanup plan, is available at the local information repository listed below.

Eureka City
P. O. Box 156, 15 North Church Street
Eureka, UT 84628
PH: (435) 433-6915

Project information on the Eureka Mills Superfund Site is also available online at: http://eqedocs.utah.gov using search phrase "Eureka Mills." If you would like more information about the review or would like to participate in an interview, please contact:

Michael Storck
UDEQ Project Manager
Phone: (801) 536-4179
Email: mstorck@utah.gov

Dave Allison
UDEQ Community Involvement
Phone: (801) 536-4479
Email: dallison@utah.gov

Eureka Mills Superfund Site
Five-Year Review
Interview of Local Agencies

Site Name: Eureka Mills Superfund Site EPA ID: UT0002240158	March 22, 2017
Type of Contact: Visit	Contact Made By: Dave Allison, UDEQ/DERR Community Involvement Coordinator and Michael Storck, UDEQ/DERR Project Manager
Person Contacted	
Name: Mayor Nick Castleton	Organization: Eureka City
Address: Eureka City P. O. Box 156, 15 North Church Street Eureka, UT 84628	Telephone Number: PH: (435) 433-6915

1. **Is your organization/department aware of the Eureka Mills Superfund site and previous cleanup actions to address environmental contamination?** Mayor Castleton said as a lifelong member of the community (72-years) and as an elected official for the last four years has experienced the total lifespan of the Superfund cleanup. Mayor Castleton's yard was cleaned up as part of the Superfund construction as well.

2. **What's your overall impression (your general sentiment) of the actions performed at the Eureka Mills Superfund Site?** Mayor Castleton said like most residents, he resented the cleanup in the beginning and is okay with the Superfund cleanup history now. Most of the issues have been dealt with and if the cleanup was necessary, Mayor Castleton wanted EPA to hurry up, get it over with, and finish as soon as possible.

3. **Does your office conduct routine communications and/or activities (site visits, inspections, reporting activities, participation in meetings, etc.) for the Eureka Mills Superfund Site? If so, please briefly summarize the purpose and results of these communications and/or activities over the past several years.** Mayor Castleton said the city has a designated Permit Coordinator to oversee the City's soil ordinance and is in touch with the UDEQ-DERR Project Manager during site inspections and as questions arise.

4. **Are you aware of any community concerns regarding the Eureka Mills Superfund Site or its operation and administration? If so, please give details.** Despite the cleanup completed in 2010, Mayor Castleton said he gets occasional questions regarding the safety of the City drinking water. Eureka City drinking water was never impacted by the lead contamination and the resulting Superfund cleanup. Mayor Castleton said this may be the result of a 2014 city-wide water project upgrade which established sewer and drinking water infrastructure away from aseptic systems. Overall, the Mayor said the community doesn't have health or environmental concerns.

As far as the existing soil cap remedy, Castleton said property owners say water doesn't soak through landscaped yards for trees and plants very well. Mayor Castleton experienced this as well with a few trees dying despite heavy watering. The Mayor thinks the matting and clay content in clean soil possibly contribute to this effect where the water is unable to travel below the capped barrier.

5. **Over the past five years, have there been any complaints, violations, or other incidents (e.g., vandalism, trespassing, or emergency responses) at or related to the Eureka Mills Superfund Site requiring your office to respond? If so, please give details of the events and results of the response.** Mayor Castleton said his top complaint is with road base used for the cleanup constantly eroding downward during storm events. The road base consistently fills gutters and results in flooding to streets. Mayor Castleton has sought assistance from EPA and UDEQ to address the issue without success. The EPA and UDEQ have stated there are no funding sources available to address non-cleanup related needs such as storm water runoff. The Mayor is currently working with the Federal Emergency Management Agency (FEMA) with help from Congressional Senator Mike Lee's staff and through Juab County for a Community Development Block Grant or Community Impact Fund Board (CIB) grant to address this issue.

   A major incident would also be the occurrence of a 100-foot wide, 80-foot deep, sinkhole resulting from a collapsed mine shaft in the fall of 2016 near the soil repository. The City said the State Division of Oil, Gas, and Mining (DOGM) and UDEQ are coordinating with the City, have a design, and are in the bid process to fix the hole. There is some temporary fencing and the sinkhole somewhat isolated on Chief Mining property. Mayor Castleton has not had any incidents from trespassers regarding the sinkhole.

6. **Do you feel well informed about the site's activities and progress over the last five years? Do you know how to contact the Environmental Protection Agency if you have questions or concerns about the Eureka Mills Superfund Site?** Mayor Castleton has not had any problems with regulators or with any questions or concerns and is aware of everything Superfund related in town.

7. **Over the past five years, have there been any changes in land use surrounding the Eureka Mills Superfund Site? Are you aware of potential future changes in land use? If so, please describe.** Mayor Castleton said there haven't been any changes in land use. If anything, there is sporadic interest in purchasing or transferring Chief Mining properties in town either for business interest and City access.

8. **Do you have any comments, suggestions, or recommendations regarding the site's management or operation (institutional controls)? If so, what types of future problems do you think (1) could occur; or (2) would concern you and/or your department?** Mayor Castleton said the City Permit Coordinator is doing a great job and the city manages their soil responsibilities very well. A good example is how well the city managed the water and sewer project throughout town without issue. Property owners have been able to work with the Permit Coordinator to address cleanup areas and said a possible retirement development is interested in two acres of undeveloped land near the north end of town.

9. **Would you be in favor of delisting Eureka Mills from the Superfund list if all cleanup goals have been achieved?** Mayor Castleton said, yes, get it done. There is still a stigma the community has to answer to being a Superfund Site. Delisting Eureka wouldn't do away with the soils ordinance or need to manage cleanup areas but would do some good distancing the City from its Superfund past.

10. **Do you have any additional comments?** No additional comments unless UDEQ-DERR would want to talk to someone regarding their local grants for infrastructure with the Six County Association of Governments.

Eureka Mills Superfund Site
Five-Year Review
Interview of Community Members

Site Name: Eureka Mills EPA ID: UT00022401	Date: March 22, 2018
Type of Contact: Telephone	Contact Made By: Name: Dave Allison, UDEQ Community Involvement Coordinator and Michael Storck, UDEQ Project Manager
Person Contacted	
Name: Fred Garbett, Waste Water Operator, Parks and Buildings Manager	Organization: Eureka City
Address: Eureka City Hall 15 North Church Street Eureka, UT 84628	Telephone Number: (435) 433-6915 Email Address: http://www.eurekautah.org

1. **Are you aware of the Eureka Mills Superfund site and the work that was completed to address environmental contamination?** Garbett said with his Permit Coordinator responsibilities, and as a resident, he has an institutional knowledge of cleanup areas throughout the Superfund site. Garbett implements the soil management program for the City which includes the soil repository and residential maintenance requirements as defined in the Eureka Excavation Ordinance of 2010.

2. **What's your overall impression (your general sentiment) of the work that was completed at the Eureka Mills Superfund Site**? Garbett said Eureka is okay with the cleanup now after somewhat resenting the cleanup during the early years of the process. The soil cap remedy remains protective and was never in question. If the Superfund cleanup was going to happen, residents wanted the EPA to cleanup as quickly as possible and leave. The impact of Superfund to the community included the entire town and changed the look of the town where the waste piles have extensive rock cover.

3. **Do you have any concerns and are you aware of any community concerns regarding the Eureka Mils Superfund Site and its administration? If so, please give details.** Garbett does not hear anything from residents concerned about the City's mining and Superfund history. With the cleanup completed in 2010, most of the town didn't feel a cleanup was necessary and over the last five years no one has expressed any concerns regarding health or the environment. Garbett said people are cooperative with the soil ordinance and his biggest concern is the digging of an unreported fence post. Garbett said he has a good relationship with the UDEQ Project Manager and participates with all inspections and coordinates any and all issues.

4. **Over the past five years, have there been any complaints, violations, or other incidents (e.g., vandalism, trespassing, or emergency responses) at or related to the Eureka Mills Superfund Site requiring your office to respond? If so, please give details of the events and results of the response.** Garbett was the first to report a 100-foot wide, 80-foot deep, sinkhole resulting from

a collapsed mine shaft in the fall of 2016 near the soil repository. Garbett is working with the State Division of Oil, Gas, and Mining (DOGM) and UDEQ to fix the hole this summer 2018. There is posted warning signage and temporary fencing since the collapse and the sinkhole is isolated on Chief Mining property. Despite the size of the hole, Garbett said site access is limited, protective as possible and the risk obvious. Anyone from the public would not accidently fall into the hole. Garbett said the DOGM contractor does not expect any additional settlement or impact to the area or community.

Another regular issue for the City is the road base material used during the cleanup was too light and without binders and Garbett says it erodes downhill into gutters and drains during rainstorms. Garbett said he's been told by EPA and the State for a few years there are no funding resources available outside of maintaining the repository and maintaining the cleanup remedy. Eureka has had to seek funds from Federal Emergency Management Agency (FEMA) and a Juab County mining community grant and is waiting for an award to fund work on storm water infrastructure in the City.

The City also has sprayed for weeds and brush in the upper and lower areas of Eureka Gulch to prevent over growth and only general punch list items remain to finalize any water project details. Any so-called vandalism Garbett said would be people shooting locks on the Quarry gates not to trespass but to damage the locks. Nothing major, Garbett said as the sinkhole is being addressed and a possible funding solution to their storm water road base issue is in the works.

5. **Do you feel well informed about the site's activities and progress over the last five years? Do you know how to contact the Environmental Protection Agency if you have questions or concerns about the Eureka Mills Superfund Site?** Garbett has regular contact with the UDEQ-DERR Project Manager, Michael Storck, on site issues and annual inspections. Garbett usually works with UDEQ-DERR and EPA as needed without any difficulties contacting someone to discuss issues.

6. **Over the past five years, have there been any changes in land use surrounding the Eureka Mills Superfund Site? Are you aware of potential future changes in land use? If so, please describe.** Garbett said there hasn't been any changes regarding land use however the City is looking to obtain Chief Mining via property transfer near their fire station. The land would be used for a clinic and ambulance station and is eager to start building. Garbett said the City is has waited over a year for EPA and Chief Mining Company to resolve this property transfer issue.

   Also, interest from growing communities outside of Eureka anticipating future growth may require some zoning changes. Garbett doesn't see that as a difficult problem for the City to handle and would be a positive for Eureka.

7. **Do you have any comments, suggestions, or recommendations regarding the site's management or operation (institutional controls)? If so, what types of future problems do you think (1) could occur; or (2) would concern you and/or your department?** Garbett said the City has demonstrated their ability to manage a huge sewer and water project as well as day-to-day residential cleanup areas. There really isn't anything Garbett said which would bring about a future management problem.

8. **Would you be in favor of delisting Eureka Mills from the Superfund list if all cleanup goals have been achieved?** Garbett said he's in favor of a delisting and the City would continue to move on from the Superfund reputation. Garbett said his responsibilities would remain the same, even with delisting, as the City would still have to manage the cleanup remedy and surrounding soils.

9. **Do you have any additional comments?** No additional comments and would want to stay informed of any developments regarding the property transfers with Chief Mining Company.

Eureka Mills Superfund Site
Five-Year Review
Interview of Local Agencies

Site Name: Eureka Mills Superfund Site EPA ID:	Date: April 12, 2018
Type of Contact: Telephone	Contact Made By: Dave Allison, UDEQ-DERR Community Involvement
Person Contacted	
Name: JaNeel Nielsen	Organization: Eureka Planning Commission Chair and Resident
Address: PO Box 428 Eureka, Utah 84628	

1. **Are you aware of the Eureka Mills Superfund site and the actions to address environmental contamination?** As a resident and Chair of the Eureka Planning and Zoning Board, Nielsen has a full perspective of Eureka's Superfund history before, during, and after. Nielsen said she grew up in Eureka and lived there off and on as her family moved away and maintained a weekend home. The weekend home was one of the first properties to be cleaned up in 2006 overlooking the Gemini Mine area.

   Nielsen moved away and wanted to return to live where her family currently lives today. Nielsen said she has only recently become the Planning & Zoning Commission Chair, a few months as 2018. The Planning and Zoning Board reviews proposed amendments to zoning ordinances, site plans and plat applications, and makes recommendations to the City Council regarding the current and future development of Eureka City.

2. **What's your overall impression (your general sentiment) of the actions performed at the Eureka Mills Superfund Site?** Nielsen said she understands why the cleanup was needed, never had a reason against the purpose of the cleanup, yet wished there was less rock used to landscape the cleanup areas. The cleanup changed the way Eureka looked, Nielsen said, and the soil used for cover has always been difficult to grow anything due to compaction or soil mix.

   There were also some serious storm runoff issues with their previous property on Railroad Street and their home flooded which required repair at the time. Nielsen said the cleanup worked out, just not without some problems. Also, when Nielsen was building their current home, soil had to be moved to the local repository for about $2000 which wasn't initially factored into their plans.

3. **Are you aware of any community concerns regarding the Eureka Mills Superfund Site or its operation and administration? If so, please give details**. Nielsen said she isn't aware of any community concerns regarding health or the environment now that the cleanup is over and done with. Any issues were similar to her experience with the dirt unable to grow vegetation and the overall look of the town with rock.

4. **Over the past five years, have there been any changes in land use surrounding the Eureka Mills Superfund Site? Are you aware of potential future changes in land use? If so, please describe the changes and the impacts.** Nielsen said as part of the Planning and Zoning Board no changes

have occurred over the last five years. Many of the zoning requests deal with combining lots and areas addressing mobile homes areas. Any properties with cleanup areas would be addressed by the City's Permit Coordinator and not through the Board. Nielsen doesn't anticipate any necessary zoning changes with properties at this time. On average Nielsen said about two homes a year are built in Eureka and hears the occasional rumor of possible future growth.

5. **Do you feel well informed about the site's activities and progress over the last five years? Do you know how to contact the Environmental Protection Agency if you have questions or concerns about the Eureka Mills Superfund Site?** Nielsen hasn't had a need to contact regulators and would only reach out if any issues developed requiring attention. The City has contacts to work with if UDEQ or EPA needed to be called.

6. **Would you be in favor of delisting Eureka Mills from the Superfund list if all cleanup goals have been achieved?** With the cleanup finished years ago, Nielsen feels delisting would be great for the community and feels Eureka have already moved beyond their Superfund history.

7. **Do you have any additional comments, suggestions, or recommendations regarding the Eureka Mills Site?** No additional comments.

Eureka Mills Superfund Site
Five-Year Review
Interview of Community Members

Site Name: Eureka Mills EPA ID: UT00022401	Date: April 11, 2018
Type of Contact: Telephone	Contact Made By: Name: Dave Allison, UDEQ-DERR Community Involvement Coordinator
Person Contacted	
Name: Margaret Gillen	Organization: Owner, Tintic Goldminer's Inn Bed and Breakfast
Address: 331 S Beck St Eureka Utah 84628	Telephone Number: (435) 433-2247

1. **Are you aware of the Eureka Mills Superfund site and the work that was completed to address environmental contamination?** Margaret Gillen and husband Norman are owners of the Tintic Goldminer's Inn a 6-room bed and breakfast purchased in 2007. The Tintic Goldminer's Inn is a renovated historic property owned by the Chief Mining Company. The Gillen's purchased the property during the cleanup construction which involved their property.

2. **What's your overall impression (your general sentiment) of the work that was completed at the Eureka Mills Superfund Site**? Gillen said the cleanup work on their property went above and beyond and were very satisfied with the efforts of EPA contractors nearly 10-years ago and have not had any problems to date.

3. **Do you have any concerns and are you aware of any community concerns regarding the Eureka Mils Superfund Site and its administration? If so, please give details.** Gillen did not have any concerns before buying the property regarding health or the environment and doesn't today. The recent sink hole is near their bed and breakfast inn which overlooks the hole. Gillen wondered about other mine shafts in the area and is not concerned for her property with what she knows of the situation.

   Over the last five years, Gillen said her property experiences occasional storm runoff issues with soil and some road base eroding from her property. Gillen said the only complaints heard from locals related to the amount of rock used on the waste piles at the south end of town. Since the cleanup finished nearly eight years ago, Gillen has never heard the community mentioning any health or environmental concerns or from visiting patrons of the Tintic Goldminers Inn.

4. **Do you feel well informed about the site's activities and progress over the last five years? Do you know how to contact the Environmental Protection Agency if you have questions or concerns about the Eureka Mills Superfund Site?** Gillen has been interested in buying more property in town for over a year from Chief Mine and has been in contact with the UDEQ Division of Environmental Response and Remediation (DERR) regarding existing environmental covenants in February of 2018. Gillen said her understanding from speaking with the Chief Mining

Company property owner representative, Tim Buchanan, is the property she is interested in is tied up with EPA and Chief Mining environmental covenant agreements.

5. **Over the past five years, have there been any changes in land use surrounding the Eureka Mills Superfund Site? Are you aware of potential future changes in land use? If so, please describe.** Gillen said releasing any impediments on the Chief Mining Property needs to be resolved so changing the environmental covenants would be welcomed.

6. **Do you have any comments, suggestions, or recommendations regarding the site's management or operation (institutional controls)? If so, what types of future problems do you think (1) could occur; or (2) would concern you and/or your department?** Gillen knows the property issues are complex and would buy property tomorrow and said she is even interested in leasing property where former office buildings were used in the meantime. Gillen said she has wanted to purchase properties to develop for a couple of years now and this is failing revitalization of the community in this way if there is available property.

7. **Would you be in favor of delisting Eureka Mills from the Superfund list if all cleanup goals have been achieved?** If delisting Eureka from the Superfund list expedites the sale of Chief Mining Company property Gillen would endorse this path quickly. Gillen said Eureka's mining heritage has a lot to offer and landmarks for visitors to see and business opportunities expanded with the delisting of Eureka.

8. **Do you have any additional comments, suggestions, or recommendations regarding the Eureka Mills Site?** Gillen requested to be kept involved with any developments regarding property availability and took contact information from UDEQ-DERR.

Eureka Mills Superfund Site
Five-Year Review
Interview of Local Agencies

Site Name: Eureka Mills Superfund Site EPA ID:	March 1, 2018
Type of Contact: Telephone	Contact Made By: Dave Allison, UDEQ/DERR Community Involvement
Person Contacted	
Name: Bill Maehl, President	Organization: Spectrum Engineering & Environmental LLC
Address: 1413 4th Ave. North Billings, MT 59101	Phone: (406) 259-2412

1. **Is your organization/department aware of the Eureka Mills Superfund site and the actions underway to address environmental contamination?** Bill Maehl is the President of Spectrum Engineering & Environmental LLC, contracted by the State of Utah, Division of Oil, Gas, and Mining (DOGM) in June of 2017 for a closure design to fill a 100-ft wide by 80-ft deep sink hole located on property owned by the Enirgi Group. The sink hole is within the Eureka Mills Superfund site boundaries and occurred in the fall of 201, the result of abandoned Chief Mine #1 shaft. Spectrum Engineering has many Utah projects which included the inventory of abandoned mine shaft projects in and around the vicinity of Eureka and the Tintic Mining District for the last 10 years.

2. **What's your overall impression (your general sentiment) of the actions performed at the Eureka Mills Superfund Site?** Maehl said the Superfund remedy work would not be impacted as the sinkhole was not part of any cleanup activities. The sinkhole is in close proximity to the established soil repository where the fill material will be used to remediate the hole**.**

3. **Does your office conduct routine communications and/or activities (site visits, inspections, reporting activities, participation in meetings, etc.) for the Eureka Mills Superfund Site? If so, please briefly summarize the purpose and results of these communications and/or activities over the past several years.** Maehl has had limited construction meetings and briefings with Michael Storck, Division of Environmental Response and Remediation (DERR); Timothy Buchanan, landowner (Enirgi Group) representative; and Fred Garbett, Eureka City. Maehl said the City Permit Coordinator, Garbett, was very knowledgeable about the area and experienced good communication from everyone involved with the design work and expects the same through implementation of the closure.

4. **Are you aware of any community concerns regarding the Eureka Mills Superfund Site or its operation and administration? If so, please give details.** Maehl is not aware of any community concerns and does not have any concerns for the construction and closure of the mine shaft. This is a routine closure plan.

   Spectrum believes that the Chief #1 Shaft is sluffed full. Maehl said the closure plan factors the unlikely occurrence the additional weight and pressure of the backfill has the remote possibility

of causing some minor additional subsidence. The subsidence hole will take 23,000 cubic yards, taken from the waste repository to fill within one foot of the top. A geo-tech membrane will cover the fill with clean fill mounded to cover the remaining portion. There is also closure plan option using pre-cast concrete slabs placed within 40-feet of the surface if bids allow. Also, any haul trucks leaving the soil repository will have to be decontaminated with a wash station as part of the site management plan.

5. **Over the past five years, have there been any complaints, violations, or other incidents (e.g., vandalism, trespassing, or emergency responses) at or related to the Eureka Mills Superfund Site requiring your office to respond? If so, please give details of the events and results of the response.** Question not applicable.

6. **Do you feel well informed about the site's activities and progress over the last five years? Do you know how to contact the EPA or UDEQ if you have questions or concerns about the Eureka Mills Superfund Site?** Maehl knows the area well from previous closures activities over the years and a good rapport with State regulators.

7. **Over the past five years, have there been any changes in your department's policies or regulations that impact the Eureka Mills Superfund Site and/or your role? If so, please describe the changes and the impacts.** Maehl said the only impact is the goal of site closure.

8. **Over the past five years, have there been any changes in land use surrounding the Eureka Mills Superfund Site? Are you aware of potential future changes in land use? If so, please describe.** Maehl said the closure project would not change any land use options on the property previously established to the mine closure work.

9. **Do you have any comments, suggestions, or recommendations regarding the site's management or operation (institutional controls)? If so, what types of future problems do you think (1) could occur; or (2) would concern you and/or your department?** Maehl does not have any concerns and expects the Chief Mine #1 closure to be a permanent remedy.

10. **Do you have any additional comments?** No additional comments.

APPENDIX C
OPERATION & MAINTENANCE PRP PROPERTIES LETTERS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
Denver, Colorado 80202-1129
Phone 800-227-8917
www.epa.gov/region8

October 19, 2016

Ref: 8EPR-SR

Mr. Hans J. Millican, M.S.
DERR, Superfund NPL & Federal Facilities
P.O. Box 144840
Salt Lake City, Utah 84114-4840

Re: Request for Utah Department of Environmental Quality to Conduct Operations and Maintenance at Certain Parcels within the Eureka Mills Superfund Site

Dear Mr. Millican:

This letter is in reference to certain operations and maintenance (O&M) responsibilities at the Eureka Mills Superfund Site in Juab County, Utah (Site). Pursuant to Consent Decree Case Number 2:04CV00311 TS, Bullion Beck Mining Corporation, Godiva Silver Mines, Inc., Keystone Surveys Inc., and Spenst Hansen (Hansen et al.) agreed to conduct O&M activities on properties they own within the Site (Hansen Properties). Pursuant to the August 3, 2009, Amendment to the State Superfund Contract between the United States Environmental Protection Agency (EPA) and the Utah Department of Environmental Quality (UDEQ), UDEQ agreed to provide O&M at the Hansen Properties upon the event that Hansen et al. became unable to fulfill their O&M responsibilities. Prior to UDEQ taking on O&M, the EPA agreed to "take all reasonable enforcement efforts to compel" Hansen et al. to perform.

Upon entry of the consent decree in 2004 and after cleanup at the Site was complete, Hansen et al. conducted O&M for a number of years. Beginning in 2011, Spenst Hansen's health began to fail. Bullion Beck Mining Corporation, Godiva Silver Mines, Inc., and Keystone Surveys Inc. are all defunct. In 2016, the EPA enforcement staff contacted Mr. Hansen to determine whether he had the capability to continue with O&M obligations. By letter dated July 2, 2016, Mr. Hansen provided information regarding his age and diminishing health. He also provided financial records indicating that he does not have adequate resources to pay any other entity to conduct O&M. In light of this information, the EPA believes that Hansen et al. can no longer fulfill their O&M obligations, and writes this letter to confirm that UDEQ will assume O&M activities on the Hansen Properties.

Please confirm UDEQ's willingness to assume O&M at the Hansen Properties at your earliest convenience. Should you have any questions, I am available by phone at (303) 312-6694.

Stan Christensen
Unit B Lead
Superfund Remedial Program

State of Utah
GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF ENVIRONMENTAL
RESPONSE AND REMEDIATION

Brent H. Everett
Director

DERR 2016-015828

ERRC-232-16

December 1, 2016

Stanley Christensen
Superfund Remedial Response Program Unit B, Leader
U.S. EPA Region 8, EPR
1595 Wynkoop Street
Denver, Colorado 80202-1129

Re: Operations and Maintenance on Spenst Hansen Properties within the Eureka Mills Superfund Site

Dear Mr. Christensen:

The Division of Environmental Response and Remediation (DERR) received your letter dated October 19, 2016, indicating that Spenst Hansen is no longer able to perform Operation and Maintenance (O&M) activities for properties he owns located within the Eureka Mills Superfund Site. The letter further asserts that U.S. Environmental Protection Agency (EPA) has taken all reasonable enforcement efforts to compel performance by the responsible party. As agreed upon in the State Superfund Contract between the EPA and the DERR (July 30, 2009), the DERR will assume the O&M related responsibilities outlined in the O&M Manual (July 31, 2009) for the Spenst Hansen properties located within the Eureka Mills Superfund Site effective immediately.

If you have any questions, please contact me at (801) 536-4115.

Sincerely,

Hans J. Millican, Superfund NPL Section Manager
Division of Environmental Response and Remediation

HJM/MJS/jn

cc: Armando Saenz, U.S. Environmental Protection Agency, Region 8

195 North 1950 West • Salt Lake City, UT
Mailing Address: P.O. Box 144840 • Salt Lake City, UT 84114-4840
Telephone (801) 536-4100 • Fax (801) 359-8853 • T.D.D. (801) 903-3978
www.deq.utah.gov

APPENDIX D
EPA AND STATE CONCURRENCE LETTERS TO DELETE SITE FROM NPL

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
www.epa.gov/region8

March 7, 2018

Ref: 8EPR-SR

Mr. Duane Mortensen
Utah Department of Environmental Quality
Division of Environmental Response and Remediation
195 North 1950 West
P.O. Box 144840
Salt Lake City, Utah 84114-4840

Re: State Concurrence on Deletion of the Eureka Mills Superfund Site from NPL

Dear Duane:

The U.S. Environmental Protection Agency (EPA) plans to move forward with the deletion of the Eureka Mills Superfund Site (UT0002240158) in Eureka, Utah by the end of the federal fiscal year 2018. All appropriate response actions are complete, the site is in operations and maintenance, and appropriate institutional controls are in place. This letters serves as the request for state concurrence on the planned deletion. If you have any questions, please can contact me at 303-312-6694.

Sincerely,

Stan Christensen
Unit Leader
Superfund Remedial Program

Cc:
Armando Saenz, EPA
Amelia Piggott, EPA
Hans Millican, UDEQ
Michael Storck, UDEQ

State of Utah
GARY R. HERBERT
Governor
SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF ENVIRONMENTAL
RESPONSE AND REMEDIATION

Brent H. Everett
Director

ERRC-046-18

March 28, 2018

Stanley Christensen
Unit Leader
Superfund Remedial Program, 8EPR-SR
U.S. Environmental Protection Agency, Region 8
1995 Wynkoop Street
Denver, Colorado 80202-1129

Dear Stan Mr. Christensen:

The Utah Department of Environmental Quality's Division of Environmental Response and Remediation (DERR) received your letter of March 7, 2018, requesting State concurrence for the deletion of the Eureka Mills Superfund Site from the National Priorities List. The DERR concurs with the U.S. Environmental Protection Agency's (EPA) determination regarding the deletion. It is understood that the deletion does not preclude the EPA from Fund-financed activities at the site in the future should conditions warrant.

If you would like to discuss this matter further, please feel free to contact Duane Mortensen of my staff at (801) 536-4100.

Sincerely,

Brent H. Everett

Brent H. Everett, Director
Division of Environmental Response and Remediation

BHE/DM/jn

cc: Nathan Selin, Environmental Director, Central Utah Public Health Department
J. Nicholson Castleton, Mayor, City of Eureka
Armando Saenz, U.S. Environmental Protection Agency, Region 8
Amelia Piggot, U.S. Environmental Protection Agency, Region 8

195 North 1950 West • Salt Lake City, UT
Mailing Address: P.O. Box 144840 • Salt Lake City, UT 84114-4840
Telephone (801) 536-4100 • Fax (801) 359-8853 • T.D.D. (801) 536-4284
www.deq.utah.gov

APPENDIX E
SITE INSPECTION AND PHOTOS

Five Year Review
Site Inspection
August 2, 2017

The Site Inspection was conducted on August 2, 2017 by Michael Storck (DERR Project Manager). DERR was accompanied by Fred Garbett, Eureka City Permit Coordinator. The temperature was approximately 90° and mostly sunny. The inspection took about six hours to perform.

The Operation/Maintenance (O/M) Manual provides checklists for inspection of all Remedial Action Structures (RASs) including: capped mine waste piles, drainages, sediment ponds and haul/access roads. The inspection checklists were completed by DERR as part of the Annual Site Inspection.

During the inspection Fred Garbett removed all of the old locks on the site access gates and replaced the locks with ones that would only be accessible to DERR and Eureka City. The following is a brief summary of the key points noted during the site inspection.

- **May Day Access Road –** The May Day Access Road gate at the east end of the Upper Godiva Mine Waste Pile has been removed. Minor erosion rills were observed on the west and east side of the access road. Approximately eight feet of fencing and one post is missing on the north side of the access road. Also, some fencing has been damaged on the north side of the access road. Replacement of the gate and repair of the fencing are not urgent but may be addressed when major repairs will be completed. The erosion rills observed on the access road are minor and require no repair.
- **May Day Waste Pile** – The waste pile showed no erosion of the cap. Some sparse vegetation and weeds were observed on the slopes of the waste pile. No maintenance or repair is required.
- **Upper Godiva Mine Waste Pile –** Two major erosion rills have occurred at the edge of the northeastern top of the mine waste pile where it intersects with the slope the upper part of the slope (57 ft. length x 3 ft. width x .83 ft. depth and 26 ft. length x 2 ft. width x .83 ft. depth). Also, marker barrier was exposed in some areas. Some minor ATV tracks were noticed on top of the coarse surface of the waste pile. The erosion rills on the cap and intersecting slope will need to be repaired (graded, contoured, and replaced with roadbase).
- **Lower Godiva Mine Waste Pile –** Erosion was observed on the lower slope of the mine waste pile (40 ft. length x 25 ft. width x 1 inch depth). The eroded area of lower slope should be repaired with placement of roadbase.
- **Knightsville Road** – Major rutting/erosion was observed where Knightsville Road runs southwest into Knightsville Spring (58 ft. length x 4 ft. width x 1.25 ft. depth). The erosion should be repaired during Juab County's next inspection. An email was sent to the Juab County Road Department on August 24, 2017 notifying them of the erosion and requesting repairs. The Knightsville drainage that runs parallel to Knightsville Road is in good condition. A small section of fence is missing near the Lower Godiva Access Road at the entrance of the Lower Godiva mine waste pile and some wire mesh of the fence was broken on Knightsville road on the approach to Highway 6. The fence should be repaired in the future but it does not impact the overall remedy. Juab County is responsible for maintaining the road and drainage channels.
- **Knightsville Road Storm Drain/Culvert –** This storm drain conveys runoff from KC-2 sedimentation pond to the Upper Eureka Gulch. Inspection of Highway 6 Surface Drainage Culvert showed some vegetation (weeds and small bushes) along the channel to the culvert. No maintenance or repair is required.

- **KC-1 Sedimentation Pond – S**ome minor vegetation (small shrubs) was observed on the slopes and floor of the sedimentation pond. The pond was dry and there was no sediment accumulation on the floor of the pond. No maintenance or repair is required.
- **KC-2 Sedimentation Pond – S**ome minor vegetation (small shrubs) was observed on the slopes and floor of the pond. The pond was dry and there was no sediment accumulation on the floor of the pond. Some weeds and small bushes were observed within the drainage channel that connects KC-1 to KC-2. No maintenance or repair is required.
- **Chief Mine No. 2 Mine Waste Pile and Access Road –** Numerous weeds and small bushes were observed on the slopes and cap surface of the mine waste pile. Minor erosion rills were observed on the cap surface due to ATV traffic. No maintenance or repair is required at this time. Major erosion rill (170 ft. length x 1.5 ft. wide x 1 ft. depth) and exposed marker barrier were observed on the Chief Mine No. 2 Access Road and will need to be repaired (graded, contoured, and replaced with roadbase).
- **Chief Mill No. 1/Chief No. 1 Mill Tailings Waste Pile –** The vegetative and armor rock caps are intact. The sedimentation pond at the base of the vegetative cap showed no erosion or displacement of slopes. However, numerous weeds and small bushes were observed on the slopes and floor surface of the sedimentation pond.
- **Chief Mill Site No**. 1 – The armor rock and vegetative caps are intact and show no displacement. No repair or maintenance is required.
- **Chief Mill Site No. 1 Access Road/Drainage Channel –** The access road and drainage channel has some minor weeds. No maintenance or repairs are required.
- **GC-1, GC-2 and GC-3 Sedimentation Pond –** Some minor weeds were observed on the floor and slopes of all the sedimentation ponds. No maintenance or repair is required.
- **Chief Mine No.** 1 **Waste Pile –** Some minor intermittent weeds were observed on the surface cap and armored rock slopes of the waste pile. The vegetative cap on the North Toe of the waste pile is intact. The Chief Mine No. 1 drainage channel was in good condition with no blockage or erosion. A major sinkhole was observed on the eastern surface of the waste pile (100 ft. diameter x 60 ft. depth). DERR is working with Oil Gas & Mining and the Enirgi Group to stabilize the sinkhole. This may include backfilling the sinkhole with excavated soil from the Open Cell Repository and capping the sinkhole in place with material from the Homansville quarry (Spring 2018).
- **Eagle Blue Bell Mine Waste Pile –** Some sparse weeds were observed on the cap surface and armored rock slopes. A breakthrough has occurred at water bars located on the west side resulting in two major erosion rills (45 ft. length x 2 ft. width x 1 ft. depth and 62 ft. length x 2 ft. width x 1 ft. depth) and repair of the erosion rills should be completed (graded, contoured, and replaced with roadbase). Inspection of the top of the Eagle Blue Bell Haul Road located just south of the waste pile showed two erosion rills (each 10 ft. length x 2 ft. width x 1 ft. depth) and should be repaired (graded, contoured and replaced with roadbase). There was a major erosion rill and exposed marker barrier located on the main haul road (250 ft. length x 3 ft. width x .25 ft. depth). Also, the Upper Access Road had a major erosion rill (88 ft. length x 2 ft. width x 1 ft. depth). The Upper Access Road and main haul road are not used for public or private access so it may be prudent to repair the roads with armor rock instead of roadbase material which will provide a more permanent repair of the roads (armor rock should prevent erosion rills occurring in the future).
- **Eagle Blue Bell Drainage Channel –** Inspection of the channel from the EB-1 Culvert to the EB-2 Culvert indicated minor vegetation growing in the channel. Inspection of the drainage channel from the EB-2 Culvert to the EB-3 Culvert showed a minor buildup of sediments and minor vegetative growth on the channel floor. No maintenance or repair is required and the overall remedy is intact.

- **Eureka Hill Mine Waste Pile –** The inspection showed minor weeds on the surface of the mine waste pile. No repairs or maintenance is required.
- **Snowflake Mine Waste Pile & Access Road** – The inspection showed no issues or deficiencies.
- **Open Cell –** Inspection of the rock cap slopes, vegetative cover and interior slopes of the Open Cell are in good condition. The floor of the Open Cell was being continually graded and compacted during the ongoing excavated soil deposition related to the Water/Sewer line Project and daily use of the repository (grading and compaction has been completed). The drainage pipe located on the western end of the repository has been elevated approximately five feet due to the increase in volume of soil and the corresponding increase in the elevation of the floor of the repository. The floor of the repository has been graded and compacted.
- **Open Cell Access Road –** The inspection showed minor erosion rills on the south and north sides the access road. The erosion rills should be repaired. DERR will work with the Water/Sewer line project contractor on completing erosion repairs that resulted from access of the road by vehicles transporting contaminated soil to the repository; however, erosion rills that were observed prior to the start of contractor work will be repaired.
- **Upper Eureka Gulch –** The upper channel has sagebrush, tumble weeds and box elder trees on the floor of the channel that could impede flow and drainage. DERR has requested that the city remove trees, bushes and weeds that could potentially impede the flow of the channel and funding for removal will be provided through the Institutional Controls Funding Agreement.
- **Lower Eureka Gulch -**The culvert located beneath the City Yard access road crossing the Lower Eureka Gulch includes a small buildup of sediment and box elder trees on the bottom of the channel. There are numerous small shrubs growing on the sides and bottom of the lower channel immediately downgradient of the City Hall parking lot. The flow of the channel is not limited at this time and the overall remedy remains intact. The City of Eureka is responsible for maintaining the entire Gulch (Upper and Lower) as part of its responsibilities under their flood plain ordinance, and will contract to complete removal of trees, shrubs and weeds that could impact the flow of the channel.
- **McChrystal Drainage Channel –** The inspection of the channel showed some sage brush and tumbleweeds on the floor of the channel. DERR is recommending that the city will remove sagebrush and tumbleweeds that our on the floor of the channel.
- **Bullion Beck Mill Site and Mine Waste Pile –** The inspection showed no issues or deficiencies.
- **Gemini Mine Waste Pile –** The inspection of the Gemini mine waste pile showed minor weeds and shrubs on the surface of the mine waste pile. Also, some very minor surface sinkage was noted on the northwest edge of the slope (6 ft. in diameter x .5 ft. depth) and repair with placement of armored rock will be required (Spring 2018).

Roadbase eroded of lower slope of Upper Godiva

Slope of Chief Mine No. 2 looking south

Looking east on Chief Mill Site No.1 access road

Looking north of Sedimentation Pond

Looking south of Eagle Blue Bell Mine Shaft

Erosion rills on west side of Eagle Blue Bell Water Bars

Looking west of Open Cell

Looking east of Lower Eureka Gulch