NATURAL RESOURCE DAMAGES ASSESSMENT FUND PROJECT PROPOSAL FOR THE GOSSAN RESTORATION PROJECT IN GUNNISON COUNTY, COLORADO



PREPARED BY THE COAL CREEK WATERSHED COALITION SUBMITTED ON APRIL 1, 2022 Revised on October 17, 2022

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• Project Costs

- Project Funding
- And other resources related to this application.

Cover photo: The south end of the proposed gossan restoration area. Note, the extensive erosion and isolated pockets of wetland vegetation. The project partners plan to restore this portion of the site as a wetland. Photo credit: Andy Herb, Alpine Eco. October, 2011.

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GOSSAN RESTORATION PROJECT PROPOSAL SUMMARY

The Gossan Restoration Project will restore natural resources equivalent to those injured at the Standard Mine including forest, wetland, riparian, aquatic habitats, and water quality. The Project will use a variety of restoration techniques to re-establish native vegetation and reduce erosion and metalsladen runoff from the 19-acre restoration area. The gossan is a natural geologic feature composed of limonite and other iron oxides that was disturbed by a fire, ignited by operations at the Keystone Mine, in 1978. Several studies have identified the gossan as one of the largest metal sources in the Coal Creek Watershed.

Project Offeror: Coal Creek Watershed Coalition

Offeror Point of Contact:

Ashley Bembenek 379 Shavano St. Crested Butte, CO 81224 (970) 251-0029 abembenek@yahoo.com

Total Project Cost: \$1,529,563.00.

Amount of Natural Resource Damages Assessment Funding Requested: \$230,000.00.

Summary of Matching Funds:

To date, CCWC and the project partners have secured \$897,000.00 in cash and in-kind contributions for the Gossan Restoration Project. The existing commitments account for 58 percent of the budget. The remaining funds, \$632,563.00, which are equivalent to 41 percent of the budget, will be funded through a combination of additional grants and NRDA funds. The project partners are considering grant applications to the National Forest Foundation, Colorado Nonpoint Source Program, DRMS, the Colorado Water Conservation Board, and the Bureau of Reclamation to secure the remaining funds.

	Funding Source												Total for Gossan					
Type of Funding	CCWC		MEMC		DRMS		USFS		Town		NRD	Ade	ditional Grants		Restoration Pr	roject		
Secured cash	\$ 50,000.00	\$7	720,000.00	\$	25,000.00	\$		\$	65,000.00	\$	-	\$	-	\$	860,000.00	56%		
In-kind services	\$	\$	2,000.00	\$	10,000.00	\$1	4,000.00	\$	11,000.00	\$	-	\$	-	\$	37,000.00	2%		
Unsecured cash	\$ -	\$	-	\$	-	\$	-	\$	-	\$2	30,000.00	\$	402,563.00	\$	632,563.00	41%		
Total:	\$ 50,000.00	\$7	722,000.00	\$	35,000.00	\$1	4,000.00	\$	76,000.00	\$2	30,000.00	\$	402,563.00	\$	1,529	9,563.00		
Percent of budget:	3%		47%		2%		1%		5%		15%		26%		100%			

By signing below, I attest that all proposal materials are true and accurate to the best of my knowledge as of October 17, 2022.

upermeant

Ashley Bembenek Executive Director Coal Creek Watershed Coalition

EXECUTIVE SUMMARY

The Coal Creek Watershed Coalition (CCWC) convened local stakeholders to prioritize potential projects for the Upper Gunnison River Basin Natural Resource Damages Assessment (NRDA) Fund. Following these discussions, it was clear that the Gossan Restoration Project (Project) is both the strongest candidate for the NRDA funds and the stakeholders' preferred project. The project partners, which include CCWC, the Colorado Division of Reclamation Mining and Safety (DRMS), Mt. Emmons Mining Company (MEMC), the United States Forest Service (USFS), the Town of Crested Butte (Town), and Gunnison County (County), are pleased to submit this NRDA proposal to the Hazardous Materials and Waste Management Division of the Colorado Department of Public Health and Environment (CDPHE).

The gossan is approximately three miles west of Crested Butte and just under two miles east of the Standard Mine. Like the Standard Mine, the gossan is on the southern flank of Mt. Emmons and without human-disturbance would support a forest ecosystem dominated by lodgepole pine, Engelmann spruce, and aspen.

The gossan is a naturally occurring geologic feature composed of limonite and other iron oxides. In 1978, a fire was started by welding operations at the Keystone Mine site. Despite fire suppression efforts by the USFS, the wildfire burned much of the gossan. Over 40 years later, vegetation is sparse and run-off and erosion from the gossan are unabated. Multiple studies have identified the gossan as a primary source of metals loading in the Coal Creek Watershed and one of the pollutant sources responsible for cadmium and zinc water quality impairments in Coal Creek.

The goal of the proposed Project is to restore a 19-acre area to improve forest and wetland habitat, eliminate or substantially reduce erosion, and decrease run-off of acidic metals-laden water from the gossan. Due to its location, the Project has the potential to improve water quality, aquatic habitat, and riparian conditions in up to four miles of downstream waters in Coal Creek. The project will also reduce metal concentrations in the Town's municipal water supply which is impacted by past mining operations, including operations at the Standard Mine.

The Project is expected to reduce or eliminate erosion by reducing slope lengths and creating desirable micro-topography, establish appropriately-sized and stable drainage channels to reduce runoff, increase the size and quality of a degraded wetland on the south end of the site, and create a mosaic of upland, mesic, and wetland vegetation to restore natural resources and watershed health.

The project partners propose to complete the Project in a five-phase process that includes: finalizing the project plan, securing permits and approvals, construction and implementation, maintenance and monitoring, and grant management.

1 INTRODUCTION

Since October 2021, the Coal Creek Watershed Coalition (CCWC) has convened local stakeholders to prioritize potential projects for the Upper Gunnison River Basin Natural Resource Damages Assessment (NRDA) Fund. After three stakeholder meetings, it was clear that the Gossan Restoration Project (Project) was the strongest candidate for the NRDA funds and strongly supported by local stakeholders. Following the prioritization process, the project partners, which include the Colorado Division of Reclamation Mining and Safety (DRMS), Mt. Emmons Mining Company (MEMC), the United States Forest Service (USFS), the Town of Crested Butte (Town), and Gunnison County (County), met several times to discuss the Project. On behalf of the project partners, CCWC is pleased to submit this NRDA proposal to the Hazardous Materials and Waste Management Division of the Colorado Department of Public Health and Environment (CDPHE).

The gossan is a naturally occurring geologic feature composed of limonite and other iron oxides. In 1978, a fire was started by welding operations at the Keystone Mine site. Despite fire suppression efforts by USFS, the wildfire burned much of the gossan. Over 40 years later, vegetation is sparse and run-off and erosion from the gossan are unabated. Multiple studies have identified the gossan as a primary source of metals loading in the Coal Creek Watershed and one of the pollutant sources responsible for cadmium and zinc water quality impairments in Coal Creek.

1.1 RELATION TO THE STANDARD MINE

The gossan is approximately three miles west of Crested Butte and just under two miles east of the Standard Mine (Figure 1). Like the Standard Mine, the gossan is on the southern flank of Mt. Emmons and without human-disturbance would support a forest ecosystem dominated by lodgepole pine, Engelmann spruce, and aspen. Both the Standard Mine and gossan are in the Coal Creek Watershed.

1.2 LAND OWNERSHIP AND USE

The proposed restoration area is 19 acres and is 57% private land owned by MEMC, which is part of the Keystone Mine Site. Mining operations at the Keystone Mine Site ceased in the late 1970s. Mine drainage from the Keystone Mine is routed to the mine water treatment plant and treated water is discharged to Coal Creek. The Keystone Mine Site is subject to individual permits for the mine water treatment plant discharge and industrial stormwater through the Colorado Discharge Permit System (CDPS permit numbers CO003539 and COR040284, respectively). The proposed restoration area is west of the mine water treatment plant and outside of the stormwater permit boundary.

As part of a pending land exchange with the USFS, MEMC and the Crested Butte Land Trust have developed a conservation easement and mineral extinguishment agreement for the Keystone Mine Site (Appendix D). The conservation easement and mineral extinguishment agreement will be executed concurrently with the land exchange and will protect the conservation values of the site while allowing for responsible and proactive management of the Keystone Mine Site (Appendix C MEMC letter of support and Appendix D). The conservation easement and mineral extinguishment agreement agreement applies to the portion of the restoration area owned by MEMC.

Figure 1. The Gossan Restoration Project is approximately 3 miles west of Crested Butte and immediately south of Forest Service Development Road 732 which provides access to the Standard Mine. The 19-acre restoration site (light orange polygon) is up-gradient of Coal Creek and less than a mile from the Town's municipal water supply intake.



The USFS manages the remaining 43% of the proposed restoration area. Despite its proximity to Kebler Pass Road (Gunnison County Road 12), the gossan sees minimal recreational traffic. The most frequent recreational use is likely backcountry skiing. The Mt. Emmons Iron Fen is approximately one-tenth of a mile west of the gossan. The fen is designated as a special management area by both the USFS, in the current Forest Plan, and the Colorado Natural Heritage Program.

1.3 PROJECT ELIGIBILITY

The Project advances the objectives of the NRDA Fund by restoring natural resources equivalent to those injured by Standard Metals Company at the Standard Mine including forest, riparian, aquatic habitats, and water quality. Due to its location, the Project has the potential to improve water quality in Coal Creek, which is the Town's municipal water supply. An estimated four miles of surface waters and adjacent riparian areas would benefit from the proposed restoration activities. The health of the Coal Creek Watershed is impaired due to the Standard Mine and similar historic mining activities restoration at the gossan would improve the health and function of the watershed.

2 PROJECT OBJECTIVES

The goal of the proposed Project is to restore a 19-acre area to improve forest and wetland habitat, eliminate or substantially reduce erosion, and decrease run-off of acidic metals-laden water from the gossan. Due to its location, the Project has the potential to improve water quality, aquatic habitat, and riparian conditions in up to four miles of downstream waters in Coal Creek. The project will also reduce metal concentrations in the Town's municipal water supply which is impacted by past mining operations, including operations at the Standard Mine.

These goals will be accomplished through a series of best management practices (BMP) including: in-situ soil amendments, upland, mesic, and wetland revegetation, wetland restoration, and appropriately-sized drainage channels. Section 4 provides a more detailed explanation of the project plan.

3 TARGET NATURAL RESOURCES

The sections below identify how the gossan restoration project will benefit natural resources equivalent to the resources damaged at the Standard Mine Site.

3.1 IMPROVE SURFACE WATER QUALITY

The portion of Coal Creek downstream of the gossan¹ is on the 303(d) List for impairment of the aquatic life standards for cadmium and zinc and for impairment of the arsenic water supply standard (Regulation 93, 2021). Several studies have identified the gossan as a major source of metals in the Coal Creek Watershed. The restoration project is expected to decrease metals-laden runoff from the gossan and allow Coal Creek to attain water quality standards more frequently.

3.2 PROTECT THE MUNICIPAL WATER SUPPLY

Coal Creek is the Town's primary source of municipal drinking water. The gossan is approximately 0.8 miles upstream of the Town's drinking water intake. Due to both the proximity and the large and

¹ Segment COGUUG 11 portion D.

continuous loading from the gossan, any water quality improvements attributed to the restoration project will benefit the municipal water supply.

Lower metal concentrations in the Town's municipal water supply could reduce the treatment load at the water treatment plant (WTP), which in turn may reduce the amount of energy and materials required to treat drinking water or at least allow the WTP to continue operating at current energy and material consumption rates while meeting increased demands or more stringent drinking water standards.

The Project also has the potential to benefit the Town's wastewater treatment facility (WWTF) which currently faces zinc compliance issues that are attributed, in large part, to historic mining operations in the Coal Creek Watershed. By decreasing zinc concentrations in the municipal water supply and Coal Creek which is tributary to the Slate River, where the WWTF discharge is located, the Project may indirectly allow the WWTF to more readily comply with permit limits.

3.3 IMPROVE AQUATIC HABITAT

Aquatic invertebrates and insects, also known as macroinvertebrates, are sensitive to pollution and are excellent indicators of long-term water quality and overall watershed health. In addition to the cadmium and zinc impairments, Coal Creek downstream of the gossan is also impaired for the aquatic life use due to a lack of macroinvertebrates (Regulation 93, 2021). Macroinvertebrates in other portions of Coal Creek attain the aquatic life criteria. The proposed Project will reduce metal concentrations and sediment loading in Coal Creek which may create more suitable habitat for macroinvertebrates and fish.

3.4 IMPROVE THE CONDITION OF THE FOREST, DOWNSTREAM RIPARIAN CORRIDOR, AND WATERSHED HEALTH

The gossan is poorly vegetated and susceptible to erosion (Photo 1). On-going erosion poses a risk to the downgradient forest, wetlands, riparian habitat, and reduces the overall resiliency of the watershed. By restoring native vegetation and improving hydrologic function the project will improve the condition of the forest, the downstream riparian corridor of Coal Creek, and the health of the watershed. Increased native plant cover improves watershed health, soil quality, and water cycling which helps maintain current climate conditions.



Photo 1. A view of the lower gossan which lacks vegetation and runoff and erosion are unchecked. This portion of the gossan will be restored as a wetland. Photo credit: Andy Herb, Alpine Eco. October, 2011.

3.5 NATURAL RESOURCE RESTORATION

By establishing vegetation and improving hydrologic function, each year the Project may prevent approximately 80,000 pounds of sediment from reaching downgradient areas including the Coal Creek riparian corridor (Table 1). Likewise, the project has the potential to eliminate over 1,350 pounds of metals loading in Coal Creek each year. Table 1 identifies additional natural resources that the project is expected to restore².

Estimate of Restored Natural Resources	Quantity	Unit
Gossan Restoration Area	19	acres
Drainage channels	6,000	linear feet
Retained sediment ¹	80,731	pounds per year
Upland vegetation	7	acres
Mesic vegetation	3	acres
Wetlands	1	acre
Downstream water quality improvements	4	miles
Cadmium load reduction ²	6	pounds per year
Zinc load reduction ^{3,4}	1,365	pounds per year

 Table 1. Estimate of the natural resources that the Gossan Restoration Project may restore.

Notes

1. Assumes that the restoration project will prevent 1/16 of an inch of erosion on 25 percent of the site.

 Assumes the median dissolved cadmium concentration in Coal Creek is reduced by 10 percent. The median cadmium concentration was computed from five samples collected from COAL-11 in 2021. The median average annual flow from the Coal Creek gage (period of record 2015-2021) was used to estimate flow.
 Assumes the median dissolved zinc concentration in Coal Creek is reduced by 10 percent. The median zinc concentration was computed from five samples collected from COAL-11 in 2021. The median average annual flow from the Coal Creek gage (period of record 2015-2021) was used to estimate flow.
 By using median metal concentrations and the median average annual flow the load reductions are inherently conservative because both metal concentrations

4 SCOPE OF WORK

The Project will increase vegetation cover and improve the hydrologic function of the gossan to improve forest and wetland habitat, eliminate or substantially reduce erosion, and decrease run-off of acidic metals-laden water. Briefly, the Project will use in-situ treatment to amend acidic soils, increase native vegetation cover in both upland and wetland areas, and establish topography and drainage pathways to prevent erosion and reduce metals loading. In preliminary planning discussions, the project partners agreed the following techniques were best-suited for the project:

- Protect existing vegetation and create a mosaic of vegetation types within the revegetation areas. The mosaic will include upland, mesic, and wetland vegetation.
- Carefully survey site topography and develop grading plans to reduce or eliminate erosion by reducing slope lengths and creating desirable micro-topography.
- Create small drainage channels and increase the size and quality of the wetland on the south end of the site.
- Complete construction in two or three seasons to accommodate the relatively short construction season in the Crested Butte area.

² The monitoring and evaluation plan will incorporate data collected during site characterization and the final restoration design will be used to refine the estimated benefits of the project and to establish appropriate criteria to evaluate project outcomes.

4.1 FINALIZE PROJECT PLAN

In 2022 and 2023, the project partners will finalize the project plan which includes the following milestones.

- Secure additional funds: CCWC and USFS will collaborate to prepare grant applications to fund the remainder of the project. To complete the project, the partners need to secure approximately \$633,000.00 which accounts for 41 percent of the total project budget (Section 6 provides additional details on the budget).
- Negotiate contract for NRDA funds: If this application is successful, CCWC and the project
 partners expect to revise this proposed scope of work with CPDHE and to incorporate new
 information as it becomes available. As presented in the budget, the bulk of the requested
 NRDA funds will be used for construction in 2025³. CCWC and the project partners may wish to
 establish different contract start and end dates or a longer contract duration than the terms
 identified in the solicitation for project proposals.
- Additional site characterization: DRMS will lead the effort to collect additional soil samples, survey vegetation, and complete a detailed topographic survey. As landowners MEMC and USFS will also be involved in the site characterization.
- **Finalize the conceptual design:** DRMS, MEMC, and USFS will use the site characterization data to compute soil amendment rates, develop upland, mesic, and wetland seed mixes, and create the topographic and drainage plans to manage water in the restoration area.

4.2 PERMITS, APPROVALS, AND CERTIFICATIONS

In 2023 and early 2024 the project partners will secure permit approvals for the project. The USFS has requested additional time to allow for the National Environmental Policy Act (NEPA) process. The Town, County, and the US Army Corps of Engineers (US ACE) will be involved in the permit process for this project. The milestones for this phase of the project include:

- **Develop an engineered design:** DRMS will create an engineered design, if required, for applicable components of the conceptual design. NRDA funds will not be used for project design or engineering costs. CDPHE will be provided an opportunity to comment on the engineered design, if applicable, and the final design documents will be provided to CDPHE prior to construction.
- NEPA approval and US ACE permit: In preliminary discussions, USFS requested additional time to allow NEPA specialists adequate time to complete surveys of the project area and perform the NEPA analysis. In initial conversations, the project partners have not identified cultural resources, endangered species or species of special concern that could complicate the NEPA process. The Mt. Emmons Iron Fen, which has a special designation with the Colorado Natural Heritage Program and in the current Forest Plan, is about one-tenth of a mile west of the gossan. As noted in their letter of support, USFS staff are committed to "providing specialist expertise on design and implementation of the project, overseeing NEPA, and submitting necessary preconstruction notification to the US ACE." CCWC will submit the final NEPA analysis to NRD staff to allow for additional review to assure that the project does not impact the fen.

³ As discussed in Section 4.2 Permit, Approvals, and Certifications the USFS has requested that construction start no earlier than 2025 to assure adequate time for the NEPA analysis and grant fundraising.

• Local permits: The gossan restoration area is located within the Town's municipal watershed and subject to the Watershed Protection Ordinance which generally requires a permit for activities of this size. Likewise, the project may also be subject to a permit from the County based on the Gunnison County Land Use Resolution. As mentioned in their respective letters of support, both the Town and County are aware of the permitting responsibilities and are familiar with the Project.

4.3 CONSTRUCTION AND IMPLEMENTATION

In 2024 and 2025, DRMS, MEMC, USFS, and the project partners will begin construction which is expected to require at least two seasons. We expect to accomplish the following:

- Secure Contractors: using the final design, DRMS will develop a bid document and manage the bid process. The selected contractor will develop a Safety, Health, and Environment Action Plan and implement the BMPS identified in the final design under the close supervision of DRMS, MEMC, USFS, and other project partners.
- Phased approach for construction: Because the site is not fully characterized, the partners have not determined which parts of the construction will be completed in first and second seasons. In preliminary discussions, we have considered completing the grading and drainage channels in year 1 followed by in-situ revegetation and wetland restoration in year 2. Alternatively, the partners have considered completing work on the upper portion of the restoration area in construction first season and the lower portion in the second season. Because the restoration area is at nearly 10,000 feet, the partners recognize that a third season of construction may be needed due to late snowmelt, early snowfall, or other factors.
- Tailored grading and drainage paths to support a mosaic of vegetation: The partners agree that the final treatment plan will target the most degraded areas while protecting existing vegetation and promoting continued natural recruitment of native vegetation (i.e., not all areas will be treated). Because slopes in the restoration area range from approximately 10 to 40 percent, with an average of 30 percent, the topographic survey and grading plan are critical to the success of the restoration project. The final design will minimize slope lengths to reduce or eliminate erosion, may incorporate small terraces which occur naturally on some gossans, and may use woody debris or other small structures to control the grade in drainage channels. The grading plan and vegetation surveys will be used to determine which areas are seeded as upland, mesic, or wetland. The current conceptual design is presented in Figure 2; this design will change as the project design process continues. The long-term benefits of the project greatly outweigh the short-term impacts associated with construction.
- **Native seed collection:** Existing research demonstrates that the vegetation growing on or near the gossan has unique traits. The partners agree that native seed collection and cultivation may help establish vegetation more quickly and has been included as part of the conceptual design.
- **Post-work topographic survey:** As discussed above, eliminating or reducing erosion and runoff is a top priority. Thus, the work plan includes a post-work topographic survey to assure that the grading plan was accomplished as intended. As-built documents will also be created and shared with CDPHE.

4.4 OPERATION, MAINTENANCE, AND MONITORING REQUIREMENTS

Following construction, in late 2025, the Project will enter the operation, maintenance, and monitoring (OMM) phase. The Project will not require operation. Maintenance activities may include re-seeding

following the third growing season, additional soil amendments, weed maintenance, BMP maintenance, or similar activities. The OMM phase will last for a minimum of ten years and includes the following milestones:

- **6 and 12-month warranty inspections:** DRMS, MEMC, and USFS will lead the warranty inspections with the construction contractor. If needed, maintenance work will be scheduled and completed based on the findings of the warranty inspections.
- Develop and implement monitoring and evaluation plan: DRMS, CCWC, and the partners will write the monitoring and evaluation plan in early 2025. CCWC will lead the post-project monitoring effort. The preliminary monitoring plan includes high and low flow water quality sample collection and vegetation and erosion evaluations on an annual basis for the first three years following construction, and in years 5, 7, and 10 post-project. Because of the potential benefits to the municipal water supply, the Town has committed \$25,000 to the post-project monitoring effort. The monitoring and evaluation plan will incorporate data collected during site characterization and the final restoration design will be used to refine the estimated benefits of the project and to establish appropriate criteria to evaluate project outcomes. Based on experience from past projects, we acknowledge that water quality improvements may not occur immediately. Likewise, the project partners do not recommend re-seeding until three years post-project. If needed, additional monitoring may occur in areas with poor vegetation establishment.
- **OMM annual report:** DRMS, MEMC, USFS, and CCWC will collaborate to complete monitoring and prepare the OMM annual reports. As the landowners USFS and MEMC will be responsible for operation and maintenance activities on the lands that they own.

4.5 MONTHLY INVOICES AND STATUS REPORTS

The invoice will document current expenditures, expenditures as a percent of NRDA funds, and brief status updates on the following tasks: finalize project plan, permits and approvals, construction and implementation, operation, maintenance, and monitoring, and grant management. If the NRDA funds are awarded to CCWC, we look forward to feedback regarding the invoice and status report format.

Since 2004, CCWC has successfully completed several contracts with the State of Colorado and we are accustomed to complying with the terms of CDPHE contracts.

4.6 **PROJECT DELIVERABLES**

CCWC will collaborate with project partners to provide the following project deliverables to CDPHE:

- Reports or analyses generated during the project planning process (e.g., NEPA documents).
- Engineered project design. CDPHE staff will be provided an opportunity to comment on the engineered design.
- Construction schedule and regular updates during construction.
- As-built documents (in .pdf format).
- The monitoring and evaluation plan.
- Post-project monitoring data. Post-project monitoring will occur annually for years one through three years and in years five, seven, and ten. Post-project monitoring will include vegetation, erosion, and water quality samples.

- Annual OMM reports.
- Monthly invoices and status reports.

Reporting requirements associated with other funding sources are paid by those funding sources.

Figure 2. Preliminary conceptual design for the Gossan Restoration Project. This design is expected to change prior to construction.



5 PROJECT TIMELINE

The project timeline is presented in Table 2.

Table 2. Anticipated project timeline for the Gossan Restoration Pr	oject.
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Tech	lto m	(how 2022 2023 2024				20)25			2026				2027				20	28		203	0, 203	32, 2035								
lask	item	Leau organization(s)	Q3 (24	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3 Q4
	Prepare grant applications	CCWC, USFS		Т																											
Finalize project plan:	Topographic survey	DRMS																													
2022 and 2023	Soil and sediment sample collection	DRMS																													
2022 810 2025	Vegetation surveys	DRMS, contractor																													
	Finalize conceptual design	DRMS, MEMC, USFS																												\square	
Permits and approvals:	Engineering	DRMS, contractor																												\square	
2023 and 2024	NEPA process	USFS, DRMS																													
2023 810 2024	Local permits	DRMS, Town, County																													
	Bid project and secure contractors	DRMS																													
	Project management	DRMS																													
	Safety, health, environment, action plan	DRMS, MEMC, USFS		Т																											
	Mobilization/demobilization	Contractor																													
	Pre-survey	DRMS, contractor																													
	Access development	Contractor		Т																											
Construction and	Straw wattles	Contractor																													
implementation: 2024	Purchase and haul channel bedding material	Contractor		Т																											
2025 and 2026 if	Purchace and haul rip-rap	Contractor																													
2025 and 2026, If	Construct channels	Contractor		Т																											
needed.	In-situ revegetation	Contractor																													
	Wetland restoration	Contractor																													
	On-site native seed collection	DRMS, CCWC																													
	Native seed nursery	DRMS, CCWC																													
	Excavator work	Contractor		Т																											
	Post-survey	DRMS, contractor																													
	As-built documents	DRMS, contractor																													
	6 and 12-month warranty inspections	DRMS, MEMC, USFS		Т																											
Operation,	Write monitoring and evaluation plan	DRMS, CCWC		Т																											
maintenance, and	Maintenance activities	DRMS, MEMC, USFS																													
monitoring:	Vegetation and erosion evaluations	DRMS, CCWC																											\square		
2024 to 2035	Water quality monitoring	CCWC, MEMC																													
	OMM Annual Report	DRMS, CCWC		1																											
Grant management:	Grant management and reports	CCWC																													
2023 to 2035	Public outreach and communication	CCWC, MEMC, USFS																													

Notes

Grey: tentative or estimated timelines.

Teal: key project milestones and expected completion times.

Yellow: tasks that continue for the duration of the project.

Blue: deliverable due dates for design, construction, and monitoring activities.

6 BUDGET

CCWC and the project partners are requesting \$230,000 (the full amount) from the Upper Gunnison River Basin NRDA fund. The total project budget is currently estimated at \$1,529,563.00 and includes cash and or in-kind contributions from CCWC, DRMS, MEMC, USFS, and Town.

DRMS and CCWC used cost data from recent bids for similar work at the Keystone Mine site to estimate the construction costs; plus, inflation to account for increased fuel, labor, and supply prices. The estimated project costs are presented in the attached Excel spreadsheet in the sheet labeled "Cost Estimate". The cost estimate allocates 82 percent of the funds to construction and implementation (Figure 3). Grant management, which includes \$15,000 for administrative overhead for the first three years of the project, accounts for three percent of the total project cost.



Figure 3. Gossan Restoration Project cost estimate by task.

6.1 FUNDING PLAN

The project funding plan is presented in the attached Excel spreadsheet in the sheet called "Project Funding." To date, the project partners have secured \$897,500.00, or 58 percent, of the total budget in cash and in-kind commitments (Figure 4). The remaining 41 percent of the project budget, which equates to \$632,563.00, will be funded through a combination of NRDA and grant funds. The funding plan is consistent with the letters of support provided in Appendix C.



Figure 4. Summary of funding status and sources for the Gossan Restoration Project.

7 PUBLIC COMMUNICATION STRATEGY

CCWC, DRMS, USFS, and MEMC will lead public outreach and communication. CCWC has convened multiple stakeholder meetings to develop this NRDA application. NRDA funds will not be used for public communication tasks. Other funding sources will be secured to facilitate public communication.

APPENDIX A: OFFEROR DESCRIPTION FOR COAL CREEK WATERSHED COALITION



CCWC will serve as the prime contractor for the NRDA funds and other grants secured to implement the Gossan Restoration Project (Project). CCWC was formed in 2004 to address the community's concerns regarding water quality and the impact of historic mine features on local watersheds. CCWC became a 501(c)(3) non-profit in 2008. The Project is directly related to CCWC's mission "to maintain, restore and enhance the environmental integrity of Crested Butte's local watersheds to ensure those local watersheds and habitats are of the highest possible quality necessary to support wildlife, aquatic life, and human life."

Since 2004, CCWC has completed multiple water quality improvement projects. The Gunsight Processing Area Reclamation Project is the most similar to the proposed Project. CCWC successfully partnered with DRMS, BLM, and the Town to plan, execute, and monitor the benefits of the project.

Summary of The Gunsight Processing Area Reclamation Project

Project Start Date: February 17, 2017	Total Budget: \$464,145.00 (including Match)
Project Completion Date: February 28, 2020	Total Grant Funds from the Colorado Nonpoint
	Source Program: \$161,635.00

Please visit <u>https://www.coalcreek.org/gunsight-reclamation.html</u> to view a beautiful Story Map and video that showcases the Gunsight Processing Area Reclamation Project and CCWC's public education and outreach skills. The final NPS grant report is available upon request.

CCWC has been interested in restoring the gossan since 2011. CCWC retained Alpine Ecological to develop a conceptual restoration design and to complete a five-year study of revegetation techniques at the gossan. This work will inform the final restoration design and is attached for reference.

Coal Creek Watershed Coalition Water Quality Improvement Projects

HIGHLIGHTS FROM 2004 - 2021

Upper Slate River Watershed Plan

A comprehensive plan to address water quality issues. The plan was developed from existing information and stakeholder input.

Redwell Basin Drill Hole Closure

The Colorado Division of Mining, Reclamation and Safety closed the drill hole in 2014. CCWC collected the data to demonstrate that the closure was effective and improved water quality.

Standard Mine

Superfund Site Since 2004 CCWC has provided local expertise and community input during the EPA-led cleanup. CCWC continues to monitor Elk Creek to assess the benefits on the project.

Backcountry Toilets

CCWC initiated a community-wide effort to install portable and permanent toilets, including the permanent toilets at Musicians' Camp and in Washington Gulch.

Gunsight Processing Area Reclamation

CCWC and partners characterized contaminants, funded construction, and continue to monitor the site to prevent cadmium, copper, lead, and zinc from entering local waterways.

Mt. Crested Butte

McCormick Ditch Restoration Project

In 2013, CCWC and partners initiated a project to improve and restore the McCormick Ditch headgate on Coal Creek. The newly designed structure benefits the community of Crested Butte and the environmental integrity of Coal Creek.

Crested Butte

Mt. Emmons Gossan

A natural feature that was disturbed by a fire, caused by welders at the Keystone Mine in the late 1970s. The gossan is one of the largest metal sources in the Coal Creek Watershed. By reestablishing vegetation, controlling erosion, and improving drainage pathways, the project aims to reduce metals mobilization from the gossan into Coal Creek.

Long Term Water Quality Monitoring CCWC collects water quality samples to assess changes in water quality and assure that aquatic life is protected. We sample 10-25 locations per event at least five times per year.

www.coalcreek.ora

Hazardous Materials and Waste Management Division Upper Gunnison River Basin, Natural Resource Damages Solicitation for Project Proposals

Offeror Registration Form

All potential Offerors that may be interested in submitting proposals under this request must complete and return this registration form. This will enable the CDPHE to contact all potential Offerors in the event of changes to the SPP, clarification or extension.

Offeror Organization Coal Creek Watershed Coalition

Type of Organization, Status, Registrations (i.e. non-profit, government or

private entity) Non-profit

Name of Official Representative Ashley Bembenek

Address P.O. Box 925 Crested Butte, CO 81224

Phone number_970-251-0029

Fax number<u>Not applicable</u>

Email address abembenek@yahoo.com

Please return this form by email to:

Ross Davis

Upper Gunnison River Basin NRDA Project Manager Colorado Department of Public Health and Environment Hazardous Materials and Waste Management Division ross.davis@state.co.us

If you have technical limitations and cannot provide this document via email, please call Ross Davis at 720-355-4488 to make alternate arrangements.

This form must be received by January 1, 2022

COLORADO DEPARTMENT OF REVENUE

CERTIFICATE OF EXEMPTION FOR COLORADO STATE SALES/USE TAX ONLY DENVER CO 80261-0013

THE HOENEE IS	USE ACCOUNT NUMBER for all references	LIABILITY	INFORMATION	ISSUE DATE
NOT TRANSFERABLE	98-20103-0000	40 027	N 050109	MAY 26 2009

221 N TELLER ST

GUNNISON CO

COAL CREEK WATERSHED COALITION PO BOX 762 GUNNISON CO 81230

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Executive Director Department of Revenue

NEW AUTOMATED SERVICES FOR AND ABOUT BUSINESSES

The Colorado Department of Revenue Sales Tax Information System provides the following automated services:

- Colorado Sales Tax Rates find specific city, county and special district rates.
- * Verification of Sales Tax License Exemption Numbers determine whether a Colorado sales tax license or exemption certificate is valid.
- * Tax Rates by Account Number find sales tax rates and locations for specific sales tax accounts.

These services make it possible for taxpayers to help themselves to information 24 hours a day - without requiring the assistance of a customer service representative. In this way, more complicated or confidential tax information inquiries can be reserved for speaking to a live agent.

Listen and look for these services on the department's business tax information phone line at 303-238-FAST (3278) for specific account information, 303-238-SERV (7378) for general information or the DOR Web site at www.taxcolorado.com

Web users can try the new system online at www.taxview.state.co.us We are interested in your comments about the system. You can send us an e-mail with your comments through our Department of Revenue Web site.

Memo



To: Anthony Poponi, Coal Creek Watershed Coalition
From: Andy Herb, AlpineEco
CC:
Date: November 28, 2011
Re: Mt. Emmons Gossan Metals Removal Concepts

This memo provides a brief summary of the information I presented at the October 21, 2011 Coal Creek Watershed Technical Committee Meeting, including somewhat more detailed information for one potential restoration concept for the Mt. Emmons Gossan area (**Figure 1**).

Background

At the request of the Coal Creek Watershed Coalition (CCWC), I conducted a one-day site visit on October 18, 2011 to investigate the runoff from a portion of the Mt. Emmons gossan and assess the area downgradient of the gossan for wetland restoration, enhancement, and/or creation opportunities. The purpose of the site visit was to identify opportunities that, if implemented, may reduce metal loading to Coal Creek. Given the extent of mostly highly functional wetlands in the study area, the number of suitable sites is somewhat limited.

Although I am familiar with the gossan and adjacent habitats from previous work in the area, the limited amount of time spent in the field for this work and the timing of the field visit prevent the development of detailed concepts. Instead, I have provided very conceptual ideas of how different sites could be used to reduce metals loading. My presentation at the meeting and this memo are intended to stimulate conversation among the stakeholders in order to further explore potential options. **Figure 2** shows the limits of the study area, approximate wetland areas, and other information relevant to this memo. Photos are included in **Attachment A**.

During the October 2011 Coal Creek Watershed Technical Committee meeting I presented the following potential concepts to reduce metal loading from the gossan:

- 1. Gossan area—restore uplands (seeding, planting, soil amendments, etc) and install erosion control to reduce sediment/metal transport; restore wetlands by creating one or more wetland "pools" at the base of the gossan area to detain runoff
- 2. Adit wetland area—enlarge existing wetlands by lowering adjacent uplands approximately 1 to 10 inches (**Photo 1**) and/or by adjusting the elevation of outlets so that excess surface flows from the adit wetland are further detained and directed into the new wetland areas instead of spilling over the very steep existing earthen embankment.
- 3. Old road area—enhance and create wetlands by directing and detaining excess surface flows currently exiting the wetlands on the old road into one or more newly constructed wetland "pools." This would involve the construction of new wetlands, as well as small sections of new channel to

carry the excess flows from these wetlands under County Road (CR) 12 to Coal Creek with a potential new culvert.

4. Coal Creek floodplain—remove area of accumulated sediments in existing wetlands on the Coal Creek floodplain (below existing culvert under CR 12). Restore wetlands with seeding/planting and potentially add a sediment control basin or similar feature along CR 12 to avoid future sedimentation.

Through discussions with CCWC and the US Forest Service, it appears that the gossan area restoration concept may be the most desirable, effective, and implementable opportunity identified. In order to further explore this opportunity, below is a brief summary of the concept.

Gossan Area Restoration Concept

The potential restoration at the gossan area involves two main components: (1) upland restoration and erosion control, and (2) wetland restoration.

Upland Restoration

Upland restoration and erosion control would focus on the steeper slopes of the gossan and would likely consist of seeding, planting, and the construction of multiple small erosion control structures that would detain water and reduce runoff velocity. In order for seeding and planting to be most effective, soil amendments would likely be necessary. Soil sampling is recommended to better understand soil chemistry and to develop a list of appropriate soil amendments.

Erosion control structures would likely be focused on the high-gradient channels that have formed in the gossan. The structures could be log terraces, earthen water bars, or other similar features. The slopes of the gossan contain many logs and young trees that could be used to build or anchor these structures (**Photo 2**).

Wetland Restoration

Wetland restoration at the gossan would be focused at the lower (southern) end of the exposed gossan area (**Figure 2; Photos 3 and 4**). This area has one main channel and outlet, and two smaller channels that create secondary outlets. It already detains some surface flows naturally as a result of its relatively flat topography and likely has some water present year-round. It appears to have once been wetland as evidenced by pockets of relic organic soils, standing water, and patches of hydrophytic vegetation, mainly bluejoint reedgrass (*Calamagrostis canadensis*) and water sedge (*Carex aquatilis*). These wetlands may have been lost during an extreme fire event several decades ago and have not re-established due to erosion, sedimentation, soil chemistry, etc.

The restoration of wetlands would involve raising the current outlets of the three channels that flow through the relatively flat area to detain additional water, doing minor earthwork to maximize wetland development, and planting/seeding to establish the desired plant communities. The outlets would be raised by creating one large or several smaller earthen/log structures. These structures would be constructed from on-site materials (mainly logs, some living trees, and soil) and would essentially act as dams (similar to beaver dams) to detain additional water and create the desired hydrologic conditions in the wetland restoration area. Several of these structures exist naturally in adjacent areas and would be used as reference sites for the restoration design.



Since this area already has relatively flat topography, only minor earthwork would be required to maximize the wetland restoration area. There may be some cutting and filling of the site, but no soil would be imported or removed. Earth moving equipment would also be used to manipulate large woody debris and/or live trees. Implementation of this concept would <u>not</u> result in changes to the outlet locations.

Planting and seeding would involve the installation of native plant materials adapted to the Crested Butte area. Common wetland plants in this area that would likely be used for restoration of this site include water sedge, bluejoint reedgrass, beaked sedge (*Carex utriculata*), tufted hairgrass (*Deschampsia caespitosa*), Drummond's rush (*Juncus drummondii*), and various species of willow (*Salix* spp.). Ideally, at least some of the plant materials would be collected on-site or nearby. Plants would be placed according to their preferred water regime. Soil amendments may be needed to maximize the effectiveness of plant establishment. Soil sampling is recommended to better understand soil chemistry and to develop a list of appropriate soil amendments.

This is a very raw conceptual design only. If CCWC, in coordination with other stakeholders, determines that this is a viable concept, further data collection and coordination with landowners and stakeholders would be needed to develop a more detailed design. Information to be collected could include soils data; plant inventory; hydrologic data, including volume, frequency, and duration of surface flows as well as the influence of groundwater; construction access; extent, condition, and composition of nearby existing wetlands (including reference sites); extent of materials available for the construction of the earthen/log structures; topographic survey; etc.

Conclusion

I identified four potential opportunities during an October 18, 2011 site visit that, if implemented, may reduce metal loading to Coal Creek. Of these, the restoration of uplands and wetlands at the gossan area appears to be the most desirable, effective, and implementable. This concept involves seeding/planting and the installation of erosion control on the steeper slopes of the gossan, combined with the restoration of wetlands at the base of the exposed gossan slopes. Wetland restoration would be accomplished by raising the existing outlets of the channels that flow through the area with one or several earthen/log structures. These structures would be constructed with on-site, natural materials and would serve to detain additional water which would allow for the establishment of the desired wetland plant communities.

If this opportunity is determined to be viable, further data collection and coordination with landowners and stakeholders would be needed to develop a more detailed design.







Area of Sedimentation (remove and restore)

Potential New Outlet Channel

r Pass Ro (CR 12)

Mount Emmons

Figure 2 Gossan Metals Removal Concepts

11/27/2011

Attachment A Site Photographs





Photo 1 - Upland area adjacent to adit wetland that could be lowered to create more wetlands.



Photo 2 — Steep slopes of gossan; notice numerous young lodgepole pine and large woody debris that could be used to aid erosion control efforts

Attachment A Site Photographs





Photo 3 - 1 Lower gossan area where the topography is relatively flat and wetlands could be restored; notice pockets of hydrophytic vegetation near the middle of the photo.



Photo 4 — Lower gossan area; notice main channel flowing through center of photo.



Memo

To:Zach Vaughter, Coal Creek Watershed CoalitionFrom:Andy Herb, AlpineEco

CC:

Date: March 29, 2018

Re: Mt. Emmons Gossan Revegetation Test Plot Monitoring Results for 2016 and 2017

This memo provides a summary of the Year Four (2016) and Five (2017) revegetation test plot monitoring of the Mt. Emmons Gossan near Crested Butte, Colorado (**Figure 1**).

1.0 Background

A total of six blocks of four test plots each (24 test plots total) were established on the gossan on October 1 and 2, 2012. Based on a literature review and other research, three main soil amendments were selected for use in the test plots, including biosolids (B), manure (M), and biochar (C). Two combinations of the amendments were also used, including biochar/biosolids (CB) and biochar/manure (CM). Control plots (CT) were also created. Lime was used with all amendments and amendment combinations. **Table 1** shows how each block was treated.

Plot	ID	Treatments
Block 1	СМ	Biochar/manure
Plot 1	CM-1	Biochar/manure/seed
Plot 2	CM-2	Biochar/manure/seed/straw/tackifier
Plot 3	CM-3	Biochar/manure/seed/straw/tackifier/lime
Plot 4	CM-4	Biochar/manure/seed/straw/tackifier/lime/willows
Block 2	С	Biochar
Plot 1	C-1	Biochar/seed
Plot 2	C-2	Biochar/seed/straw/tackifier
Plot 3	C-3	Biochar/seed/straw/tackifier/lime
Plot 4	C-4	Biochar/seed/straw/tackifier/lime/willows
Block 3	СТ	None (control)
Plot 1	CT-1	Seed
Plot 2	CT-2	Seed/straw/tackifier
Plot 3	CT-3	Seed/straw/tackifier/willows
Plot 4	CT-4	Seed/straw/tackifier/lime
Block 4	CB	Biochar/biosolids
Plot 1	CB-1	Biochar/biosolids/seed
Plot 2	CB-2	Biochar/biosolids/seed/straw/tackifer
Plot 3	CB-3	Biochar/biosolids/seed/straw/tackifer/lime

Table 1: Test Plot Treatments

Plot	ID	Treatments
Plot 4	CB-4	Biochar/biosolids/seed/straw/tackifer/lime/willows
Block 5	В	Biosolids
Plot 1	B-1	Biosolids/seed
Plot 2	B-2	Biosolids/seed/straw/tackifer
Plot 3	B-3	Biosolids/seed/straw/tackifer/lime
Plot 4	B-4	Biosolids/seed/straw/tackifer/lime/willows
Block 6	М	Manure
Plot 1	M-1	Manure/seed
Plot 2	M-2	Manure/seed/straw/tackifier
Plot 3	M-3	Manure/seed/straw/tackifier/lime
Plot 4	M-4	Manure/seed/straw/tackifier/lime/willows

The plot dimensions are 3.3 feet (1 meter) by 9.8 feet (3 meters) and all are oriented with the long axis parallel to the slope, which is generally north-south. The plots in each block are numbered from 1 to 4 (from west to east) and separated by 2 feet to avoid cross contamination (**Figure 2**). The locations of the blocks were selected to be representative of the greater gossan area and were mainly based on slope, aspect, and lack of vegetation. The treatments assigned to the blocks were randomly chosen.



Figure 2: Typical Block Layout

The plots were prepped before treatments by removing any woody debris greater than 2 inches in diameter and loosening the soil with hand rakes. All plot corners were marked with wooden stakes driven into the ground. If the treatment included a combination of soil amendments (biochar, biosolids, manure, and lime), they were combined in wheelbarrows prior to applying to ensure good mixing. Once mixed, the amendments were placed on the ground surface in the plot and raked-in by hand. All seed was hand-broadcast and lightly raked. Straw mulch was hand-placed and tackifer was applied using a garden sprayer. Willows were soaked in water for two weeks prior to planting and pushed into the ground by hand a minimum of 12 inches.



All treatments were installed using only hand tools since whatever remedy is chosen for the larger gossan area will only be implementable with hand tools. No equipment access is possible due to lack of roads, steep slopes, and adjacent private land.

The quantities of amendments applied to the test plots are listed in **Table 2** and the seed mix used is shown in **Table 3**.

Amendment ¹	Quantity per Acre ²	Quantity per Plot	Source
Biochar	115 cy	0.1 cy	Biochar Solutions
Manure	4,400 lb	3.3 lb	Lacy Construction
Biosolids	270 су	0.2 cy	Gunnison Water Treatment Plant
Seed	23.3 lb	0.02 lb	Western Native Seed Company
Straw	2,000 lb	1.48 lb	Rocky Mountain Trees
Tackifier	40 lb	0.03 lb	Bowman Construction Supply
Lime	30,000 lb	22.2 lb	Colorado Lime Company
Willows	13,500	10	Harvested along Coal Creek

Table 2: Treatment Application Rates

¹Biochar: greater than 80 percent fixed carbon

Manure: exclusively from horses (acquired locally)

Biosolids: biosolids mixed with wood chips (acquired locally)

Seed: native species known to occur in the Gunnison Valley only; 0.02 lb was equivalent to approximately a heaping ¼ cup Straw: certified Colorado weed-free

Tackifier: "Startak 100" from "Chemstar"; 100 percent modified corn starch; approximately 1 cup per 1 gallon of water Lime: pulverized limestone with a calcium content between 33 and 40 percent

Willows: 2 foot-long cuttings collected along Coal Creek near the confluence with the Slate River

 2 cy = cubic yards; lb = pounds

Common Name	Scientific Name	Pounds per Acre
Common yarrow	Achillea millefolium	0.3
Fringed brome	Bromus ciliatus	8.0
Bluejoint	Calamagrostis canadensis	0.2
Clustered field sedge	Carex praegracilis	0.4
Tufted hairgrass	Deschampsia cespitosa	0.4
Blue wildrye	Elymus glaucus	5.0
Slender wheatgrass	Elymus trachycaulus	6.0
Rocky Mountain fescue	Festuca saximontana	1.5
Thurber's fescue	Festuca thurberi	1.5
	Total	23.3

Table 3: Seed Mix¹

¹Nomenclature from *PLANTS Database* (USDA, NRCS 2018)



2.0 Monitoring Methods

All the test plots were visited on August 27, 2016 and August 24, 2017 to assess vegetation cover. Each 1 by 3 meter plot in the six blocks (24 total) was assessed using three randomly placed 20 by 50 centimeter (cm) Daubenmire frames or "quadrats." The location of the sampling quadrats was determined by dividing each plot into 12 equal 20 by 50 cm potential quadrat locations centered on the long-axis of the plots, randomly choosing three numbers between 1 and 12, and placing the frame in the corresponding location in the plot. **Figure 3** shows the layout of a typical plot and the location of the 12 quadrat options. The potential quadrat locations were centered on the long-axis of the plots since the actual width of the plots varied slightly and many of the outer edge quadrat locations would not have been entirely within the plot treatment area. The random numbers chosen for the quadrat placement were 3, 8, and 9, and all plots in all blocks were assessed using these locations.

Graminoid (grasses and grass-likes), forb, and woody cover was recorded for each of the three quadrats in each plot. For the purposes of this project, "cover" is foliar cover which is the percentage of ground covered by a downward projection of the aerial portion of plant foliage, excluding small openings in the canopy (BLM 1999). It can exceed 100 percent if there are multiple layers of vegetation present. Foliar cover was estimated in each quadrat using the six cover classes listed in **Table 4**. All cover calculations were performed using the midpoint of each cover class range.

Cover Class	Range of Coverage (%)	Midpoint of Range (%)
1	0-5	2.5
2	6-25	15.0
3	26-50	37.5
4	51-75	62.5
5	76-95	85.0
6	96-100	97.5

Table 4: Cover Classes¹

¹Adapted from BLM (1999)





Figure 3: Daubenmire Frame (Quadrat) Layout for Vegetation Cover Assessment



3.0 Results

The results of the Year Four (2016) and Year Five (2017) monitoring are presented in **Tables 5 and 6**, respectively. The 2016 results are provided for reference but since the long-term trend of vegetation cover is most relevant, only the 2017 results are summarized below.

Overall for 2017, Block 2 (biochar) had the most vegetation cover at 26.5 percent, with graminoids comprising most of the cover (23.1 percent). Block 5 (biosolids) and Block 1 (biochar/manure) were very close for second and third with 24.2 and 22.1 percent cover, respectively. Block 6 (manure) and Block 4 (biochar/biosolids) were also close for fourth and fifth with 14.8 and 12.1 percent cover, respectively. Block 3 (control plots with no amendments) had no vegetation cover. The three blocks with the most cover (2, 5, and 1) are briefly discussed below.

- <u>Block 2 (biochar)</u>: Plots 1 and 2 had no vegetation cover (same as the previous 4 years) and were
 not treated with lime. Plots 3 and 4 were treated with lime and had cover of 45.0 and 60.8 percent,
 respectively. The total cover of the block is 26.5 percent, which is 1.5 percent more than 2016. The
 composition of the cover is similar to 2016 with a slight increase in both graminoid and forb cover.
 None of the 10 originally planted willows survived.
- <u>Block 5 (biosolids)</u>: Plots 2, 3, and 4 had the highest vegetation cover (36.7, 25.0, and 35.0 percent, respectively) and Plot 1 had no vegetation cover. Plot 2 had the highest cover at 36.7 percent and this is the only plot in the study to maintain vegetative cover without lime. Total cover of the block is 24.2 percent, an increase from 16.0 percent in 2016. None of the 10 originally planted willows survived.
- <u>Block 1 (biochar/manure)</u>: Cover was only present in Plots 3 and 4 (52.5 and 35.8 percent, respectively) which were the plots treated with lime. The total vegetation cover in this block is 22.1 percent which is approximately 8 percent less than in 2016. The losses were in the graminoid cover, as forb cover remained the same. None of the 10 originally planted willows survived.



		Quadrat 3		Quadrat 8		Quadrat 9		Total Cover		
Block	Plot	Graminoid Cover (%)	Forb Cover (%)	Graminoid Cover (%)	Forb Cover (%)	Graminoid Cover (%)	Forb Cover (%)	Graminoid Cover (%)	Forb Cover (%)	Total Cover (%)
Block 1: Biochar/Manure (CM)										
1	1	0	0	0	0	0	0	0	0	0.0
1	2	0	0	0	0	0	0	0	0	0.0
1	3	37.5	37.5	37.5	15	37.5	15	37.5	22.5	60.0
1	4	62.5	0	37.5	2.5	62.5	15	54.2	5.8	60.0
					Total %	Cover =	22.9	7.1	30.0	
Block	2: Bioc	har (C)								
2	1	0	0	0	0	0	0	0	0	0.0
2	2	0	0	0	0	0	0	0	0	0.0
2	3	62.5	2.5	37.5	0	2.5	15	34.2	5.8	40.0
2	4	37.5	15	62.5	2.5	62.5	0	54.2	5.8	60.0
						Total %	Cover =	22.1	2.9	25.0
Block	3: Con	trol (CT)		1				1		
3	1	0	0	0	0	0	0	0	0	0.0
3	2	0	0	0	0	0	0	0	0	0.0
3	3	0	0	0	0	0	0	0	0	0.0
3	4	0	0	0	0	0	0	0	0	0.0
					Total %	Cover =	0	0	0	
Block 4	4: Bioc	har/Biosolid	s (CB)	1		1		1		
4	1	0	0	0	0	0	0	0	0	0.0
4	2	0	0	0	0	0	0	0	0	0.0
4	3	37.5	0	37.5	0	15	0	30.0	0.0	30.0
4	4	62.5	0	62.5	0	15	15	46.7	5.0	51.7
					Total %	Cover =	19.2	1.3	20.4	
Block	5: Bios	olids (B)	1	1		1	1	l		
5	1	0	0	0	0	0	0	0	0	0.0
5	2	0	0	0	0	0	0	0.0	0.0	0.0
5	3	0	0	37.5	0	15	0	17.5	0.0	17.5
5	4	62.5	2.5	37.5	0	37.5	0	45.8	0.8	46.7
					Total %	Cover =	15.8	0.2	16.0	
Block	6: Man	ure (M)								
6	1	0	0	0	0	0	0	0	0	0.0
6	2	0	0	0	0	0	0	0	0	0.0
6	3	62.5	0	62.5	2.5	37.5	0	54.2	0.8	55.0
6	4	37.5	2.5	37.5	0	15	0	30.0	0.8	30.8
						Total %	Cover =	21.0	0.4	21.5

Table 5: Year Four (2016) Monitoring Results¹

¹Cover numbers for the quadrats are the midpoints of the cover classes recorded in the field. See **Table 4** for cover classes and midpoints. Since the only woody cover in the blocks was present prior to initiating the study, woody cover results are not included.


		Quadrat 3		Quadrat 8		Quadrat 9		Total Cover		
Block	Plot	Graminoid Cover (%)	Forb Cover (%)	Graminoid Cover (%)	Forb Cover (%)	Graminoid Cover (%)	Forb Cover (%)	Graminoid Cover (%)	Forb Cover (%)	Total Cover (%)
Block 1: Biochar/Manure (CM)										
1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	3	15.0	15.0	37.5	15.0	37.5	37.5	30.0	22.5	52.5
1	4	37.5	0.0	37.5	2.5	15.0	15.0	30.0	5.8	35.8
						Total %	6 Cover =	15.0	7.1	22.1
BIOCK 2		ar (C)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2	0.0	0.0	0.0	0.0	0.0	15.0	0.0	0.0	0.0
2	2	02.5	2.5	37.5 62.5	2.5	15.0	15.0	50.5	6.7	45.0
	4	57.5	15.0	02.5	2.5		2.5	34.2	0./	00.0
Block 3	: Cont	rol (CT)			Total 9	o cover =	23.1	3.3	20.5	
3	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
						Total %	6 Cover =	0.0	0.0	0.0
Block 4	: Bioch	nar/Biosolids	(CB)							
4	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	3	15.0	0.0	15.0	2.5	0.0	2.5	10.0	1.7	11.7
4	4	37.5	2.5	15.0	2.5	37.5	15.0	30.0	6.7	36.7
Plack El Piacolida (P)						Total %	6 Cover =	10.0	2.1	12.1
5	1		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	2	37.5	2.5	37.5	15	2.5	15	25.8	10.8	36.7
5	3	0.0	0.0	37.5	0.0	37.5	0.0	25.0	0.0	25.0
5	4	37.5	2.5	2.5	0.0	62.5	0.0	34.2	0.8	35.0
				1		Total %	∕₀ Cover =	21.3	2.9	24.2
Block 6: Manure (M)								_		
6	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	3	37.5	2.5	37.5	2.5	2.5	0.0	25.8	1.7	27.5
6	4	62.5	2.5	15.0	0.0	15.0	0.0	30.8	0.8	31.7
						Total %	6 Cover =	14.2	0.6	14.8

Table 6: Year Five (2017) Monitoring Results¹

¹Cover numbers for the quadrats are the midpoints of the cover classes recorded in the field. See **Table 4** for cover classes and midpoints. Since the only woody cover in the blocks was present prior to initiating the study, woody cover results are not included.



The five-year trends for the best performing blocks (Blocks 2, 5, and 1) show relative stability in vegetation cover. This suggests that the effect of adding amendments are still present after five years. Below are graphs of the blocks, with photos of the highest cover plots in each from Year 2 and Year 5.





Although identification to the species level was not done for all plants observed in the plots (since many were very young and difficult to identify quickly in the field), most were identified and are listed in **Table 6**.

Common Name	Scientific Name			
Common yarrow	Achillea millefolium			
Redtop	Agrostis gigantea			
Fringed brome	Bromus ciliatus			
Clustered field sedge	Carex praegracilis			
Ross' sedge	Carex rossii			
Fireweed	Chamerion angustifolium			
Goosefoot	Chenopodium sp.			
Tufted hairgrass	Deschampsia caespitosa			
Blue wildrye	Elymus glaucus			
Slender wheatgrass	Elymus trachycaulus			
Rocky Mountain fescue	Festuca saximontana			
Foxtail barley	Hordeum jubatum			
Sweet clover	Melilotus officinalis			
Engelmann spruce	Picea englemannii			
Lodgepole pine	Pinus contorta			
Prostrate knotweed	Polygonum aviculare			
Tealeaf willow	Salix planifolia			
Common dandelion	Taraxacum officinale			
White clover	Trifolium repens			
Scentless false mayweed	Tripleurospermum perforatum			

Table 6: Plants Observed in the Plots Since 2013¹

¹Nomenclature from *PLANTS Database* (USDA, NRCS 2018); those plants shown in bold were in the seed mix, planted, or already present in the plots.



4.0 Conclusion

After five years of monitoring (2013 through 2017), the results show that regardless of which of the organic soil amendments were used, the plots treated with lime generally had the highest vegetative cover. Ten of the 11 plots that contained vegetation in 2017 were also treated with lime. The three most vegetated plots in the study were treated with lime in combination with biochar (60.8 and 45.0 percent cover) and biochar/manure (52.5 percent).

Based on the last five years of data, it appears that any of the organic amendments can be used to achieve increased vegetation cover if it is used in combination with lime. Continued monitoring of the plots may help confirm which treatment is most appropriate for use at a larger scale. While the effects of adding lime and other amendments still appear to be present after five years, the effects may be reduced over time and vegetation cover may reduce accordingly.

The selection of the amendment to be used for the larger revegetation effort will likely be based on cost and/or availability which favors the use of biosolids or manure over biochar. However, based on the diversity of volunteer (and mostly non-native) forbs observed in the plots that received the manure treatment, I recommend that manure is dropped from the list of amendments being considered. It is a less desirable amendment since there is no control over importing of unwanted seed.



5.0 Literature Cited

AlpineEco. 2011. *Mt. Emmons Gossan Metal Removal Concepts Memorandum.* Prepared for the Coal Creek Watershed Coalition. November 28.

Bureau of Land Management (BLM). 1999. *Sampling Vegetation Attributes*. Interagency Technical Reference No. 1734-4. Revised.

US Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS). 2018. *PLANTS Database*. https://plants.usda.gov/java/. National Plant Data Team, Greensboro, NC 27401-4901 USA.









Block 1, Plot 1; looking up-gradient



Block 1, Plot 3; looking up-gradient



Block 1, Plot 2; looking up-gradient



Block 1, Plot 4; looking up-gradient





Block 2, Plot 1; looking up-gradient



Block 2, Plot 3; looking up-gradient



Block 2, Plot 2; looking up-gradient



Block 2, Plot 4; looking up-gradient





Block 3, Plot 1; looking up-gradient



Block 3, Plot 3; looking up-gradient



Block 3, Plot 2; looking up-gradient



Block 3, Plot 4; looking up-gradient





Block 4, Plot 1; looking up-gradient



Block 4, Plot 3; looking up-gradient



Block 4, Plot 2; looking up-gradient



Block 4, Plot 4; looking up-gradient





Block 5, Plot 1; looking up-gradient



Block 5, Plot 3; looking up-gradient



Block 5, Plot 2; looking up-gradient



Block 5, Plot 4; looking up-gradient





Block 6, Plot 1; looking up-gradient



Block 6, Plot 3; looking up-gradient



Block 6, Plot 2; looking up-gradient



Block 6, Plot 4; looking up-gradient

APPENDIX B: OFFEROR AGENCIES, PARTNER ORGANIZATIONS, AND INDIVIDUALS

This application and the Gossan Restoration Project (Project) are a collaboration effort between the Coal Creek Watershed Coalition (CCWC), the Colorado Division of Reclamation Mining and Safety (DRMS), the United States Forest Service (USFS), Mt. Emmons Mining Company (MEMC), the Town of Crested Butte (Town), and Gunnison County (County). The roles of each organization and key staff are briefly summarized below. The project schedule identifies the lead organization(s) for each task in the project.

- **CCWC:** The Coal Creek Watershed Coalition, a non-profit watershed group in Crested Butte, Colorado, is responsible for securing and managing grants for the project. CCWC will serve as the prime contractor for NRDA funds. CCWC will assist with site characterization and OMM activities. Ashley Bembenek serves as the Executive Director of CCWC. She is the primary point of contact for this NRDA application and the restoration project. Ashley has over 15 years of water quality and environmental science experience. Allison Del Gizzi, CCWC's lead field technician, will assist with monitoring activities. Allison has five years of relevant professional experience.
- DMRS: The Colorado Division of Reclamation, Mining and Safety is the lead organization for site characterization, project design, and construction management. DRMS will also play a large role in the OMM process. DRMS staff helped develop this application. Tara Tafi, Senior Project Manager, and Mark Mikos, Environmental Protection Specialist are the primary points of contract for DRMS. Collectively, Tara and Mark have over 25 years of project design, implementation, and monitoring experience. As a state agency, DRMS has extensive expertise planning, implementing, and monitoring projects similar to the Project. The project partners are thrilled to benefit from DRMS's expertise.
- USFS: The United States Forest Service owns approximately 43 percent of the restoration area. USFS staff will assist with the NEPA approval process and to US ACE permits, provide technical expertise to support project design, assist with construction oversight and management, and coordinate OMM activities on USFS lands. USFS staff will also assist CCWC with grant applications. Chad Wellman, Project Engineer, Ashley Hom, Acting Partnership Coordinator and Hydrologist, and Dayle Funka, Acting Gunnison District Ranger are the primary points of contact for the USFS.
- **MEMC:** Mt. Emmons Mining Company owns approximately 57 percent of the restoration area. MEMC staff and/or contractors will assist with all components of the restoration project. Dave Gosen, Remediation Projects Manager, is the primary point of contact for MEMC. Dave has over 25 years of experience in mine site management and remediation projects.
- **Town:** The Town is a project beneficiary. The Town has been actively engaged in all project discussions to date. The Town will provide in-kind services to develop and review the watershed permit and will support the post-project monitoring activities. Shea Earley, Public Works Director, is the primary point of contact for the Town. Shea has over 10 years of experience managing large construction projects and maintaining complex water treatment systems. Shea is also the president of CCWC and has extensive knowledge of the Coal Creek Watershed and its water quality issues.
- **County:** The County has been actively engaged in all project discussions to date. The County recognizes that the restoration project may require a permit. Because of their commitment in the 2016 MOU, the County will support the post-project monitoring activities. Matthew Hoyt, County Attorney, is the primary contact for the County. Matt is very familiar with the water quality and environmental issues unique to the Coal Creek Watershed.

In 2016, MEMC, the Town, County, and DRMS signed a Memorandum of Understanding (MOU, see Appendix B). Among other things, the MOU documents the parties' mutual support to ensuring compliance with all applicable environmental laws and regulations, find and implement technical solutions to environmental issues at the Keystone Mine Site, and pursue disposition of the mining and milling site claims and fee simple lands in a mutually beneficial way. CCWC provides technical expertise to the Town and County on issues related to the MOU. Since 2016, the MOU has been the basis for the parties' collaboration before the Water Quality Control Commission, in annual stakeholder meetings, and to implement several reclamation and revegetation projects at the Keystone Mine site. These projects are documented in annual reports prepared by MEMC; the most recent report, from 2020, is attached. Projects completed by the parties between 2017 and 2021 clearly demonstrate our ability to collaborate successfully.

MEMORANDUM OF UNDERSTANDING FOR MT. EMMONS

Mt. Emmons Project February 12, 2016

This Memorandum of Understanding ("MOU") memorializes the understandings between Mt. Emmons Mining Company ("Mt. Emmons"), a wholly owned subsidiary of Freeport-McMoRan Inc., and the local and state government parties ("Government Parties") listed below (collectively, the "Parties") should Mt. Emmons acquire the Mt. Emmons Mine Site, including the historic Keystone Mine and the existing water treatment plant ("Plant") (collectively, "the Site") from U.S. Energy Corp. ("USE").

The Government Parties the Colorado Department of Public Health and the Environment ("CDPHE"), its Water Quality Control Division ("WQCD") and Air Pollution Control Division ("APCD"), Colorado Department of Natural Resources ("DNR"), its Division of Reclamation Mining and Safety ("DRMS") (collectively, "State Agencies), Gunnison County, Colorado (the "County"), and the Town of Crested Butte, Colorado (the "Town").

The purposes of this MOU are to protect the public health, safety, welfare and the environment, and to serve as a basis for future cooperation and agreement among the Parties on the matters addressed herein.

The Government Parties will assist Mt. Emmons in identifying and supporting cost effective solutions at the Site to ensure on-going protection of public health, safety, welfare and the environment, in exchange for other considerations given in this MOU.

Mt. Emmons has agreed as a goodwill measure to voluntarily pre-fund by escrow or other suitable mechanism the first two years of contactor labor costs at the treatment plant (based on the annual operating budget of approximately \$1 million) following the transition of site ownership to Mt. Emmons. Monthly invoices will be paid from the escrow account or other equivalent.

The Parties intend to mutually work to achieve the following:

- Support Mt. Emmons in acquiring the Site and assist in ensuring compliance with all applicable environmental laws and regulations.
- Find and implement technical solutions to the environmental issues at the site.
- Discuss long-term funding for environmental issues at the Site.
- Transfer any federal, state, and local permits and authorizations from USE to Mt. Emmons as soon as practicable after transfer of the Site.
- Pursue disposition of the mining and mill site claims and fee simple lands in a mutually beneficial way.
- Collaboratively work to develop site-specific water quality standards for Coal Creek that may include monthly technical meetings with interested Parties.
- Continue the current administrative extension of the Colorado Discharge Permit System discharge and stormwater permits until after a final decision is issued by

the Water Quality Control Commission in the June 2017 Gunnison Basin Rulemaking proceeding.

• Work with the federal legislative delegation on any mutually acceptable legislation required to implement long term solutions.

The Parties recognize that this MOU is only a first step in a long-term relationship. The parties commit to working together to achieve further agreements to address the actions listed above in more specificity.

The Parties do not intend this MOU to have any effect on the past, present or future liability of Mt. Emmons or any other related entity, as no such liability has been determined as a matter of law, and none is to be implied by or inferred from this MOU. Rather, Mt. Emmons has been proactively cooperating with the Government Parties to ensure sustained operation of the Plant and appropriate management of ancillary environmental issues described in this MOU. Consequently, this MOU should be read to reflect that the actions of Mt. Emmons are voluntary and not compulsory, and the Parties intend this MOU to facilitate a public-private partnership focused on addressing the issues in the manner described in this MOU.

This MOU is intended as a measure of good faith and fair dealings between the Parties and as a basis for long-term cooperation in furtherance of future agreements. The Parties do not intend this MOU to be, and shall not be, the basis for a non-cooperative legal action or vehicle for enforcement. Further, no person that is not a party to this MOU may rely on any provision of this MOU for any purpose.

Signed (see following pages for signatures):

William Cobb Vice President Mt. Emmons Mining Company

Larry Wolk, MD, MSPH Executive Director and Chief Medical Office Colorado Department of Public Health and Environment

Bob Randall Executive Director Colorado Department of Natural Resources

Glenn Michel Mayor Town of Crested Butte, Colorado

Paula Swenson Chairperson Board of County Commissioners of the County of Gunnison, Colorado

Pages 4-8 are signature pages (see town council packet for signatures).

Mount Emmons Mining Company's Annual Report Plan to Eliminate Temporary Modifications and Resolve Uncertainty for Temporary Modifications on Coal Creek (Upper Gunnison Segment 12, COGUUG12)

In February of 2016, Mt. Emmons Mining Company (MEMC) acquired the Keystone Mine from U.S. Energy, Inc. In the time since acquisition, MEMC has undertaken various actions to further its understanding of surface and subsurface conditions, improve those conditions, and monitor any corresponding effect on the environment. Additional study and site improvements are planned.

In the 2017 Regulation 35 Rulemaking Hearing regarding classifications and standards in the Gunnison River Basin, the Water Quality Control Commission (WQCC) adopted revised seasonal temporary modifications on the mainstem of Coal Creek in Upper Gunnison River sub-basin, Upper Gunnison Segment 12 (COGUUG12). These temporary modifications apply April to June, and expire December 31, 2022:

- Cadmium (acute) = $3.5 \mu g/L$
- Cadmium (chronic) = $2.79 \mu g/L$
- Copper (acute/chronic) = current condition¹
- Zinc (chronic) = $576 \mu g/L$

In support of these revised seasonal temporary modifications, MEMC submitted a *Revised Plan to Eliminate Temporary Modifications and Resolve Uncertainty*² (*Revised Plan*) in the 2017 hearing. The *Revised Plan* provided "a flexible, adaptive framework to conduct actions believed to be effective in achieving desired quality for water from the site," and used an "evaluate – implement – monitor" approach to its work.³ The plan was designed to have an organized process to assessing and reducing potential sources of metals loading to Coal Creek; the sources of metals include tailing decant overflow, waste rock piles, the North Interceptor Ditch, treated effluent from the water treatment plant, and other on-site sources. Based on MEMC's understanding in 2017, it proposed to focus first on tailings and waste rock.

¹ The current condition chronic copper temporary modification was deleted in the 2020 Temporary Modification Hearing due to the Mt. Emmons WTP meeting predicted chronic effluent limits for copper 2016-2020.

² Submitted as MEMC Exhibit 17 (May 17, 2017),

https://drive.google.com/file/d/0B4B0XEVym7wTU2hnYmZWUGdjbkk/view.

³ See id., pg. 1.

An update on MEMC's progress on the various items included in the *Revised Plan* is included below.

1. Plan Item #1: Present through 2018 (extending into 2019) – Investigation: Define surface and subsurface mine features.

Through 2018 and beyond, MEMC proposed to investigate four sub-items under this first investigation item.

a. Volume, chemistry and geotechnical properties of tailings, including: piezometer installation and geotechnical testing (4Q16–3Q17); soil boring and/or monitoring well installation (2Q17–2Q18); and additional study as required).

MEMC investigated the volume, chemistry, and geotechnical properties of the tailings. Wireline piezometer installation and initial geotechnical testing utilizing cone penetrometry was completed in the spring of 2017. Additional soil boring, piezometer installation, and geotechnical sampling and testing was completed in summer of 2017.

Based on the work in 2017 and 2018, additional fieldwork was performed in 2019. This included; geotechnical analysis and test pitting to verify tailing cover material composition and depth; geophysical testing and test pitting along the crest and exterior dam face; and geophysical testing along the toe of the exterior dam face.

MEMC is also continuing to collect water level data in the tailing impoundments for analysis. This data will be used in the determination of additional tailing reclamation measures that will be implemented by MEMC with the objective of both ensuring the continued stability of the closed tailings dams and managing and improving water quality conditions. Based on data collected during the investigations conducted in 2017, 2018 and 2019, additional geotechnical investigations were planned for 2020 but were postponed to 2021 due to the COVID-19 pandemic.

b. Tailing dam and decant line evaluation, including current geotechnical condition determination (1Q17–4Q17); camera survey of decant lines (4Q16–3Q17); and conceptual tailing management option determination (3Q17–4Q18).

MEMC is proactively evaluating options to engineer improvements in the tailing dams, surrounding water management features and the potential closure of decant structures in the Mt. Emmons TSFs. This evaluation consists of site inspections, hydraulic,

hydrologic, geotechnical and structural analysis of the dams and surrounding areas and modeling of responses to various storm and seismic events.

MEMC completed an initial tailing dam analysis in 2018. MEMC attempted a camera survey in 2018, which indicated that the decant lines are obstructed with scale and sediment prohibiting inspection. Due to the age and condition of decant piping, no cleaning was planned at that time. Subsequent storm related flow events have dislodged sediment and further cleaning and inspection will be considered in 2021.

An essential component of the process to eliminate the tailings impoundment decant overflow during early spring runoff, measured at MON-07, is determination of criteria to govern an improved closure design for tailings storage facilities (TSFs). While the tailing impoundments have been reclaimed and buttressed, as noted above, MEMC is evaluating opportunities to enhance the cover to support long-term stability of the tailing impoundments and effective management of storm water volume and quality.

MEMC also evaluated opportunities to make interim improvements to storm water management until long-term storm water modifications are developed and implemented. These interim efforts include monitoring and management of seepage water, updating maintenance procedures to maximize existing stormwater capacity (where possible), and potential regrading of tailings covers to improve surface drainage and prevent ponding of snowmelt and surface water near the dams. In 2020, improvements were made to more safely convey snowmelt and stormwater off the dam surfaces in the event the decant structures reach their capacity. These improvements are intended to prevent scouring and erosion on the exterior dam face. Additional stormwater conveyance improvements are contemplated for 2021, including improvements immediately upslope from Dam 1, and surface recontouring on Dams 2, 3, and 4.

In conclusion, MEMC will need to continue evaluating conceptual and detailed water options for improvements to water quality from the tailings through 2021 and beyond.

c. Volume and chemistry of waste rock piles, including: sample waste rock (4Q16–3Q17); additional sampling as required (2017–2018); aerial survey/topographic mapping (4Q16); and conceptual waste rock option determination (3Q17–3Q18).

MEMC has completed this sub-item under the *Revised Plan* in coordination with the Colorado Department of Natural Resources, Division of Reclamation, Mining and

Safety (DRMS) and Colorado Trout Unlimited (TU). DRMS completed waste rock sampling and testing in 2017. TU completed aerial survey and topographic mapping in 2018. Along with DRMS and TU, MEMC developed plans to reclaim waste rock areas at the 1370 and 1670 levels. DRMS and TU completed reclamation of approximately 2.1 acres in the 1370 and 1670 level areas in the fourth quarter 2018. Revegetation of these reclaimed waste rock piles was completed in October 2018. Routine inspection and maintenance will continue for the next 3 to 5 years until robust vegetation is established.

In the second quarter of 2019 MEMC conducted sampling of waste rock piles at the 2000 and 2160 Level portals for Acid-Base Potential, metals, and general chemistry to support future revegetation efforts. Revegetation efforts completed in these areas in 2019 included regrading and revegetation of the slope area between 2000 Level and 2160 Level, the closing of an ore drop and stormwater channel improvements. Additional regrading, revegetation and stormwater channel improvement work between the 2160 Level portal and Dam 1 was completed in 2020. Details of the 2018, 2019 and 2020 waste rock reclamation work are provided below.

2018 Waste Rock reclamation work 1670 Level by DRMS/Trout Unlimited

In 2018, DRMS and Trout Unlimited completed reclamation work on the 1670 Level waste rock consisting of: 512 total feet of riprap channel (2 channels) with a drainage fan at the terminus of each; 0.6 acres of mine waste grading; 0.8 acres of revegetation; 297 linear feet of access road that was established and reclaimed; installation of 1050 linear feet of wattles; and approximately 2,500 CY of waste hauled to 1370 Level area for consolidation.

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1670 Level Waste Rock Before Reclamation



1670 Level Waste Rock After Reclamation

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1670 Level Waste Rock Reclamation in 2020

2018 Waste Rock reclamation work 1370 Level by DRMS/Trout Unlimited

In 2018, DRMS and Trout Unlimited completed reclamation work on the 1370 Level waste rock consisting of: installation of 932 total feet of channel (2 channels) with a drainage fan at the terminus of each and road crossings where the mine road crosses channels at the top; installation of 13 total drop structures on center channel to break up and attenuate flows; installation of 2,200 linear feet of wattles; grading and revegetation of 1.5 acres of mine waste; excavation and on-site consolidation of approximately 8,000 CY of waste rock; established and reclaimed 1,139 linear feet of access road.

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1370 Level Waste Rock Before Reclamation



1370 Level Waste Rock After Reclamation

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1370 Level Waste Rock Reclamation in 2020

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2019 Reclamation Work by DRMS/Trout Unlimited 2160 Ditch and Road Improvements Slope Improvements



In 2019 DRMS and Trout Unlimited completed the following: installed 950 linear feet of riprap channels with 50 tons of 2 inch minus limestone and a drainage fan in the 2160 Level area; grading of 0.65 acres of waste rock with limestone, amendment and revegetation near the 2000 Level portal; grading and installation of four water bars on the Standard Mine road; construction of an extension to the 1370 Level channel from 2018; repair of the previously closed ore drop with 10 foot thick PUF (polyurethane foam) and monolithic plug (1920 Level).

In the third quarter of 2020, DRMS and Trout Unlimited completed a portion of the U.S. Forest Service approved Plan of Operations to regrade and revegetate waste rock below the 2160 level access road, in the immediate vicinity of KS-12 and KS-15. Grading and revegetation along this slope contoured seep and surface flows into a reclaimed ditch

that routed surface water into an existing ditch network completed as part of the 2019 reclamation work. The Dam 1 access road in this area was reclaimed following completion of the slope regrading and revegetation. In addition, the 1920 Level portal was closed with concrete block and recontoured to reduce surface runoff entry to the underground workings. Revegetation work below the tailings dams is to be completed in 2021.

2020/21 Reclamation Work by DRMS/Trout Unlimited 2160 Level Waste Rock Regrading and Revegetation 1920 Level Portal Closure Interim Stormwater Controls



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Waste Rock Below 2000 Level Before 2020 Reclamation (with Ore Pass)

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Waste Rock Below 2000 Level After 2020 Reclamation (with Ore Pass Abandoned)

The results from the Fall 2020 Seep & Springs report (See attached Figure 3 from Geosyntec, January 11, 2021) indicate possible slight measurable improvement in late 2019 and 2020 low-flow NID water quality, monitored monthly at MON-06, as a result of waste rock reclamation work in 2018 (1370 and 1670 Levels) and 2019 (plugging the ore drop above 2160 Level portal, revegetation between the 2000 Level and 2160 Level portals). Further improvements in NID water quality are expected in the coming two years from work completed in late 2019 after the 2019 low flow NID sampling event and from the 1920 Level portal closure in late 2020.

Reclamation work in late 2020 focused on regrading and revegetation of waste rock below the 2160 Level. Several seeps in this area near the western margin of Dam#1 (KS-12 and KS-15 in particular) are expected to be affected by this work. Seep and Spring monitoring in 2021 and 2022 will be used to evaluate impacts to these and other seeps near the tailings impoundments.



Figure 3. Metals Loading at MON-06 April 2013 to September 2020

d. Condition of underground workings, including underground inspection and 2000 Level stope repair (3Q16).

MEMC and contract mine engineers complete inspections and repairs annually. In 2017, personnel performed stope repair in the 2000 Level adit, allowing for inspection of underground workings to the bulkhead located approximately 5,700 feet from the portal. Inspection of bulkhead valve and pipeline to the portal entrance was included in this effort.

In Spring and Summer 2019, MEMC conducted a study of inflows to the 2000 Level in front of the bulkhead in order to assist with evaluations of potential water management options to reduce metals loadings to the water treatment plant. Results of this study were reported in Q4 and identified certain features with the potential to act as a conduit to underground workings. Analysis of the feasibility, efficacy, and timing of actions to reduce this potential is planned in 2021

2. Plan Item # 2: Through 2021 - Assessment of various sources and potential for loading reductions, including availability, practicality, technical and economic evaluation.

Holistic site management involves the evaluation and consideration of related and interconnected actions regarding water management and material management. Water management components generally include water treatment, water diversion, surface water, ground water, and water quality. Material management components involve waste rock, tailings and other surface features. Monitoring of the effects of recent actions on water quality is ongoing.

Certain actions can be discrete from others, for example, waste rock reclamation can be accomplished without affecting tailing or water management issues.

Through 2019, MEMC had proposed to assess various sub-items under this second item. An update on this plan item and its sub-items is included below.

a. Tailings and waste rock (e.g., cover repairs, disposal options, bench and/or pilot studies, timeframes, cost); including: assimilate data from survey, cone penetrometer testing, soil borings and monitoring well installation, gather additional data as required, and assess stability and bearing capacity of tailings dams, conduct additional investigations as necessary; assimilate data from waste rock sampling, surveys and tailings analysis to identify management options and feasibility for waste rock management, conduct additional investigations and testing as necessary; and evaluate options for tailing and waste rock management as necessary.

As previously described, initial geophysical investigation and stability analysis have been completed. As discussed in previous sections, further data collection and analysis as it relates to long-term dam and tailing management continues.

Waste rock reclamation at the 1370 and 1670 levels is complete. Follow-on inspections and maintenance are conducted to ensure the establishment of robust vegetative cover. Waste rock revegetation and stormwater management improvements were completed around the 2000 and 2160 levels in fourth quarter 2019.

Additional waste rock reclamation work was completed below the 2160 Level in 2020 under a Plan of Operations approved by the U.S. Forest Service (MEMC Plan of Operations 2020/2021 Maintenance and Revegetation Project, Feb. 14, 2020).

The effort to evaluate options for long-term tailing management involves several interim steps and decisions that pertain to long-term site management. This interim work includes the evaluation of geotechnical conditions under and surrounding the tailing storage facilities, an evaluation of mine water treatment options, including both active and passive technologies, the evaluation of in-situ, in-mine and external tailing management technologies, combined with precipitation event modeling, and conceptual design of water conveyance structures. This work will continue beyond 2021.

b. Water Treatment Plant (e.g., process improvements, infrastructure upgrade/retrofit, bench and/or pilot studies, future conditions); including: evaluate process and hardware improvements; identify and evaluate solids handling improvements; identify and evaluate cement handling improvements; evaluate alternative treatment technologies for mine water through bench and pilot studies.

Process evaluations and hardware improvement/replacement is an ongoing effort. A solids handling evaluation culminated in the replacement of the "A" filter press in the fourth quarter of 2018. Initial improvements in throughput and solids content have been realized with operational optimization continuing into 2019.

Modification of cement handling/sludge stabilization and mixer cleaning practices has been implemented. Modifications include purchase and training for improved respiratory protection for workers in the close-quarters environment of the mixer, and modifications to air handling equipment during mixer cleaning operations.

An initial technology evaluation of potential active water treatment options was completed in the first quarter of 2018. This was performed to understand available treatment options should the existing aging plant need replacement at some point in the future. Several options were advanced to lab scale bench testing which was completed in the third quarter of 2018. Results of the lab-scale testing lead to on-site pilot testing of high-density sludge treatment (active treatment) and on-site pilot testing of sulfatereducing biological treatment (passive treatment) in the third and fourth quarter of 2019. Data analysis will be conducted in 2020. A continuation of the passive on-site pilot treatment effort was conducted in 2020. The need for additional work into 2021 is being evaluated as MEMC continues its internal evaluation of treatment options. Details of the WTP pilot studies are provided below.

In 2017 MEMC performed an internal desktop review of 24 alternative remediation technologies /strategies including source control, and active and passive water treatment technologies. Laboratory-scale testing was conducted in 2018 to assist in the selection of pilot studies to be implemented on-Site. Two treatment strategies were selected; an active treatment strategy utilizing high density sludge (HDS) technology, and a passive treatment strategy utilizing a 3-stage system (limestone pre-treatment, sulfate-reducing biochemical reactor (SRBR), and post-treatment wetlands). MEMC considered spring and fall in-stream water quality standards, 30-day average preliminary effluent limits, and water quality-based effluent limits. Pilot-scale testing was conducted in the Fall of 2019 and preliminary results of those tests are summarized herein.

Two variations of HDS were tested. The first was single stage to determine the optimal operational pH (10.1, 10.3, and 10.5). Effluent goals were met for copper (Cu), iron (Fe), manganese (Mn), and zinc (Zn) at all 3 pH's. Cadmium (Cd) results were greater than target goals established for the test. A second pilot test was performed using a two-stage HDS system at a pH of 7 followed by a pH of 10.5. The two-stage HDS system achieved all effluent goals established for the test however, Cd results were greater than ideal. The last step included the addition of a chelate (TMT15) which brought Cd concentrations into an acceptable range.

A three-stage passive treatment system was also tested during pilot studies in the fall of 2019. Water quality was evaluated after each stage of the passive system. Limestone pre-treatment reduced total recoverable (TR) iron by three orders of magnitude. The

SRBR removed Cu, Fe, Cd, and Zn effectively, however only Cd achieved treatment target goals. The wetland post-treatment stage was not fully established by the end of 2019 season. Slow startup, long root growth lag-times and freezing pipelines provided a less than optimal evaluation of this technology and compromised the performance, thus resulting in limited analytical data. However, given the limitations encountered, most metals achieved target effluent goals, with the exception of Cu, Fe, and Mn. Additional wetland performance testing was conducted into December 2020 to augment the data gathered in 2019. This effort included extending the growing season with temporary greenhouse shelters and heated delivery lines to prevent freezing, thus allowing for more comprehensive field pilot evaluation of this technology. Data evaluation will continue into 2021.

The 3-stage passive treatment system improved water quality for Cd, however it did not achieve target goals established for all metals. Pilot system performance is expected to improve with during future testing. The 2-stage HDS with chelate addition is the most effective active treatment strategy achieving the lowest metals concentrations. MEMC plans to evaluate source control options and advance both piloted technologies to optimize treatment performance during the summer of 2020. Additional study may be appropriate in 2021.

c. North Interceptor Ditch, including: further investigate loading sources, evaluate natural and anthropogenic loading through modeling, bench, or pilot studies.

MEMC conducted seep and spring sampling events in the second quarter of 2018, 2019, and 2020 as well as additional seep and spring studies in the third quarter of 2019 and 2020. High and low flow seep and spring sampling is scheduled for 2021 and beyond. Two goals of this work are to assess any water quality improvements from the recently completed waste rock reclamation and revegetation work, as well as to build on the body of knowledge acquired during historical seep and spring sampling events conducted by others.

3. Plan Item #3: 2018 to 2021.

Finally, MEMC has been working on the sub-items identified in this third plan item:

a. Development and evaluation of alternatives: assembling technologies into alternatives, including: effects on water quality, community and site operations; cost/benefit analysis to identify feasible pollution control alternatives; and NID surface flow alterations;
In the Fall of 2019 MEMC conducted fault zone mapping above the Keystone Mine workings. An initial evaluation of the likely effects of selective diversion on seasonal water quality and quantity ultimately routed to the WTP was conducted in 2019-2020 and further evaluation is planned for 2021.

During 2019, several potential snowmelt/surface water diversions (mainly to the NID) at elevations above the 1370 Level were identified. These potential diversions are expected to route clean snowmelt runoff away from the vein/fault zone where it would otherwise generate highly metal enriched mine waters that are directed to the WTP. Diversion will potentially improve water quality of mine water influent to the WTP and of seeps/springs entering the NID below the projected diversions. In addition, these diversions into the NID are expected to provide clean snowmelt dilution water to the NID resulting in improved stormwater discharge water quality, according to the Geosyntec Surface Water Diversion Technical Memo (Geosyntec, February 2020). Additional evaluation of potential diversions, their effect on other features at the site and pre-design work is planned in 2021

MEMC will continue to work on developing and evaluating alternatives once other aspects of the plan have been advanced.

b. Comprehensive analysis to identify improved water quality conditions that could result from feasible pollution control alternatives.

MEMC will identify potential improvement in water quality that could result from feasible pollution control alternatives as other aspects of the plan are advanced.

A preliminary evaluation was conducted to determine the impact on segment 12 water quality if the seasonal (April-June) tailings decant overflow, monitored at MON-07, was to be eliminated, as is the ultimate goal of the tailing stabilization work. Using data from 2010-2015 where both flow and water quality data are available for MON-07 and COAL-6.5, chronic concentrations of cadmium and zinc (at Coal-6.5) would be predicted to decrease by 10% to 15% during April-June, and copper would meet table value standards if MON-07 flow was eliminated. Results are similar for 2016-2020 data, although there are fewer data points (N=7). It is also predicted that Coal Creek segment 12 would meet acute table value standards for copper during April-June if the tailings decant overflow were eliminated. The feasibility of directly discharging water from the top of the tailing dams and eliminating the need to treat decant flow remains under study. Waste rock reclamation and surface drainage work conducted in 2020 between the 2160 Level and Dam 1 was a first step in improving decant flow quality. Additional work is planned on and around Dams 1-4 in 2021. Results of these efforts will be monitored, and additional work performed as appropriate.

c. Determine 'highest attainable use'

MEMC will work on determining the highest attainable use once other aspects of the plan have been further developed.

d. Select and implement alternatives, monitor and evaluate effectiveness

MEMC will accomplish this task once other aspects of the plan have been completed.

e. Propose ambient based standards and begin implementation of alternatives, including: propose ambient based standards in 2022 Basin Review Hearing; permitting; construction; post implementation monitoring and reporting; and periodic review to evaluate effectiveness

MEMC will address this task once other aspects of the plan have been completed.

MEMC is committed to the continuation of investigations and evaluations of feasible alternatives for the site; however, uncertainties in field implementation schedules and budgetary constraints caused directly or indirectly by the coronavirus pandemic may result in delays in the timeline for completion of the "Plan".

For the upstream background component of potential site-specific standards development, the 2016-2019 Coal Creek data from the Coal Creek Watershed Coalition combined with all other data from that time period was analyzed. A summary of the upstream (Segment 11) ambient water quality from 2016-2019 for the immediately upstream samples (Coal-9.5 and Coal-11) is included below. It is notable that the upstream background water quality for April-June exceeds the chronic and acute seasonal (April-June) Temporary Modifications for cadmium and zinc, and slightly exceeds the chronic site-specific standard for manganese in Segment 12. In addition, total recoverable aluminum exceeds chronic and acute table value standards for the segments.

	Season	Hardness	Aluminum, Total	Arsenic, Total	Cadmium, Total	Cadmium, Diss	Copper, Diss	Lead, Diss	Manganese, Diss	Zinc, Diss
		mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
50% %	April-June	1	439	1.90	2.4					
85th%	April-June	á.	692	2.7	4.3	3.42	2.25	0.30	194	683
95th%	April-June	£	750	3.0	5.1	4.48	2.72	0.46	215	782
average	April-June	29.7								
COUNT	April-June	18	17	17	18	18	18	18	18	18
			Table	Value Standards	at Hardness of 29.7	or Temporary Mo	difications for Se	egment 12 (Cd	and Zn)	
1	April-June	Chronic	93	0.02		2.79	3.17	0.66	50	576
1	April-June	Acute	649		5.0	3.53	4.28	16.85	1993	760

Coal Creek Segment 11 Seasonal Ambient Water Quality 2016-2019 - Coal-9.5 to Coal-11 only

In addition, historic monthly stormwater monitoring data for COAL-9.5 (just upstream of the WTP discharge) from 2013-2019 was evaluated for an indication of any improvement in upstream water quality generated from work at the Standard Mine (see dissolved zinc graph below). No changes in the seasonal dissolved metal concentration peaks (in mg/L) are visible. It is notable that during the time period evaluated, the Standard mine bulkhead was closed in mid-April 2018 through mid-October 2018 and then 1.25 MG were released when the bulkhead was opened from mid-October through November 2018. The town of Crested Butte released additional water from Lake Irwin during the first portion of the late 2018 Standard Mine bulkhead release to provide dilution.



The timeline of EPA actions at the Standard Mine are pertinent to this component of eventual standards. EPA's timeline for achieving its goal of meeting water quality

standards at the mouth of Elk Creek is uncertain, but appears to extend for at least 3-5 years (i.e., beyond the 2022 Basin Hearing) as it plans 3-5 years of Interim Monitoring prior to any decision on a Phase 2 Remedial Action (installation of passive treatment system) (EPA, March 25, 2019). From 2020 to 2022 the plan for the status of the flow-through bulkhead at the Standard Mine is undefined.

EPA is in an interim monitoring phase where it is assessing the effectiveness of source control work done up at the mine. One of the goals of this period is to determine if EPA can achieve water quality standards without further work. As of Fall 2020 EPA has operated the bulkhead both fully open and fully closed. Based on the Record of Decision, if EPA is unable to achieve water quality standards following source control work, a passive treatment is to be installed at the site to treat the mine discharge. Based on pilot studies conducted at the site, the maximum flow a passive treatment system would be 20 gpm. As a result, for 2021 EPA is planning on limiting discharge from the bulkhead to 20 gpm. The goal of this is to see how the system responds when the maximum flow is limited to 20 gpm and to see if that gets any closer to meeting water quality standards in Elk Creek.

f. Periodic stakeholder meetings

In 2020, two stakeholder meetings were held, on the following dates:

- February 4, 2020 (meeting hosted by CDPHE): At this meeting, the parties discussed work performed to date, the water quality standards process, and the water treatment plant Plan of Operation review by the US Forest Service, as well as mining claim status and financial assurance. CDPHE, the Town of Crested Butte, Gunnison County, Colorado Division of Mine Reclamation and Safety, and MEMC attended the meeting.
- October 28, 2020 (virtual meeting hosted by MEMC): At this meeting MEMC presented an update on work planned and completed for waste rock reclamation at 1360, 1670, 2000 and 2160 levels in the 2018-2020 timeframe and potential work in 2021. Other topics discussed included water quality standards and temporary modification extension issues. MEMC, the Town of Crested Butte, Gunnison County, CDPHE (Standards and Permits), EPA, CPW, USFS, CCWC, HCCA, and DRMS attended the meeting.
 - g. Annual progress reports

This Annual Report covers activities since the submission of the 2019 Annual Report through the present.

h. Participate in 2020 Temporary Modifications Hearing.

MEMC participated in the 2020 Temporary Modification Hearing where MEMC demonstrated that the Temporary Modification values for cadmium and zinc were still appropriate for the April-June time period and that TVS were still maintained during July to March. One change in this Hearing was the deletion of the current condition Temporary Modification for chronic copper, as it was demonstrated that the WTP no longer had a chronic compliance problem with this parameter.

The cooperative long-term monitoring plan has been modified to ensure adequate spatial and temporal sampling for April-June. Going forward with full segment sampling planned for each of those three months as well as third and fourth quarter.

With regard to the 2021 Temporary Modifications Hearing, the Commission has changed the schedules of these hearings to alternate years and no 2021 Temporary Modification Hearing will occur. An annual report for 2021 will still be submitted to the Division. **APPENDIX C: LETTERS OF SUPPORT**



Ross Davis Upper Gunnison River Basin NRDA Project Manager Colorado Department of Public Health and Environment Hazardous Materials and Waste Management Division 4300 Cherry Creek Drive South Denver, CO 80246-1530

Delivered via email to ross.davis@state.co.us

March 28, 2022

Subject: Letter of Support for the Gossan Restoration Project Natural Resource Damages Proposal

Dear Mr. Davis:

On behalf of the Board of County Commissioners of Gunnison County, I am pleased to submit this letter supporting the Coal Creek Watershed Coalition's (CCWC) proposal for the Upper Gunnison River Basin Natural Resource Damages (NRD) Fund for the Gossan Restoration Project. The Mt. Emmons Gossan is located approximately three miles west of Crested Butte and is tributary to Coal Creek which serves as a municipal water supply to the Town of Crested Butte; other down-gradient water systems are affected by water quality conditions in Coal Creek.

Consistent with related Memorandums of Understanding, Gunnison County looks forward to collaborating with Mt. Emmons Mining Company, the United States Forest Service, the Colorado Division of Reclamation Mining and Safety, CCWC, the town of Crested Butte and other stakeholders to reduce metals loading to Coal Creek by restoring the Gossan.¹

This restoration project has the County's full support. We are available to address questions or provide additional information in support of the NRD application. Thank you.

¹ Due to the scale of the restoration project, it probably will require a permit from the County under the County's Land Use Resolution (LUR). Because Gunnison County is a regulatory body with regard to its LUR process, nothing in this correspondence should be construed as promising or indicating a particular result in that process

Sincerely, SW Ul

Roland Mason Gunnison County Commissioner



Ross Davis Upper Gunnsion River Basin NRDA Project Manager Colorado Department of Public Health and Environment Hazardous Materials and Waste Management Division 4300 Cherry Creek Drive South Denver, CO 80246-1530

Delivered via email to ross.davis@state.co.us

March 22, 2022

Subject: Letter of Support for the Gossan Restoration Project Natural Resource Damages Proposal

Dear Mr. Davis:

The Colorado Division of Reclamation Mining and Safety (DRMS) is pleased to submit this letter supporting the Coal Creek Watershed Coalition's (CCWC) proposal for the Upper Gunnison River Basin Natural Resource Damages (NRD) Fund for the Gossan Restoration Project (Project). DRMS has provided technical expertise to CCWC to support this Project since the earliest conversations began in 2011.

In February 2016, the Colorado Department of Natural Resources and DRMS entered into a Memorandum of Understanding (MOU) with Mt. Emmons Mining Company (MEMC), the Colorado Department of Public Health and Environment, Gunnison County, and the Town of Crested Butte. The MOU states the parties mutual support for ensuring compliance with all applicable environmental laws and regulations, to find and implement technical solutions to the environmental issues at the Mt. Emmons Mine Site, and to pursue disposition of the mining and milling site claims and fee simple lands in a mutually beneficial way. Consistent with the MOU, MEMC, DRMS, and Trout Unlimited (TU) have reclaimed waste rock piles, improved ditches and roads to reduce the impacts of stormwater runoff, closed mine portals and collapsed portals, and continue similar work to reduce the impact of historic mine features on the Keystone Mine Site.

The Project compliments the on-going efforts to reduce the environmental and water quality impacts attributed to the Keystone Mine, Standard Mine, and other sources in the Coal Creek Watershed. DRMS has completed or will complete all mine safety closures for historic abandoned mine features near the Gossan.

DRMS staff will provide technical support to further characterize the restoration area, develop the restoration design, supervise construction, and support post-project monitoring and



maintenance. DRMS's in-kind contributions are valued at approximately \$10,000. DRMS plans to provide up to \$25,000 in cash contributions for the Project.

DRMS is excited to collaborate with local stakeholders to restore the Gossan and reduce metals loading to Coal Creek. We are available to address questions or provide additional information in support of the NRD application. Thank you.

Sincerely

Jeff Graves Director, Inactive Mine Reclamation Program

Cc: Ashley Bembenek



Phoenix Corporate Office 333 N. Central Ave. Phoenix, AZ 85004 David Gosen Manager 602.366.7312 dgosen@gmail.com

Ross Davis Upper Gunnsion River Basin NRDA Project Manager Colorado Department of Public Health and Environment Hazardous Materials and Waste Management Division 4300 Cherry Creek Drive South Denver, CO 80246-1530

Delivered via email to ross.davis@state.co.us

March 16, 2022

Subject: Letter of Support for the Gossan Restoration Project Natural Resource Damages Proposal

Dear Mr. Davis:

Mt. Emmons Mining Company (MEMC) is pleased to submit this letter supporting the Coal Creek Watershed Coalition's (CCWC) proposal to the Upper Gunnison River Basin Natural Resource Damages (NRD) Fund to obtain funds to support implementation of the Gossan Restoration Project. The Gossan is located approximately three miles west of Crested Butte near the Mt. Emmons Mine Site (Site) which includes the historic Keystone Mine.

In February 2016, MEMC entered into a Memorandum of Understanding (MOU) with the Colorado Department of Public Health and Environment, Colorado Department of Natural Resources, Gunnison County, and the Town of Crested Butte in connection with MEMC's agreement to acquire the Site. Among other things, the MOU documents the parties' mutual support to ensuring compliance with all applicable environmental laws and regulations, find and implement technical solutions to the environmental issues at the site, and pursue disposition of the mining and milling site claims and fee simple lands in a mutually beneficial way.

Consistent with the MOU, MEMC has characterized surface and subsurface mine features, completed multiple waste rock reclamation projects in partnership with the Colorado Division of Mining, Reclamation and Safety (DRMS) and Trout Unlimited (TU), improved ditches and roads to reduce the impacts of stormwater runoff, closed mine portals and collapsed portals,

and continues similar work to reduce the impact of historic mine features on the Site and local watershed. Currently, MEMC is collaborating with the Crested Butte Land Trust to develop a conservation easement for portions of the Site that MEMC proposes to implement in connection with its proposed land acquisition from the Forest Service. Once the land exchange is complete and the conservation easement is adopted, it will protect the Site's conservation values while allowing for responsible and proactive management by MEMC of the historic Keystone Mine.

Since 2016, MEMC has collaborated with several local, state, and federal stakeholders who have collected data to characterize water quality in the Coal Creek Watershed. The Gossan is a large natural loading source of metals in the Coal Creek Watershed. MEMC is pleased to partner with CCWC, DRMS, and USFS to commit funds to the Gossan Restoration Project, which will restore vegetation and improve drainage patterns on the Gossan in order to reduce metals loading in Coal Creek. We support the conceptual project design developed for the Gossan Restoration Project and the proposed project management team. MEMC has successfully partnered with DRMS to implement several water quality improvement projects at the Site in the recent past.

MEMC owns approximately 10.8 acres of the proposed restoration area which equates to 57 percent of the restoration area. MEMC is committed to funding \$720,000 dollars toward the Gossan Restoration Project, which is approximately 57 percent of the total project cost. MEMC will also provide in-kind support for the project valued at approximately \$25,000 dollars, which includes securing topographic surveys of the restoration area, reviewing and commenting on restoration design by the proposed project team, finalizing conservation easements, and supporting pre- and post-project monitoring activities.

MEMC looks forward to collaborating with local stakeholders to support the implementation of the Gossan Restoration Project in order to reduce metals loading to Coal Creek by restoring the Gossan. We are available to address questions or provide additional information in support of the NRD application. Thank you.

Respectfully,

David P. Gosen, PE Manager, Remediation Projects Mt. Emmons Mining Co.

Email copy;

A. Bembenek, Coal Creek Watershed Coalition abembenek@yahoo.com

T. Taffi, Colorado Division of Reclamation and Mine Safety tara.tafi@state.co.us

A. Hom, US Forest Service, Gunnison Ranger District ashley.hom@usda.gov



Gunnison Ranger District

216 North Colorado Street Gunnison, CO 81230 970-641-0471 Fax: 970-642-4425

 File Code:
 2520

 Date:
 March 29, 2022

Ross Davis Upper Gunnison River Basin NRDA Project Manager Colorado Department of Public Health and Environment Hazardous Materials and Waste Management Division 4300 Cherry Creek Drive South Denver, CO 80246-1530

Dear Mr. Davis:

The USDA Forest Service Grand Mesa, Uncompany and Gunnison National Forests are pleased to submit this letter of support for the Coal Creek Watershed Coalition's (CCWC) proposal for the Upper Gunnison River Basin Natural Resource Damages (NRD) Fund for the Gossan Restoration Project. The Mt. Emmons Gossan is located approximately three miles west of Crested Butte near the Mt. Emmons Mine Site, which includes the historic Keystone Mine.

The USDA Forest Service owns approximately 8.1 acres of the proposed restoration area which equates to 43 percent of the restoration area. We are committed to support the project by providing specialist expertise on design and implementation of the project, overseeing NEPA, submitting necessary preconstruction notification to the US Army Corps of Engineers, assisting in grant writing for additional funding, and partnering with Mt. Emmons Mining Company, the neighboring landowner.

This application is in alignment with our watershed management practices. It will protect and sustain watersheds that provide a high-quality, local source of 1.9 million acre-feet of water consumed by populations in Colorado, the southwestern United States and Mexico while contributing to sustaining the region's ecosystems. This project addresses critical water quality challenges by addressing the metal loading sources in the Coal Creek watershed.

We look forward to collaborating with local stakeholders to reduce metals loading to Coal Creek by restoring the Gossan. We are available to address questions or provide additional information in support of the NRD application.

Thank you for your consideration.

Sincerely,

Digitally signed by DAYLE DAYLE FUNKÁ Date: 2022.03.30 FUNKA 08:17:48 -06'00'

DAYLE FUNKA Acting District Ranger

Enclosure





Town of Crested Butte P.O. Box 39 Crested Butte, Colorado 81224

-A National Historic District-

Ross Davis

Phone: (970) 349-5338 FAX: (970) 349-6626 www.townofcrestedbutte.com

Upper Gunnison River Basin NRDA Project Manager Colorado Department of Public Health and Environment Hazardous Materials and Waste Management Division 4300 Cherry Creek Drive South Denver, CO 80246-1530

Delivered via email to ross.davis@state.co.us

March 21, 2022

Subject: Letter of Support for the Gossan Restoration Project Natural Resource Damages Proposal

Dear Mr. Davis:

The Town of Crested Butte (Town) is pleased to submit this letter supporting the Coal Creek Watershed Coalition's (CCWC) proposal for the Upper Gunnison River Basin Natural Resource Damages (NRD) Fund for the Gossan Restoration Project. The Mt. Emmons Gossan is located approximately three miles west of Crested Butte within the Town's municipal water supply watershed.

The Town looks forward to collaborating with Mt. Emmons Mining Company (MEMC), the United States Forest Service, the Colorado Division of Reclamation Mining and Safety, CCWC, and other stakeholders to reduce metals loading to Coal Creek by restoring the Gossan. Because the Gossan is located on both Forest Service and MEMC property and is located within the Town's Watershed Protection District, a watershed permit may be required. If required, the Town is committed to providing in-kind services to develop and administer a watershed permit. In addition, the Town will also provide cash contributions of \$20,000 per year for the first two years of construction and \$5,000 per year for 5 years of post-project monitoring for a total contribution of \$65,000 over the life of the project.

This restoration project, which protects and improves the Town's water supply, has the Town's full support. We are available to address questions or provide additional information in support of the NRD application. Thank you.

Respectfully,

Ian Billick

Mayor Town of Crested Butte, Colorado

APPENDIX D: DRAFT CONSERVATION EASEMENT

DEED OF CONSERVATION EASEMENT

(Mt. Emmons Mining Properties – Gunnison County, Colorado)

THIS DEED OF CONSERVATION EASEMENT (the "Easement") is made this day of ______, 202__ (the "Effective Date"), by the MT. EMMONS MINING COMPANY, a Delaware Corporation, having its address at 333 North Central Avenue, Phoenix, Arizona 85004 ("Grantor"), in favor of the CRESTED BUTTE LAND TRUST, a Colorado nonprofit corporation, having its address at P.O. Box 2224, Crested Butte, CO 81224 ("Grantee"). Grantor and Grantee are each referred to as a "Party" and collectively as the "Parties". The designations "Grantor" and "Grantee" refer to Grantor and Grantee and their respective successors and assigns. Grantor and Grantee may hereinafter be referred to individually as a "Party" or collectively as the "Parties". The terms "Easement," "Deed," "conservation easement," "Deed of Conservation Easement," and "Deed of Conservation Easement in gross" refer to the immediately vested interest in real property defined by Colorado Revised Statutes §§38-30.5-101 *et seq.*, and this legal document, consisting of the rights and restrictions enumerated herein, by which said Easement is granted.

The following exhibits are attached hereto and are incorporated by reference:

- Exhibit A: Legal Description of Grantor's Property
- Exhibit A-1: Legal Description of Zone 1 and Zone 2
- Exhibit B: Map of Grantor's Property
- Exhibit C: Extinguishment Agreement (See also Section 5a)
- Exhibit D: Management Plan (See also Section 7)

RECITALS:

A. Grantor is the sole owner in fee simple of certain real property, constituting approximately _____ (936?) acres in Gunnison County, Colorado, as more specifically described in **Exhibit A**, attached hereto and incorporated herein by reference ("**Grantor's Property**" or the "Property"). Grantor's Property is comprised of the ______ (651?) acre "**Zone 1**", and the ______ (____) acre "**Zone 2**", both described on the attached <u>Exhibit A-1</u>. The Grantor's Property, is depicted on the attached <u>Exhibit B</u>.

B. Grantor's Property lies within an area containing mineral resources which have been the subject of both historic mining activities and proposals for substantial additional mining development. Extinguishment of the right to mine, subdivide, and develop for residential, commercial and industrial uses (which activities do not include the Remediation Activities, defined below) on the entire Grantor's Property (Zone 1 and Zone 2) is an express purpose of this Easement and is critical to and part of protection of the Conservation Values (defined below) of the Property (Zone 1 and Zone 2) now and forever.

C. The Property generally possesses certain natural wildlife habitat, open space, scenic and recreational values (collectively, "**Conservation Values**") of great importance to Grantor and Grantee, the Town of Crested Butte ("**Town**"), Gunnison County ("**County**"), and the people of the

State of Colorado, which Conservation Values are worthy of protection, and which are described in the Baseline Report, described herein. The Conservation Values of Zone 1 are the Open Space, Wildlife Habitat, and Public Recreation Conservation Values described in these Recitals ("Zone 1 Conservation Values"). Zone 1 is distinctive because of its importance to larger conservation efforts, and its access and adjacency to public lands. For recreational adventures in the natural world, therein offering the opportunity for people of all ages to enjoy and form lasting connections to nature, fostering a culture that values biodiversity and the wild lands necessary to support it, as well as supporting and fostering active recreational opportunities.

D. The Conservation Values of Zone 2 are the Open Space and Wildlife Habitat Conservation Values described in these Recitals ("**Zone 2 Conservation Values**"). Zone 2 is also the primary location of various Remediation Activities which will continue to remediate the adverse environmental impacts of historical mining activities and improve and further enhance the environmental quality of both Zone 1 and Zone 2, and the surrounding area. The Remediation Activities on the Property (Zone 1 and Zone 2) are critical components to the enhancement and preservation of environmental quality in both Zone 1 and Zone 2 and surrounding properties, including the Zone 1 and Zone 2 Conservation Values.

1) The **Open Space Conservation Values** include at least the following:

a) Preservation of the Property as provided herein will provide an important open space, scenic vista and will buffer this area from surrounding growth.

b) The Grantor's Property (Zone 1 and Zone 2), which is an inholding in the Gunnison National Forest, has an elevation range of approximately 9,000 to 12,400 feet above sea level and is located within and includes the peak of Mt. Emmons and an area below the summit.

c) Made up of aspen and coniferous forests, floral understories, clear streams and having views of the surrounding forest and wilderness areas as well as the Elk Mountains, the Collegiate Peaks and the San Juan Mountains, the Property is an ideal representation of Colorado high country.

d) With the exception of historical mining facilities and facilities related to the Remediation Activities, the Property is undeveloped.

e) The Property and the Elk Mountain Range are visible from the Town of Crested Butte, surrounding and nearby Gunnison National Forest land, the Town of Crested Butte, and public roads and lands within the Crested Butte, and has been used by the public for decades and will continue to be with adjacency to the Forest Service property.

f) The Property includes significant wildlife and bird habitat and is in an area which is experiencing an increase in development which has caused a reduction in open and scenic vistas available to the public.

g) Preservation of the Property is consistent with federal, state and local public conservation programs and with conservation efforts underway on adjoining or nearby properties.

h) Development of Grantor's Property (Zone 1 and Zone 2) would contribute to the degradation of the scenic vistas available to the public and to wildlife habitat, resulting in a loss of tourism and commerce to the area.

i) Development and mining will be prohibited on and underlying the surface of Grantor's Property (Zone 1 and Zone 2) in support of preservation of the Open Space Conservation Values of the Property.

j) [Update with information from Baseline Report]

2) The Wildlife Habitat Conservation Values include at least the following:

a) Relatively natural habitat including its forests, meadows, alpine and subalpine environment, watershed, rivers, wetlands, riparian areas or other water resources, and the water quality thereof.

b) Development and mining will be prohibited on and underlying the surface of Grantor's Property (Zone 1 and Zone 2) in support of preservation of the Wildlife Habitat Conservation Values of the Property.

3) The Public Recreation Conservation Values include at least the following:

a) The public is allowed access to Zone 1 free of charge for non-motorized recreational activities as provided herein.

b) Grantor may allow additional public access to Zone 1 provided such access is consistent with preservation of the Conservation Values, and is consistent with the Management Plan.

c) Development and mining will be prohibited on and underlying the surface of Grantor's Property (Zone 1 and Zone 2) in support of preservation of the Public Recreation Conservation Values of Zone 1.

d) Public access will not be allowed on Zone 2.

E. The Parties intend to permanently retire the Grantor's Property (Zone 1 and Zone 2) from development and extractive mining activity, as provided herein, to preserve and protect the Zone 1 and Zone 2 Conservation Values in perpetuity; assure the continuation of ongoing Remediation Activities (defined below); and restrict any other uses of the Property that otherwise would be inconsistent with the purpose of this Easement, except as specifically reserved by the terms of this Easement.

F. **Public Access** is permitted only on Zone 1 as defined and described in Section 6 herein (Public Access).

G. The Parties, Town and County support Grantor's continuation of necessary mined land reclamation, water treatment and water management activities including, without limitation,

bioremediation, construction of surface and subsurface drainage and diversion structures, grading and recontouring, and general reclamation management activities on Grantor's Property in Grantor's sole discretion, subject to and consistent with the applicable Gunnison County Land Use Resolution and the Crested Butte Watershed District Regulations, which activities are consistent with the prohibition on Grantor's use of the Right to Mine or Development Rights (each defined below), and consistent with the Public Access on Zone 1 ("**Remediation Activities**"). As provided in Section 26(d), this Recital, and all Recitals, are incorporated into and are a part of this Easement.

H. The Parties acknowledge and agree that the current land use activities including, without limitation: (a) the use of Zone 1 for Public Access as defined and described herein, and (b) the use of the Property for Grantor's Remediation Activities, do not impair or interfere with the Zone 1 or Zone 2 Conservation Values and are consistent with the Purpose of this Easement.

I. Grantor intends hereby, as owner of the Grantor's Property, to convey to Grantee the right to preserve and protect the Zone 1 and Zone 2 Conservation Values in perpetuity through a perpetual deed of conservation easement in gross. This Easement creates a perpetual conservation easement in gross, as defined by C.R.S. §38-30.5-102 and §38-30.5-103, and of the nature and character described in this Easement.

J. Grantor intends hereby, as owner of the Grantor's Property, to convey to the Town and County certain third-party approvals, benefits and rights of enforcement, as further described in Sections 5(f), 17, 26(g), and 26(l) herein.

K. Zone 1 is subject to the "Management Plan", described in Section 7.

L. Grantee is a charitable organization exempt under Section 501(c)(3) of the federal Internal Revenue Code of 1986, and was created at least two years prior to the receipt of this Easement, and as such is entitled to hold a conservation easement under C.R.S. § 38-30.5-104(2).

M. Grantee agrees by accepting this Easement to honor the intentions of Grantor stated herein and to preserve and protect in perpetuity the Zone 1 and Zone 2 Conservation Values for the benefit of this and future generations.

NOW, THEREFORE, in consideration of the above and the mutual covenants, terms, conditions, and restrictions contained herein, and pursuant to the laws of the State of Colorado, and in particular C.R.S. §§ 38-30.5-101 et seq., Grantor hereby voluntarily grants and conveys to Grantee a conservation easement in gross and in perpetuity of the nature and character and to the extent hereinafter set forth, TO HAVE AND TO HOLD unto Grantee, its successors, and assigns forever.

1. <u>Purpose</u>. The purpose of this Easement is to protect the Zone 1 and Zone 2 Conservation Values now and in perpetuity (including without limitation, extinguishing the right to mine on or under or to develop Grantor' Property); assure the continuation of the Remediation Activities which supports and is consistent with protection of environmental quality, a conservation purpose described in C.R.S. § 38-30.5-102; and protect the Public Access on Zone 1 in perpetuity ("**Purpose**"). This Purpose is in accordance with §170(h) of the Internal Revenue Code of 1986, as amended, and the Treasury Regulations adopted pursuant thereto. To achieve this Purpose, Grantor intends to convey this Deed of Conservation Easement to Grantee to ensure that Grantor's Property (Zone 1 and Zone 2) shall never be mined, to allow public recreation on Zone 1 as described herein, to ensure the Remediation Activities continue on the Property, and to ensure that the Zone 1 and Zone 2 Conservation Values will be preserved and protected forever. Subject to the Purpose of this Easement, Grantor and Grantee intend to permit only uses of Zone 1 which do not substantially diminish or impair the Zone 1 Conservation Values and to prevent any use of Zone 1 that will substantially impair or interfere with protecting the Zone 1 Conservation Values now and in perpetuity. It is the intent of the Parties to assure the Remediation Activities continue and to otherwise preserve the Zone 1 and Zone 2 Conservation Values now and in perpetuity. Notwithstanding the foregoing, nothing in this Easement is intended to compel a specific use of the Property other than to prohibit mining and residential and commercial development on the Property, as provided in Section 5, below, and to preserve and protect Public Access on Zone 1, as provided in Section 6, below.

2. **Baseline Documentation Report.** The Parties acknowledge that a written report has been prepared, reviewed, and approved by both parties as of the date of this Easement (the "**Baseline Documentation Report**"). A copy of the Baseline Documentation Report will be put on file with both Parties and by this reference made a part hereof. The Parties acknowledge that the Baseline Documentation Report is intended to establish the condition of the Property subject to this Easement as of the Effective Date, and that both Parties, that the Baseline Documentation Report accurately represents the condition of the Property at the time of the conveyance. The Parties further agree that, in the event a controversy arises with respect to the condition of the Property as of the Effective Date of this Easement, or compliance with or violation of any term or provision of this Easement, the parties may use the Baseline Documentation Report and any other relevant material documents, surveys, reports, and other information to assist in resolving the controversy.

3. <u>**Rights of Grantee.**</u> To accomplish the purpose of this Easement the following rights are conveyed to Grantee by this Easement as a property right and interest in the form of this Easement, which right and interest immediately vests with the Grantee by this grant:

(a) To preserve and protect the Zone 1 and Zone 2 Conservation Values now and in perpetuity;

(b) To enter upon Zone 1 at reasonable times in order to monitor Grantor's compliance with and otherwise enforce the terms of this Easement, provided that except in the case of an emergency, Grantee shall give Grantor at least five (5) days advance notice of its planned inspection, allow Grantor to accompany Grantee on its inspection, and require no longer than two days to complete the inspection unless additional time is required to complete the monitoring protocol. No notice shall be required in the event of an emergency and immediate entry is essential to prevent or mitigate a violation of the Easement. Grantee shall have access to Zone 1 by all reasonable means including but not limited to by road, vehicle, trail, foot, ski, satellite, drone, or ATV, or any other means. In addition, Grantee may enter upon Zone 1 as a member of the public, now and hereafter, as permitted in Section 6 herein and in the Management Plan.

(c) To enter upon Zone 2 at reasonable times in order to monitor Grantor's compliance with and otherwise enforce the terms of this Easement, provided Grantee shall give

Grantor at least five (5) days advance notice of its planned inspection, allow Grantor to accompany Grantee on its inspection, and require no longer than two days to complete the inspection unless additional time is required to complete the monitoring protocol.

(d) To prevent or stop any activity on or use of the Property that is inconsistent with the Purpose of this Easement; and

(e) To require the restoration of such areas or features of the Property that may be damaged as a result of any use prohibited by this Easement.

(f) To prevent or enjoin third parties or the public (whether or not invitees of Grantor) from engaging in any activity or use of the Property that is inconsistent with the Purpose of the Easement; and to require Grantor or third parties, as may be responsible, to restore such areas or features of the Property that are damaged by any such inconsistent activity or use, subject to the qualifications of Section 14 herein;

(g) To place and maintain on the Property a sign or signs indicating that a conservation easement is held by Grantee. The size of the sign and the location, design and content of such signs shall be mutually agreed to by Grantor and Grantee in accordance with applicable signage regulations and the terms of this Easement. Grantee shall be responsible for the maintenance of any such signs;

(h) To receive notification from Grantor as an interest owner in the Property to any condemnation or eminent domain proceedings affecting the Property (as described in Section 19 (Condemnation or Other Extinguishment), or any other government activities with the potential to impact the Property or the Zone 1 or Zone 2 Conservation Values; and

(i) To have all Right to Mine and Development Rights (each as defined below) on Grantor's Property (Zone 1 and Zone 2), except as specifically reserved by Grantor herein.

(j) To add any other rights that the Parties may approve consistent with the Purposes of the Easement, including adding additional purposes or defining additional Conservation Values.

4. **<u>Reserved Rights.</u>** Grantor has extinguished its Development Rights and Right to Mine Grantor's Property, as described herein, is granting Public Access to Zone 1, as described below, and is granting to Grantee the Development Rights and Right to Mine as described herein. Otherwise, Grantor reserves to itself, and to its successors and assigns, all rights accruing from its ownership of the Property, including but not limited to the right to engage in or permit or invite others to engage in the Remediation Activities on the Property and all other uses of the Property, subject to the Public Access on Zone 1 and other matters addressed in the Management Plan: (a) that are not otherwise expressly prohibited or restricted herein; and (b) that do not substantially diminish or impair the Zone 1 or Zone 2 Conservation Values ("**Reserved Rights**"). Grantor shall not claim, attempt to or utilize any Right to Mine or the Development Rights on Grantor's Property, and shall not interfere with Public Access on Zone 1 except to the extent necessary to conduct Remediation Activities, subject to Section 6, below. Grantee shall not interfere with Grantor's other use and quiet enjoyment of the Property except as may be necessary for the protection and

preservation of the Zone 1 and Zone 2 Conservation Values in accordance with the Purpose, including protection and preservation of Public Access in Zone 1.

5. <u>**Prohibited and Restricted Uses.**</u> Any activity on or use of the Property inconsistent with the Purpose of this Easement is prohibited. Subject to the foregoing, but without limiting the generality of the foregoing, Grantor and Grantee hereby acknowledge and agree:

(a) Extinguishment of Future Mineral Development; Separate Ownership of Mineral Prohibited. The Parties agree that all rights of any person to access, use or develop the surface or subsurface estate of the Grantor's Property for extraction of minerals, including but not limited to oil and gas, geothermal resources, other hydrocarbons, coal, metalliferous minerals, or sand and gravel or any other mineral of any kind or description (collectively the "Right to Mine"), are hereby conveyed to Grantee, subject to the terms of the "Extinguishment Agreement" executed concurrently with this Easement, a copy of which is attached as **Exhibit** C and incorporated by reference, for the purpose of ensuring that the Right to Mine is held by Grantee and not by Grantor and any Right to Mine by Grantor is released, terminated, and extinguished in perpetuity. By the Extinguishment Agreement, Grantor has intentionally and unconditionally waived, relinquished in favor of Grantee, terminated and extinguished the entirety of its rights, for itself and any person or entity claiming by, through or under Grantor to develop the minerals or mineral estate of the Grantor's Property (Zone 1 and Zone 2), notwithstanding any statute or common law principle permitting or giving precedence to development of the mineral estate over the surface estate. In the event Grantor at any time becomes the owner or controls any mineral interests that were severed from the Grantor's Property before the Effective Date of this Easement, then such interests shall be deemed immediately subject to this Section 5(a) (Extinguishment of Future Mineral Development), and any and all subsequent activity with regards to such interests shall be bound by the provisions of this Easement. The Minerals, defined in Section 5(h) (Mining Prohibited), shall not be transferred, encumbered, sold, leased or otherwise divided from or separated from ownership of the Grantor's Property; at all times the Minerals shall remain in the same ownership as the remainder of Grantor's Property and subject to the terms of this Easement. The Right to Mine does not include Grantor's right to perform Remediation Activities.

Surface and Subsurface Development Rights. b) By that certain "Extinguishment Agreement" executed concurrently with this Easement, a copy of which is attached as Exhibit C and incorporated by reference, Grantor has extinguished all Development Rights held by Grantor. For purposes of this Easement, "Development Rights" are defined as all present or future rights to: (i) construct, place, replace, enlarge, maintain or repair any residential, commercial, industrial or other improvements on the Grantor's Property except for improvements in conjunction with Public Access on Zone 1; (ii) develop the mineral estate of the Grantor's Property, including any and all Right to Mine described above; (iii) divide or subdivide the Grantor's Property, except for separate ownership of Zone 1 and Zone 2; or (iv) receive credit for density for development on or off Grantor's Property. By this Easement, Grantor conveys to Grantee all Development Rights associated with the Grantor's Property. Therefore, Grantor does not have the right to use or transfer any Development Rights held by Grantee. The Parties agree that all residential and commercial development rights to the Property are hereby conveyed to Grantee as part of the Development Rights and are hereby released, terminated and extinguished as to Grantor, and may not be used on or transferred off the Property to any other property, adjacent or otherwise. Under no circumstances shall any portion of the Property be used for the purpose of calculating or giving credits, which result

in additional density of development on or off the Property. Development Rights do not include Grantor's right to perform Remediation Activities.

(c) <u>Construction of Buildings, Other Structures and Roads.</u> The construction or location of any buildings and structures (defined as permanent or temporary structures or other physical, human-introduced development of or on Zone 1) is prohibited on Zone 1. No additional permanent roads shall be constructed on Zone 1. Impervious surfaces or materials that do not allow water to percolate into the soil on Zone 1, including but not limited to, concrete and asphalt surfaces, are prohibited on roads and elsewhere on Zone 1 except to the limited extent required for Remediation Activities. Subject to the restrictions in this paragraph, Grantor may construct other facilities for the Remediation Activities.

(d) <u>Camping.</u> No camping on Zone 1 will be allowed for the public at large. Grantor and its contractors, permittees, and invitees may camp on Zone 1 on a short-term basis, provided that no permanent structures or surface disturbance will be allowed

(e) <u>Fences.</u> Grantor may construct, maintain, repair and replace fencing on Zone 1, now and in perpetuity, provided any new or replaced fencing is generally consistent with thencurrent Colorado Parks and Wildlife ("CPW") guidelines for fencing so as to permit the movement of wildlife across Zone 1, and is consistent with the Management Plan, described herein. Fencing is also allowed for Remediation Activities. Any disturbance to Zone 1 that results from such fence maintenance or construction shall be reseeded within thirty (30) days, season permitting, to prevent the spread of weeds. The Management Plan described herein, will address installation of signage, ropes or fencing, as appropriate, to demark the boundary limits of Zone 1, to guide backcountry uses, and to help assure that public users of Zone 1 do not trespass on Zone 2.

(f) <u>Subdivision</u>. Any partition in kind, legal or de facto division or subdivision of the Grantor's Property, or title to the Grantor's Property, whether by physical or legal process, is prohibited. At all times the Grantor's Property shall be owned as a single parcel subject to this Easement, provided that Grantee, in its sole discretion, may allow separate ownership of Zone 1 and Zone 2, with the prior written approval of the Town and the County, each in their sole discretion. Ownership of the single parcel by joint tenancy or tenancy in common is permitted; however, actions to partition in kind or condominiumize the Grantor's Property are prohibited.

(g) <u>Forest and Vegetation Management.</u> Commercial timber harvesting on Zone 1 is prohibited. Notwithstanding the foregoing, trees may be cut to control insects and disease, to control invasive non-native species, and to prevent personal injury and property damage. Dead trees may also be cut for firewood and other uses on Zone 1. Selective cutting and thinning of native trees, shrubs and vegetation on Zone 1 is permitted on a limited and localized basis (meaning limited in scope, scale and impact so as not to affect more than ten percent (10%) of Zone 1 at a time, or to otherwise significantly impact the Conservation Values) in order to control fire danger, insects, weeds, and disease; to prevent personal injury and property damage; or to otherwise maintain the health of the wildlife habitat or ecosystem. Grantee's approval is required for removal of native trees or shrubs within 100 feet of streambanks or wetland areas, except as necessary to maintain and protect public and personal safety along any public trail; or for any vegetation management activities conducted on more than a limited and localized basis, as defined above. Grantor agrees to control noxious weed and invasive plant species on Zone 1 in accordance with the Colorado Noxious Weed Act and other applicable laws. Grantor shall not intentionally introduce noxious weeds or invasive species to Zone 1 through its remediation or other activities and shall use only those seed mixes native to the site and area, subject to applicable County regulations.

(h) <u>Mining Prohibited.</u> The mining or extraction of soil, sand, gravel, rock, stone, decorative stone, oil, natural gas, coalbed methane (including any and all substances produced in association therewith from coal bearing formations), hydrocarbon, fuel, or any other mineral substance, of any kind or description (collectively referred to as "**Minerals**") is prohibited on the Grantor's Property as more fully set forth in Section 5(a) (Extinguishment of Future Mineral Development) above, except to the limited extent provided in Section 5(i) (Limited Surface Disturbance).

(i) <u>Limited Surface Disturbance</u>. Grantor may grade and use soil, rocks, and gravel found onsite to create berms, swales, or other surface features that it deems reasonably necessary for Remediation Activities on the Property, so long as, if on Zone 1, such extraction is for non-commercial purposes, is in conjunction with Remediation Activities, is accomplished in a manner which is consistent with the Purpose of this Easement, and does not substantially diminish or impair the Conservation Values. Any area of Zone 1 disturbed by extraction must be re-vegetated and/or restored to a natural condition promptly after completion of extraction.

(j) <u>Trail Construction</u>. Hiking, biking, equestrian, snowshoeing, back-country skiing access and trails, and cross-country ski trails may be constructed and maintained on Zone 1 by Grantee (or Grantee's designee) as provided in the Management Plan described in Section 7. Grantor may construct and maintain other low-impact trails on Zone 1 ("Additional Trails"), and may allow public use of such additional trails only as provided in and subject to the terms of the Management Plan described in Section 7 and subject to the terms of the Public Access for Zone 1 (Section 6, below). No trails on Zone 1 shall be paved or otherwise covered with concrete, asphalt, or other paving materials.

(k) <u>Trash</u>. The dumping or uncontained accumulation of any kind of trash or refuse on Zone 1, including but not limited to household trash and hazardous chemicals, is strictly prohibited.

(1) <u>Motorized Vehicles.</u> Public use of motorized vehicles on Zone 1 is prohibited except to the extent allowed on Forest Service Road 585 by the Gunnison National Forest Travel Plan, then in effect. Grantor may utilize motor vehicles on Zone 1 in conjunction with Grantor's Remediation Activities or for Property management purposes. Grantee may utilize motor vehicles on Zone 1 in conjunction with trail construction and maintenance as provided in the Management Plan described in Section 7. Off-road vehicles, including all-terrain vehicles, motorcycles, over snow vehicles, or other motorized vehicles, are prohibited except for Property maintenance or in the case of an emergency.

(m) <u>Commercial or Industrial Activity; Back-Country Guiding; No Hunting.</u> No commercial or industrial uses or activities shall be allowed on Zone 1, now and in perpetuity, including hunting, feed lots and other intensive growth livestock farms, such as dairy, swine, or poultry farms, except that non-motorized back-country guiding is permitted as provided in the Management Plan. Notwithstanding the foregoing, Remediation Activities are allowed on Zone 1.

(n) <u>Recreational Uses.</u> Without limiting the generality of the foregoing, Grantor

reserves the right to use and permit others, including the public, to use Zone 1 to engage in nonmotorized low-impact recreational activities, including, but not limited to, hiking, horseback riding, back-country skiing, back-country ski guiding, snow-shoeing, mountain biking, and other similar low-impact recreational uses (hereafter "**Recreational Uses**"), subject to the terms of this Section 5, the Public Access for Zone 1 (Section 6), herein, and the Management Plan, described in Section 7. As used herein, the term "low-impact" Recreational Uses refers to activities which do not materially adversely affect the Zone 1 Conservation Values.

(o) <u>Signage or Billboards.</u> No commercial signs, billboards, awnings, or advertisements shall be displayed or placed on Zone 1. Trail and informational signs about the Public Access on Zone 1, "for sale" or "for lease" signs alerting the public to the availability of the Property for purchase or lease, "no trespassing" signs, "keep out" signs, "restricted area" signs, "danger" signs, signs regarding the use of Zone 1 for low impact recreational uses, and signs informing the public of the status of ownership are permitted on Zone 1.

(p) <u>No Water Rights.</u> No water rights are encumbered by this Easement.

6. **Public Access on Zone 1.** The general public is permitted to access Zone 1 free of charge for non-commercial, non-motorized recreational activities, such as horseback riding, hiking, back-country skiing, snow-shoeing and other similar low-impact recreational uses ("**Public Access**"), subject to the following: (a) Grantee may limit Public Access during trail construction and maintenance, during time of emergency, to protect wildlife habitat, during periods of Grantor's Remediation Activities, and to protect the other Conservation Values of Zone 1; (b) Upon notice to Grantee, County and Town, as provided herein, Grantor may temporarily restrict Public Access from the limited portions of Zone 1 affected by Remediation Activities during periods of Remediation Activities when Grantor determines, in its reasonable discretion that Public Access in such areas during Remediation Activities will interfere with Grantor's Remediation Activities. The Management Plan described in Section 7 includes additional details on Public Access to Zone 1.

(a) <u>Recreational Purpose; Limitation on Liability.</u> The Parties expressly acknowledge that the Public Access for Zone 1 is granted free of charge, for a "recreational purpose," and that Grantor and the Grantee are entitled to the benefits, protections and limitations on liability afforded by Colorado law governing recreational public access, including without limitation those under C.R.S. §§ 33-41-101, *et seq.*

Nothing in this Easement shall be deemed to alter protections provided to Grantor or Grantee under Colorado's recreational use statute C.R.S §33-41-103, or any subsequent legislation. Grantor and Grantee specifically agree that the Grantor is both the owner and the manager of Zone 1, and Grantee shall not be held liable for Grantor's management of Zone 1 for recreational or any other purposes. Grantor and Grantee shall both ensure that any the Public Access is consistent with Colorado's recreational use statute C.R.S. §§ 33-41-101 *et seq.* in providing immunity to Grantor and Grantee for the public's access to and use of Zone 1 free of charge. Nothing in this Easement shall be deemed to alter protections provided to Grantee and Grantor under C.R.S. §33-41-103, or any subsequent legislation.

7. **Land Management.** The Parties have a prepared a land management plan for the Property ("**Management Plan**"), which was drafted by Grantee in collaboration with Grantor, and

approved by the Parties, a copy of which is attached hereto as **Exhibit D**, and which is a part of and incorporated into the terms of this Easement. The Management Plan includes details of the Public Access on Zone 1 and a description of Remediation Activities on the Property. The Management Plan shall be reviewed by the Parties at least every three (3) years, updated by Grantee as needed, and any update shall be approved by the Parties. The Parties shall record a notice which includes the updated Management Plan. The then-existing Management Plan shall remain in effect until an update of the Management Plan is approved by the Parties.

8. <u>Notice of Intention to Undertake Certain Actions.</u> The purpose of requiring Grantor to notify Grantee prior to undertaking certain activities is to afford Grantee an opportunity to update its records and, if approval is required, to ensure that the activities in question are designed and carried out in a manner consistent with the purpose of this Easement. Whenever notice is required, Grantor shall notify Grantee in writing not less than thirty (30) days prior to the date Grantor intends to undertake the activity in question. The notice shall describe the nature, scope, design, location, timetable, and any other material aspect of the proposed activity in sufficient detail to permit Grantee to make an informed judgment as to its consistency with the purpose of this Easement.

9. <u>Grantee's Approval.</u> Where Grantee's approval is required or requested, Grantee shall grant or withhold its approval in writing within forty-five (45) days of receipt of Grantors' written request, if possible given seasonal, weather, or other practical impediment. Grantee's approval may be withheld upon a determination by Grantee that the action as proposed would damage, substantially diminish or impair the Conservation Values or be inconsistent with the permitted Public Access, as determined by Grantee in its reasonable discretion. Grantee shall set forth its determination, and the reason(s) for the determination, in writing to Grantor, and in the event Grantee should withhold its approval, it shall also specify to Grantor any modifications to the request that will render the request consistent with the terms and Purpose of the Easement.

Nothing permitted by this Easement or approved by Grantee in accordance with this Easement constitutes approval by any government or regulatory agency for construction, development, or land use; nor does any permit or approval granted by a government or regulatory agency override the terms of this Easement. Grantor retains responsibility for obtaining and complying with all necessary permits and Applicable Laws before engaging in uses or activities permitted under this Easement, including Remediation Activities.

10. Enforcement. Grantee shall have the right to prevent and correct, or require correction of, violations of the terms of this Easement. Grantee is not responsible for monitoring for or enforcing violations of any applicable laws, permits, or third-party contracts affecting Grantor's Property now or in the future, except to the degree that any violations of applicable laws also violate this Easement, damage the Conservation Values, or are otherwise inconsistent with the Purpose or terms of this Easement. If Grantee finds what it believes is a violation or threat of violation of this Easement, Grantee shall promptly notify Grantor in writing of the nature of the alleged violation. Upon receipt of this written notice, Grantor shall immediately discontinue any activity, or assist to discontinue any third party's activity, that could increase or expand the alleged violation and either: (a) restore Grantor's Property to its condition prior to the violation; or (b) provide a written explanation to Grantee of the reason why the alleged violation should be permitted. If Grantee is not satisfied with Grantor's written explanation or restoration

actions, the Parties agree to meet as soon as possible to resolve their difference. If a resolution of this difference cannot be achieved at the meeting, both parties may agree to meet with a mutually acceptable mediator, to attempt to resolve the dispute. At any time, including if Grantor does not immediately discontinue any activity that could increase or expand the alleged violation, or if Grantee believes an ongoing, imminent, or threatened activity violates the Easement, Grantee may take immediate legal action to stop the activity without prior notice to Grantor, without waiting for the period provided for cure to expire, and without waiting for any mediation period to expire. When, in Grantee's opinion, an ongoing or imminent violation could irreversibly diminish or impair the Conservation Values, Grantee may bring an action at law or in equity, in a court of jurisdiction to enforce the terms of this Easement and to enjoin a violation by temporary or permanent injunction, which may require restoration to the condition that existed prior to the violation. Grantor shall discontinue any activity that could increase or expand the alleged violation during any negotiation, mediation, or legal process. If a court with jurisdiction determines that a violation is imminent, exists, or has occurred, Grantee may get an injunction to stop it, temporarily or permanently. A court may also issue an injunction to require Grantor to restore Zone 1 to its condition prior to the violation.

11. <u>Costs of Enforcement.</u> Any costs incurred by Grantee in enforcing the terms of this Easement against Grantor, including, without limitation, costs of suit, expert fees and attorneys' fees, and any costs of restoration necessitated by Grantor's violation of the terms of this Easement, shall be borne by Grantor. If Grantor ultimately prevails in a judicial enforcement action, each Party shall bear its own costs, unless Grantee is found by a final court of competent jurisdiction to have acted in bad faith. If Grantee prevails, then Grantor shall be responsible for all fees and costs of both Parties as set forth above. If the Parties agree to voluntary mediation, the Parties will equally share the cost of the mediator's fees.

12. <u>Grantee's Discretion</u>. Enforcement of the terms of this Easement shall be at the sole discretion of Grantee, and any forbearance by Grantee to exercise its rights under this Easement shall not be deemed or construed to be a waiver by Grantee of any such term or of any subsequent breach of the same or any other term of this Easement or of any of Grantee's rights under this Easement. No delay or omission by Grantee in the exercise of any right or remedy shall impair such right or remedy or be construed as a waiver. The failure of Grantee to discover a violation or to take immediate legal action shall not bar Grantee from doing so at any time after the date upon which the violation is discovered.

13. <u>Waiver of Certain Defenses.</u> Grantor hereby waives any defense of laches, estoppel, or prescription, including any defenses available under C.R.S. §§ 38-41-119, *et seq*.

14. <u>Acts Beyond Grantor's Control.</u> Nothing contained in this Easement shall be construed to entitle Grantee to bring any action against Grantor for any injury to or change in Zone 1 resulting from causes beyond Grantor's control, including, without limitation, fire, flood, storm, and earth movement, or from any prudent action taken by Grantor under emergency conditions to prevent, abate, or mitigate injury to Zone 1 resulting from such causes. Grantee in its sole discretion, retains the right to enforce the terms of this Easement against third parties or Grantor or both for violations of the Easement or damage to Zone 1. The Parties shall be free to consult, collaborate, cooperate or join in any actions against the general public or members of the public pertaining to the Public Access. Grantor understands that nothing in this Easement relieves Grantor of any obligation

or restriction on the use of Zone 1 imposed by law.

15. **<u>Responsibilities Not Affected</u>**. Other than as specified herein, this Easement is not intended to impose any legal or other responsibility on Grantee, or in any way to affect any existing obligation of Grantor as owner of Zone 1. Among other things, this shall apply to:

a. <u>Costs and Liabilities.</u> Grantor retains all responsibilities and shall bear all costs and liabilities of any kind related to the ownership, operation, upkeep, and maintenance of Zone 1, including weed control and eradication and including the maintenance of adequate comprehensive general liability insurance coverage. Grantor shall keep Zone 1 free of any liens arising out of any work performed for, materials furnished to, or obligations incurred by Grantor.

b. <u>**Taxes.**</u> Grantor shall pay before delinquency all taxes, assessments, fees, and charges of whatever description levied on or assessed against Zone 1 by competent authority (collectively "taxes"), including any taxes imposed upon, or incurred as a result of, this Easement, and shall furnish Grantee with satisfactory evidence of payment upon request.

Hold Harmless. Grantor shall hold harmless, indemnify, and defend Grantee and its 16 members, directors, officers, employees, agents, and contractors and the heirs, personal representatives, successors, and assigns of each of them (collectively "Indemnified Parties") from and against all liabilities, penalties, costs, losses, damages, expenses, causes of action, claims, demands, or judgments, including, without limitation, reasonable attorneys' fees, arising from or in any way connected with the presence or release of hazardous or toxic substances on, under or about the Grantor's Property. For the purpose of this Easement, hazardous or toxic substances shall mean any item or agent of biological, chemical, radiological, or physical nature that causes harm to humans, animals, or the environment, or any hazardous or toxic substance that is regulated under any federal, state or local law, and shall be taken in its broadest legal context and shall include any petroleum products as defined in ASTM Standard E 1527-05 and any hazardous or toxic substance, material or waste that is regulated under any federal, state or local law. Without limiting the foregoing, nothing in this Easement shall be construed as giving rise to any right or ability in Grantee nor shall Grantee or have any right or ability, to exercise physical or managerial control over the day-to-day operations of the Grantor's Property, or otherwise to become an operator with respect to the Grantor's Property within the meaning of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as it may be amended or recodified ("CERCLA").

Grantor shall also hold harmless, indemnify, and defend the Indemnified Parties for the death of any person or damage to property, occurring on or about or related to the Property, including Remediation Activities, arising from the intentional or negligent acts and omissions of Grantor or Grantor's contractors or employees. Grantee shall hold harmless, indemnify, and defend Grantor and its members, directors, officers, employees, agents, and contractors and the heirs, personal representatives, successors, and assigns of each of them for the death of any person or damage to property, occurring on or about or related to the Property arising from the intentional or negligent acts and omissions of Grantee and Grantee's contractors or employees.

Notwithstanding anything in this Easement to the contrary, the prohibitions in this Easement do not make or allow Grantee to become an owner or operator of the Grantor's Property, nor does it

permit Grantee to exercise physical or managerial control over the day-to-day operations of Grantor or to control any use of the Grantor's Property by Grantor which may result in the storage, dumping or disposal of hazardous or toxic materials; provided, however, that Grantee may bring an action to protect the Conservation Values, if the applicable terms of this Easement are violated. The prohibitions in this Easement do not impose liability on Grantee for Hazardous or Toxic Materials, nor shall Grantee be construed as having liability as a "responsible party" under CERCLA as amended, or similar federal or state statutes.

17 Amendment. If circumstances arise under which an amendment to this Easement would be appropriate to promote the Purpose of the Easement, Grantor and Grantee may jointly amend this Easement. However, Grantee is under no obligation to amend this Easement, and may decline any amendment in its sole discretion. Any amendment shall be consistent with the Purpose of the Easement and may not affect the Easement's perpetual duration. Any amendment shall be in writing, signed by all the Parties, and recorded in the records of the Clerk and Recorder of Gunnison County. No amendment shall be allowed that affects the qualification of this Easement or the status of Grantee under any applicable laws, including C.R.S. §§38-30.5-101 et seq., or Internal Revenue Code § 501(c)(3), or any regulations promulgated thereunder. No amendment shall be permitted that will confer impermissible private benefit to Grantor or to any other individual or entity (see Treas. Reg. 1.170A-14(h)(3)(i)), or that will result in private inurement to a member, staff or contract employee of Grantee (see Treas. Reg. 1.501(c)(3)-1(c)(2)). No amendment shall be permitted which affects in any way the affects any rights (including rights of enforcement) of the Town or County, without the prior written approval of the Town as to its rights which approval the Town may withhold in its sole and absolute discretion, and without the prior written approval of the County as to its rights which approval the County may withhold in its sole and absolute discretion. Amendments may be subject to a fee set by Grantee according to its policies to cover its staff time, legal and other costs. Corrections to correct factual mistakes or typographical or clerical errors may be made at the discretion of Grantee.

18. <u>Real Property Interest</u>. This Easement constitutes a real property interest immediately vested in Grantee. The parties stipulate that this Easement has a fair market value of percent (_____%) of the fair market value of the Property unencumbered by this Easement ("Easement Value Ratio"). The Easement Value Ratio shall remain constant in relation to any future fair market value of the Property.

19. <u>Condemnation or Other Extinguishment</u>. If this Easement is taken, in whole or in part, by exercise of the power of eminent domain, or if circumstances arise in the future that render the purpose of this Easement impossible to accomplish, this Easement can only be condemned, terminated or extinguished, whether in whole or in part, by judicial proceedings in a court of competent jurisdiction consistent with C.R.S. § 30.30.5-107, and C.R.S. §38-30.5-107.5. Each Party shall promptly notify the other Party in writing when it first learns of such circumstances.

If all or any part of the Property is taken by condemnation, or by purchase in lieu of condemnation by any public, corporate, or other authority so as to terminate the Easement in whole or in part, Grantor and Grantee shall act jointly to recover the full value of the interests in the Property subject to the taking or in-lieu purchase, and all damages resulting there from. All expenses reasonably incurred by Grantor and Grantee in connection with the taking or in-lieu purchase shall

be paid out of the amount recovered. Grantee shall be entitled to full compensation for its interest in any portion of this Easement that is terminated as a result of condemnation or other proceedings. Grantee's compensation shall be an amount at least equal to the Easement Value Ratio, multiplied by the value of the unencumbered fee simple interest in the portion of the Property that will no longer be encumbered by this Easement as a result of condemnation or termination. Grantee shall use its proceeds in a manner consistent with its conservation purpose.

Further, a change in the potential economic value of any use that is prohibited by or inconsistent with this Easement, or a change in any current or future uses of neighboring properties, shall not constitute a change in conditions that makes it impossible or impractical for continued use of the Property for conservation purposes and shall not constitute grounds for terminating this Easement because in making this grant, Grantor has considered the possibility that uses prohibited by the terms of this Easement may become more economically valuable than permitted uses, and that neighboring properties may in the future be put entirely to such prohibited uses. It is the intent of both Grantor and Grantee that any such changes shall not be deemed to be circumstances justifying the termination or extinguishment of this Easement in whole or in part. In addition, the inability of Grantor, or Grantor's successors or assigns, to conduct or implement any or all of the uses permitted under the terms of this Easement, or the unprofitability of doing so, shall not impair the validity of this Easement or be considered grounds for termination of this Easement in whole or in part.

20. <u>Assignment.</u> This Easement is assignable by Grantee, after notice to and consultation with Grantor, to an organization that (a) is a qualified organization at the time of transfer under Section 170(h) of the Internal Revenue Code of 1986, as amended (or any successor provision then applicable), and the applicable regulations promulgated thereunder, (b) is authorized to acquire and hold conservation easements under Colorado law, and (c) agrees to assume the responsibility imposed on Grantee by this Easement; such assignment may be a total assignment of Grantee's interest, or a partial assignment of Grantee's interest which creates a co-holder (co-Grantee) of this Easement.

21. <u>Subsequent Transfers</u>. Grantor agrees to notify any party who may purchase, lease or otherwise hold an interest in the Grantor's Property, of the terms of this Easement including the Management Plan, and to provide a copy of the Easement and Management Plan, and the Baseline Documentation to such party if requested. The conveyance document shall expressly refer to this Easement, and acknowledge that all subsequent owners are subject to its terms. Grantee shall be available to meet with any prospective recipient of the Grantor's Property to explain the terms of this Easement including Management Plan, either before or after closing, and to answer any questions related to this Easement or its supporting documentation. Grantor shall incorporate the terms and conditions of this Easement in any deed or other legal instrument by which it divests itself of any interest in all or a portion of the Grantor's Property. Grantor further agrees to give written notice to Grantee of the transfer of any interest at least forty-five (45) days prior to the date of such transfer. The failure of Grantor to perform any act required by this paragraph shall not impair the validity of this Easement or limit its enforceability in any way.

22. Notices.

a. Any notice, demand, request, consent, approval, or communication that either Party is required to give to the other in writing shall be either served personally or sent by

first class mail, postage prepaid, addressed as follows:

To Grantor:

Mt. Emmons Mining Company, Inc. Attn. Land & Water 333 North Central Avenue Phoenix, AZ 85004

To Grantee:

Executive Director Crested Butte Land Trust P.O. Box 2224 Crested Butte, CO 81224

or to such other address as either Party from time to time shall designate by written notice to the other. Other communications not required by this Easement may be in the form of email or other electronic communication.

b. Any notice, demand, request, consent, approval, or communication that either Party, the Town or the County is required to give to the other in writing shall be either served personally or sent by first class mail, postage prepaid, addressed to the as follows:

To Grantor:

Mt. Emmons Mining Company, Inc. Attn. Land & Water 333 North Central Avenue Phoenix, AZ 85004

To Grantee:

Executive Director Crested Butte Land Trust P.O. Box 2224 Crested Butte, CO 81224

To Town:

Town of Crested Butte Attn. Town Manager Mailing Address: P.O. Box 39

Physical Address: 507 Maroon Ave Crested Butte, CO 81224 Phone: 970-349-5338 Fax: 970-349-6626

To County:

Gunnison County 200 E. Virginia Gunnison, CO 81230

With copy to: Matthew Hoyt County Attorney Gunnison County Attorney's Office 200 East Virginia Avenue Gunnison, CO 81230 Phone: (970) 641-7608 Fax: (970) 641-7696

or to such other address as either Party, the Town or the County from time to time shall designate by written notice to the other. Other communications not required by this Easement may be in the form of email or other electronic communication.

23. <u>Grantor's Title Warranty.</u> Grantor warrants that Grantor has good and sufficient title and access to Zone 1 as against all parties claiming by through and under it, and hereby promises to defend the same against all claims from any such persons claiming by, through, or under Grantor, and that Grantee has access to Zone 1 for the purposes described herein.

24. <u>Subsequent Liens.</u> No provisions of this Easement shall be construed as impairing the ability of Grantor to use the Grantor's Property as collateral for subsequent borrowing, provided that any mortgage or lien arising from such a borrowing will be subordinate to this Easement.

25. <u>**Recording.**</u> Grantee shall record this instrument in a timely fashion in the official records of Gunnison County, and may re-record it at any time as may be required to preserve its rights in this Easement.

26. <u>General Provisions.</u>

(a) <u>Controlling Law.</u> The interpretation and performance of this Easement shall be governed by the laws of the State of Colorado.

(b) <u>Liberal Construction</u>. Any general rule of construction to the contrary notwithstanding, this Easement shall be liberally construed in favor of the grant to effect the

purpose of this Easement and the policy and purpose of C.R.S. §38-30.5-101, et seq. If any provision in this instrument is found to be ambiguous, an interpretation consistent with the purpose of this Easement that would render the provision valid shall be favored over any interpretation that would render it invalid. The common law rules of construction and of disfavoring restrictions on the use of real property and construing restrictions in favor of the free and unrestricted use of real property shall not apply to interpretations of this Easement or to disputes between the Parties concerning the meaning of particular provisions of this Easement.

(c) <u>Severability.</u> If any provision of this Easement, or the application thereof to any person or circumstance, is found to be invalid, the remainder of the provisions of this Easement, or the application of such provision to persons or circumstances other than those as to which it is found to be invalid, as the case may be, shall not be affected thereby.

(d) <u>Entire Agreement; Recitals, Exhibits.</u> This instrument sets forth the entire agreement of the parties with respect to this Easement and supersedes all prior discussions, negotiations, understandings, or agreements relating to this Easement, all of which are merged herein. The Recitals, above, and the Exhibits attached hereto are an integral part of and are incorporated into this Easement.

(e) <u>No Forfeiture</u>. Nothing contained herein will result in a forfeiture or reversion of Grantor's title in any respect.

(f) <u>Joint Obligation</u>. If more than one owner owns the Grantor's Property at any time, the obligations imposed by this Easement shall be joint and several upon each of the owners.

(g) <u>Non-Merger</u>. No merger shall be deemed to have occurred hereunder or under any documents executed in the future affecting this Easement (including without limitation the Right to Mine) or in accordance with C.R.S. §38-30.5-107, unless the Parties, the Town and the County each expressly state in a recorded document executed by each that they intend a merger of estates or interests to occur.

(h) <u>Successors</u>. The covenants, terms, conditions, and restrictions of this Easement shall be binding upon, and inure to the benefit of, the parties hereto and their respective successors and assigns and shall continue as a servitude running in perpetuity with the Grantor's Property.

(i) <u>Termination of Rights and Obligations</u>. Provided a transfer is permitted by this Deed, a party's rights and obligations under this Easement terminate upon transfer of the party's interest in this Easement or Zone 1, except that liability for acts or omissions occurring prior to transfer shall survive transfer.

(j) <u>Captions.</u> The captions in this instrument have been inserted solely for convenience of reference and are not a part of this instrument and shall have no effect upon construction or interpretation.

(k) <u>Perpetual Duration</u>. The easement created by this Easement shall be a servitude running with the land in perpetuity. Every provision of this Easement that applies to Grantor or Grantee shall also apply to their respective agents, heirs, executors, administrators, assigns, and all other successors as their interests may appear.

(1) <u>Third-Party Beneficiaries and Third-Party Rights of Enforcement of Town</u> and County. This Easement is entered into by and between Grantor and Grantee, and is solely for the benefit of Grantor, Grantee, and their respective successors and assigns for the purposes set forth herein, and does not create rights or responsibilities for enforcement in any third parties beyond Grantor and Grantee, except in the Town and the County, which are each third-party beneficiaries with a right of enforcement of only the following two sections of this Easement: (i) Section 5(a) , and (ii) Section 5(b). Nothing in this subsection or this Easement shall be construed to increase or limit any regulatory authority of the Town or County over the lands covered by the Easement.

(m) <u>Authority to Execute.</u> Each party represents to the other that such party has full power and authority to execute, deliver, and perform this Easement, that the individual executing this Easement on behalf of said party is fully empowered and authorized to do so, and that this Easement constitutes a valid and legally binding obligation of said party enforceable against said party in accordance with its terms.

(n) <u>Counterparts.</u> The Parties may execute this instrument in two or more counterparts, which shall, in the aggregate, be signed by all the Parties. Each counterpart shall be deemed an original instrument as against any Party who has signed it. In the event of any disparity between the counterparts produced, the recorded counterpart shall be controlling.

(o) <u>Acceptance</u>. As attested by the signature of its Executive Director affixed hereto, Grantee hereby accepts without reservation the rights and responsibilities conveyed by this Easement.

IN WITNESS WHEREOF Grantor and Grantee have executed this Deed of Conservation Easement as of the Effective Date.

{Signatures on following pages}

GRANTOR:

MT. EMMONS MINING COMPANY, INC., a Delaware Corporation

By:_____

Its:_____

ATTEST:

~
Secretary

STATE OF ARIZONA)) ss. County of)

The foregoing Deed of Conservation Easement was acknowledged before me this day of _____, 202__, by _____, as _____ and _____ as _____ of Mt. Emmons Mining Company, Inc., a Delaware corporation.

Witness my hand and official seal. [SEAL]

Notary Public My commission expires:
GRANTEE:

CRESTED BUTTE LAND TRUST, a Colorado nonprofit corporation

By:_____ Its:____

ATTEST:

_____, Secretary

STATE OF COLORADO)
) ss.
County of Gunnison)

The foregoing Deed of Conservation Easement was acknowledged before me this _____ day of _____, 202__ by _____ as _____ of Crested Butte Land Trust, a Colorado non-profit corporation.

Witness my hand and official seal. [SEAL] Notary Public My commission expires:

EXHIBIT A TO CONSERVATION EASEMENT

(Legal Description of Grantor's Property)

EXHIBIT A-1 TO CONSERVATION EASEMENT

(Legal Description of Zone 1 and Zone 2)

EXHIBIT B TO CONSERVATION EASEMENT (Map of Grantor's Property including Zone 1 and Zone 2)





EXHIBIT C TO CONSERVATION EASEMENT (Extinguishment Agreement)

EXHIBIT D TO CONSERVATION EASEMENT (Management Plan)

EXTINGUISHMENT AGREEMENT – MINERAL AND DEVELOPMENT RIGHTS

This Extinguishment Agreement – Mineral and Development Rights ("Agreement") is made as of ______, 202_, by and among Mt. Emmons Mining Company, Inc., a Delaware Corporation ("Grantor"), 333 North Central Avenue, Phoenix, Arizona 85004, and the Crested Butte Land Trust, a Colorado non-profit corporation, P.O. Box 2224, Crested Butte, CO 81224 ("Grantee"). Grantor and Grantee are each referred to as a "Party" and collectively as the "Parties."

Recitals

A Grantor is the fee owner of approximately 936 acres of real property located in Gunnison County, Colorado, more particularly described in <u>Exhibit A</u> and depicted in <u>Exhibit B</u> attached hereto and incorporated herein (the "Grantor's Property"). Grantor's Property is comprised of the ______ (651?) acre "Zone 1", and the ______ (____) acre "Zone 2", both described on the attached <u>Exhibit A-1</u>.

B. To the best of its knowledge, Grantor owns 100% of the subsurface minerals, mineral rights, and mineral estate underlying the Grantor's Property, including all executive rights to lease, convey, or develop such mineral estate.

C. Grantor and Grantee have entered into a Deed of Conservation Easement recorded on ______, 202_as Reception No. ______, Gunnison County, Colorado (the "Conservation Easement") covering Grantor's Property which permits Public Access on Zone 1 as described in the Conservation Easement. As a material part of acceptance of the Conservation Easement, Grantee required that the entirety of Grantor's Property be encumbered by this Agreement. Pursuant to the terms of the Conservation Easement and this Agreement, Grantor has granted to Grantee all of its "Right to Mine" and its "Development Rights." (Capitalized terms not defined herein are defined in the Conservation Easement).

D. Grantee supports Grantor's continuation of mined land reclamation, water treatment and water management activities, including, without limitation, bioremediation, construction of surface and subsurface drainage and diversion structures, grading and recontouring, and general reclamation management activities in its discretion on the Grantor's Property, subject to and consistent with the applicable Gunnison County Land Use Resolution and the Crested Butte Watershed District Regulations ("**Remediation Activities**"), as provided in the Conservation Easement.

E. Grantor and Grantee wish to ensure the permanent relinquishment and extinguishment of the Right to Mine Grantor's Property, including all forms of mineral exploration, development, and extraction, whether surface or sub-surface, whether by Grantor or through Grantor, and seek to accomplish the same by this Agreement and the Conservation Easement.

F. Grantor is willing to permanently relinquish, terminate, and extinguish all of its Right to Mine Grantor's Property, notwithstanding any statute or common law principle that may permit or give precedence to development of the mineral estate over the surface estate. The Right to Mine does not include Grantor's right to perform Remediation Activities.

G. Grantor is willing to permanently relinquish, terminate, and extinguish all of its Development Rights on Grantor's Property.

H. The terms of this Agreement shall run to the benefit of the real property interest represented by the Conservation Easement and to the holder of the Conservation Easement, the Town of Crested Butte, a Colorado municipal corporation ("**Town**"), and the Board of County Commissioners of the County of Gunnison, Colorado ("**County**") County in perpetuity.

Agreement

For good and valuable consideration, receipt of which is acknowledged, Grantor and Grantee agree as follows:

1. The subject and content of the above recitals are hereby incorporated into this Agreement.

The Parties agree that all rights of any person to access, use or develop the surface or 2 subsurface estate of the Grantor's Property for extraction of minerals, including but not limited to oil and gas, geothermal resources, other hydrocarbons, coal, metalliferous minerals, or sand and gravel or any other mineral of any kind or description (collectively the "Right to Mine"), are hereby conveyed to Grantee. Subject to the terms of the Conservation Easement and this Agreement, Grantor hereby intentionally and unconditionally waives, relinquishes in favor of Grantee, terminates and extinguishes the entirety of its rights, for itself and any person or entity claiming by, through or under Grantor to develop the minerals or mineral estate of the Grantor's Property (Zone 1 and Zone 2), notwithstanding any statute or common law principle permitting or giving precedence to development of the mineral estate over the surface estate. The Right to Mine does not include Grantor's right to perform Remediation Activities. In the event Grantor at any time becomes the owner or controls any mineral interests that were severed from the Grantor's Property before the Effective Date of this Agreement, then such interests shall be deemed immediately subject to this Agreement and extinguished. The Parties agree that all rights of Grantor and any person or entity claiming by, through and under Grantor to develop the surface or subsurface estate of the Property for extraction of minerals of any kind or description, including but not limited to oil and gas, geothermal resources, other hydrocarbons, coal, metalliferous minerals, or sand and gravel, are hereby released, terminated, and extinguished in perpetuity. The terms of this Agreement shall constitute covenants running with the land in perpetuity with respect to the Grantor's Property, enforceable by Grantee, the Town and County and their successors and assigns.

3. For purposes of this Agreement, "**Development Rights**" are defined as all present or future rights to: (i) construct, place, replace, enlarge, maintain or repair any residential, commercial, industrial or other improvements on the Grantor's Property except for improvements in conjunction with Public Access on Zone 1; (ii) develop the mineral estate of the Grantor's Property, including any and all Right to Mine described above; (iii) divide or subdivide the Grantor's Property, except for separate ownership of Zone 1 and Zone 2; or (iv) receive credit for density for development on or off Grantor's Property. Subject to the terms of the Conservation Easement and this Agreement, Grantor intentionally and unconditionally waives, relinquishes, terminates, and extinguishes the entirety of Grantor's present or future Development Rights. By the Conservation Easement and this Agreement, Grantor conveys to Grantee all Development Rights associated with the Grantor's Property. Therefore, Grantor does not have the right to use or transfer any Development Rights held by Grantee. The Parties agree that all residential and commercial development rights to the Property are hereby conveyed to Grantee as part of the Development Rights and are hereby released, terminated and extinguished as to Grantor, and may not be used on or transferred off the Property to any other property, adjacent or otherwise. Under no circumstances shall any portion of the Property be used for the purpose of calculating or giving credits, which result in additional density of development on or off the Property. Development Rights do not include Grantor's right to perform Remediation Activities, or Public Access.

4. This release, waiver, relinquishment, termination, and extinguishment is granted for the benefit of the Grantee, and grants to the Grantee, and to (a) the Town, and (b) the County the right to enforce its provisions, separately and together. Grantor agrees that in the event that Grantor violates the covenants contained in this Agreement Grantee, the Town and County, may individually or jointly obtain injunctive relief to prevent and correct any violation of this Agreement. This instrument grants no rights to other third parties and creates no other third-party beneficiaries. Nothing in this Agreement shall be construed to increase or limit any regulatory authority of the Town or County over the lands covered by this Agreement.

5. The terms of this Agreement shall run to the benefit of the real property interest represented by the Conservation Easement, to the holder of the Conservation Easement, and to the Town and County, and each of their successors and assigns, in perpetuity

6. Grantor reserves to itself, and to its successors and assigns, all other rights accruing from its ownership of the Grantor's Property, including the right to engage in or permit or invite others to engage in the Remediation Activities, in Grantor's discretion, and all other uses of the Grantor's Property: (a) that are reserved to Grantor under the terms of the Conservation Easement with respect to Grantor's Property as described in the Conservation Easement; and (b) that are not expressly prohibited or restricted in this Agreement with respect to Grantor's Property.

7. Grantor understands that in reliance upon, and in consideration of this Agreement, Grantee entered into the Conservation Easement which would not have been made or entered into but for said reliance upon this Agreement.

8. The Grantor agrees to cooperate with and support reasonable efforts of the Grantee, the Town, and the County to defend against any claims or causes of action, whether initiated in court or before any local, state or federal administrative agency or body, that seeks to void, nullify, modify, prejudice or limit the terms of this Agreement or the Parties' rights or obligations hereunder, or the rights of the Town and County hereunder.

9. This Agreement may not be modified except in writing signed by the Parties and the Town and County and recorded in the real estate records of Gunnison County, Colorado.

IN WITNESS WHEREOF, the undersigned have executed this Agreement as of the day and year first above written.

GRANTOR:

MT. EMMONS MINING COMPANY, INC., a Delaware Corporation

By:_____

Its: _____

STATE OF ARIZONA)) ss. County of _____)

The foregoing Extinguishment Agreement – Mineral Development Rights was acknowledged before me this _____ day of _____, 202__, by _____, as ______ of Mt. Emmons Mining Company, Inc., a Delaware corporation.

Witness my hand and official seal.

[SEAL]

Notary Public My commission expires: _____

GRANTEE:

CRESTED BUTTE LAND T a Colorado nonprofit corpora	RUST, tion	
By:		
Its:		
STATE OF COLORADO)	
County of Gunnison) 55.	
The foregoing Extinguishmer acknowledged before me this day of the Crested Butte L	nt Agreement – Mineral Development Rights was of, 202_, by, and Trust, a Colorado nonprofit corporation.	as

Witness my hand and official seal.

[SEAL]

Notary Public My commission expires:

EXHIBIT A TO EXTINGUISHMENT AGREEMENT – MINERAL AND DEVELOPMENT RIGHTS Description of Grantor's Property

EXHIBIT A-1 TO EXTINGUISHMENT AGREEMENT – MINERAL AND DEVELOPMENT RIGHTS

Description of Zone 1 and Zone 2 of Grantor's Property

EXHIBIT B TO EXTINGUISHMENT AGREEMENT – MINERAL AND DEVELOPMENT RIGHTS Map of Property and Zones