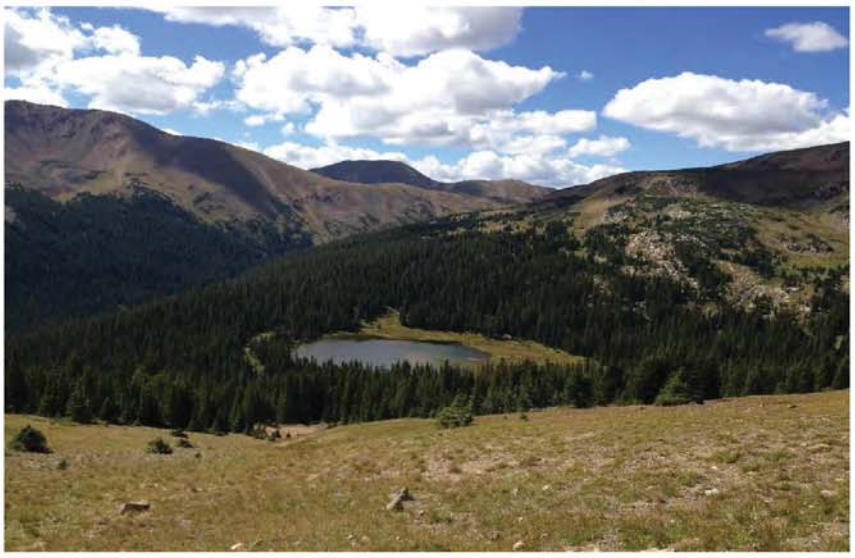
STORM WATER MANAGEMENT PLAN



Prepared For:

Freeport-McMoRan, Inc.
Climax Molybdenum Company
Henderson Mine

April 2021

1746 County Road 202
PO Box 68
Empire, CO 80438
(303) 569-3221

Prepared By:

Aquionix

Aquionix, Inc.
5545 West 56th Avenue, Unit E
Arvada, CO 80002
(303) 289-7520

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Appendices

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons directly responsible for gathering the information, the information submitted, is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

J. Stuart Teuscher, General Manager

5/10/2021
Date

DISTRIBUTION LIST

Controlled copies of this Storm Water Management Plan (SWMP) have been distributed as indicated below.

Copy #	Copy Holder	Location
1	Senior Environmental Engineer, Mine	Henderson Mine – Empire, CO
2	Chief Environmental Engineer, Mill	Henderson Mill – Parshall, CO

SWMP RETENTION AND AVAILABILITY

This SWMP will be retained on site at the Henderson Mine. Copies of this SWMP shall be made available upon request to the Environmental Protection Agency (EPA), Colorado Department of Public Health and Environment (CDPHE), Colorado Division of Reclamation, Mining, And Safety (DRMS), and any local agency approving sediment and erosion plans or storm water management plans. If the SWMP is required to be submitted to any of these entities, it must include a signed certification in accordance with Part I.E.5 of the COR-040000, certifying that the SWMP is complete and meets all permit requirements.

REVISION HISTORY

When this SWMP is amended or updated, the date of the latest revision should be indicated below along with a description of the changes that were made.

Rev #	Rev Date	Revised By:	Description of Revisions
1	4/2021	Aquionix, Inc./Henderson	Initial issuance of Mine/URAD WTP specific SWMP (i.e., separated Mine and Mill SWMPs)

OWNER INFORMATION

HENDERSON MINE, EMPIRE, COLORADO	
Emergency Contact: Miguel Hamarat (Administrator)	**Work Phone:** (720) 942-3255
Title: Environmental Manager	**Emergency Phone:** (303) 476-3632
Secondary Contact: Kasey Martin	**Work Phone:** (720) 942-3203
Title: Senior Environmental Engineer	**Emergency Phone:** (720) 212-4005
Type of Manufacturer: Active Mine Site	
Operating Schedule: 24 hours per day	
Number of Employees: The Mine has about 250 employees, including part-time staff. Shifts overlap all day.	
Average Process Water Discharge: 1,000-3,000 gallons per minute	
NPDES Permit: CDPS CO-0041467	
Storm Water General Permit: CDPS COR-040000	
Facility Number: COR-040079	

1.0 INTRODUCTION AND OBJECTIVES

This Storm Water Management Plan (SWMP or Plan) has been prepared for the Climax Molybdenum Company, Henderson Operations (Henderson) Mine facility. The purpose of this Plan is to identify potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges associated with the operation of the Henderson Mine and URAD Water Treatment Plant (WTP). The Plan describes and provides guidelines for the implementation of both general best management practices (BMPs) and site- or activity-specific BMPs. These BMPs are designed to minimize the likelihood of pollutants being carried off-site through storm water discharges.

The storm water boundaries, BMPs, and outfall locations discussed in this SWMP are based on surface discharges resulting from storm water events. The fate and control of groundwater associated with the facility's process water is managed under a different authority and is beyond the scope of this SWMP.[1]

This SWMP has been formulated and implemented with the following objectives and goals:

- To provide a simple format for inspection, control, prevention, and mitigation of potential pollution sources that may affect the quality of storm water discharge;
- To provide a simple format for educating and training site personnel in methods and practices for storm water management and pollution prevention; and
- To provide assurance that the provisions of CDPS General Permit for Storm Water Discharges Associated with Metal Mining Operations and ancillary activities, CDPS Permit No. COR-040000, are met.

1 Groundwater at hard rock mine and associated milling sites in Colorado is regulated by the Division of Reclamation and Mine Safety (DRMS) under authority of Senate Bill 89-181, C.R.S. § 25-8-202(7), and the Dec. 14, 2010 Memorandum of Agreement between DRMS and CDPHE addressing the "implementation of SB 181 Amendments to the Colorado Water Quality Control Act (25-8-101, et seq) pertaining to the regulation of mineral mines. Henderson has been issued and operates under Regular (112) Mining and Reclamation Permit, Number M-1977-342.

2.0 FACILITY DESCRIPTION

2.1 Facilities

The Henderson Mine and Mill operate under the same CDPS General Permit No. CO04000 and have the same Facility Number (COR040079). Henderson has developed three site specific SWMPs for the Henderson Mill, Henderson Mine/URAD WTP and inactive URAD Mine (Facility Number COR040080). Facilities covered by this SWMP are specific to the Henderson Mine and URAD WTP. Ore is mined in Clear Creek County at the Henderson Mine and transported to the Williams Fork basin through a ten-mile-long tunnel and five-mile-long surface conveyor system to the mill site, which is located in Grand County. The mine site was constructed in the early 1970s. The current ore conveyance system, which replaced the historic train haulage system, was constructed in the late 1990s. The mine serves the primary purpose of mining molybdenum disulfide ore (MoS_2), as discussed in further detail below.

2.1.1 Mine

The Mine is located in Clear Creek County on the north side of Red Mountain near the confluence of Butler Gulch and the West Fork of Clear Creek. To access the Mine, exit I-70 at exit 232 (Empire, Colorado) and drive north approximately nine (9) miles on U.S. Highway 40 to the town of Berthoud Falls. Upon leaving Berthoud Falls, take the first road on the left and drive approximately 1.5 miles to the Mine's main security gate.

Facilities at the mine site include shafts, support facilities, storage yards, and the Mine's domestic water treatment plant. These facilities are primarily constructed on development rock that was excavated during development of the Henderson Mine and associated shafts. The mine and URAD WTP property area includes approximately 2,843 total acres, of which approximately 2,478.8 acres are undisturbed, and 364.2 acres are disturbed by the mine yard, URAD WTP and associated facilities. Process water associated with the mine site, including domestic sewage and mine water, is treated and discharged under CDPS Permit Number CO-0041467. The Southwest Energy, LLC contractor yard located on the east side of the mine facilities is on property leased from the Henderson Mine. Storm water runoff generated within the leased property boundary is managed and controlled by Southwest Energy, independent from this SWMP.

Storm water at the Mine is discharged via identified storm water outfalls, both directly, and via Butler Gulch to the West Fork of Clear Creek.

2.1.2 URAD Water Treatment Plant

The inactive URAD Mine is located in Clear Creek County within the Woods Creek Valley in an unsurveyed portion of T3S, R75W and R76W of the 6th PM, one valley to the south of the active Henderson Mine. The inactive URAD Mine area encompasses approximately 320 acres and consists of two reclaimed tailing impoundments, two plugged portals, water treatment collection ponds, and the WTP. With the exception of the URAD WTP and water treatment collection ponds, the reclamation of the disturbed areas associated with the inactive URAD Mine has been completed. Therefore, storm water runoff in the undisturbed and reclaimed areas at the URAD Mine is managed via the Inactive URAD Mine SWMP. Storm water runoff within the URAD WTP area is managed with this SWMP.

2.2 Areas Subject to Effluent Limitations Guidelines

None of the potential storm water discharge areas addressed under this SWMP are subject to effluent limitations guidelines.

However, disturbed areas associated with the URAD WTP (see Figure 2) contribute runoff that is collected in the treatment ponds, comingles with process water and is ultimately discharged under the authority of process water discharge permit CDPS CO-0041467.

2.3 Site Plan

Facility diagrams and maps detailing the location of the facilities and surrounding topography are provided in Appendix A and include the following.

Figure	Title	Purpose
1	Mine Storm Water Management Map	Illustrates the location of storm water permit areas associated with the Mine as well as general drainage patterns and flow directions and the locations of outfalls, potential storm water pollutant sources, areas of soil disturbance, location of surface water bodies located in or next to the facility, identification of existing structural control measures and location of impervious structures.
2	URAD WTP Storm Water Management Map	Illustrates boundaries of the URAD WTP storm water permit areas associated with the URAD facility as well as general drainage patterns and flow directions and the locations of outfalls, potential storm water pollutant sources and material storage areas. The map also includes areas of soil disturbance, locations of surface water bodies located in or next to the facility, identification of existing structural control measures and location of impervious structures.

3.0 SWMP ADMINISTRATORS

Personnel in the company responsible for implementation, maintenance and revision of this SWMP include:

Name	Title	Phone	Primary Storm Water Responsibilities
Miguel Hamarat	Environmental Manager	(720) 942 – 3255	• Oversees overall implementation of the SWMP; • Reviews proposed facility changes for potential storm water impacts; • Coordinates SWMP revisions; • Works with Henderson management to ensure availability of resources for implementation of this SWMP; • Reports issues related to implementation of BMPs to management personnel; • Assists with Semi-Annual SWMP Site Compliance Evaluations for the Mine, as needed; • Assists with Semi-Annual SWMP Site Compliance Evaluations for the URAD WTP, as needed; • Reviews and assists with completion of the Annual Report for the Mine/URAD WTP facilities; and • Provides guidance to Mine Operations personnel regarding implementation of BMPs.
Kasey Martin	Senior Environmental Engineer	(720) 942 - 3203	• Provides guidance to Mine Operations personnel regarding implementation of BMPs. • Performs Semi-Annual SWMP Site Compliance Evaluations for the Mine; • Performs Semi-Annual SWMP Site Compliance Evaluations for the URAD WTP; • Provides guidance to Mine Operations personnel regarding implementation of BMPs; and • Completes/Submits the Annual Report for the Mine/URAD WTP facilities.

4.0 IDENTIFICATION OF POTENTIAL POLLUTANT SOURCES

Table 4.1 summarizes the purpose and location of potential storm water pollutant sources associated with the Mine and URAD WTP located in disturbed areas (see Figures in Appendix A for delineation of disturbed and undisturbed areas), areas used for material storage or handling that are exposed to precipitation and other areas with potential sources of pollution. The following information is included within the table.

- Potential pollutant source;
- Location and purpose of each potential storm water pollutant source;
- Outfall through which potentially impacted storm water may be discharged;
- The likelihood that the potential storm water pollutant source may contribute pollutants to storm water that is discharged off-site; and
- The basis for the likelihood determination.

The pollutant source numbers (PS#) and outfall numbers (OF-#) in Table 4.1 may be used to locate the sources and outfalls on the figures in Appendix A for the Mine and URAD WTP.

Specific preventative maintenance, good housekeeping, and spill prevention and response procedures for each potential pollutant source are identified in Section 5.0 along with other BMPs. As new potential pollution sources are identified, Table 4.1 will be updated (in addition to Table 5.1, Storm Water Management Maps and Inspection Forms, as applicable).

The below key clarifies naming conventions used for pollutant sources and outfalls.

PS-	Followed by	#	Pollutant sources at the Mine.
OF-	Followed by	#	Outfalls at the Mine.
PS-	Followed by	U-#	Pollutant sources at the URAD WTP.
OF-	Followed by	U#	Outfalls at the URAD WTP.

Storm water outfalls are identified in the field with 6" x 9" reflective white metal signs with green lettering. An example of an outfall sign is provided below (not to scale).

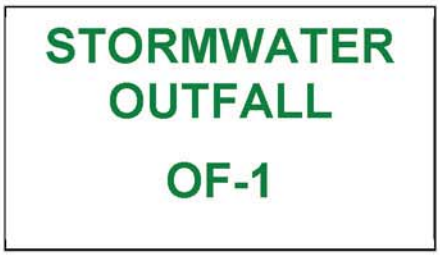


Table 4.1 Description of Potential Pollutant Sources

PS #	Potential Pollutant	Location	Purpose	Outfall	Potential to Contribute Pollutants to Storm Water	Basis
PS-1	Potable water treatment chemicals	Potable Water System	Filtration and disinfection of the mine's domestic water supply.	OF-8b (Butler Gulch)	Unlikely	Spills could report directly to Butler Gulch. The floor drain has been blocked and chemicals used for chlorination are stored within containment.
PS-4	Cement Particulates	Cement Silos and Unloading Area	Storage and unloading of cement associated with batch plant.	OF-7 (Butler Gulch), OF-9 (W. Fork Clear Creek)	Possible	Spill of product exposed to storm water would flow across pavement and would eventually report to Outfall OF-7 or OF-9
PS-5	Miscellaneous contaminates associated with non-hazardous waste and recyclable products	Non-hazardous Waste Storage East of #2 Shaft	Collection and temporary storage of mine wastes prior to transportation off-site. Also includes a trash compactor, trailers for recycling steel and other materials, and a salvage wood pile.	OF-9 (Butler Gulch)	Unlikely	Materials that could be eroded and carried by storm water would report to Outfall OF-9.
PS-7	Sediment and/or materials	West Lay-down Yard	Storage yard (project materials).	OF-1 (Butler Gulch)	Possible	Temporary storage yard for project materials could have the potential for sediment and/or debris to report to Outfall OF-1.
PS-9	Sediment	Warehouse docks and Equipment Yard	This storage is utilized by the warehouse and maintenance department. Spills are readily cleaned up with absorbent materials.	OF-7, OF-14 (Butler Gulch)	Possible	Spills from equipment or warehouse loading docks are quickly identified and cleaned up. Sediment from the equipment yard could be carried by storm water and report to Outfall OF-7 or OF-14.
PS-11	Oils and lubricants	Bulk Oil Storage Northwest of #1 Shaft	Bulk oil storage	OF-3 (W. Fork Clear Creek)	Unlikely	Spills during loading and unloading would be quickly identified and cleaned up.
PS-13	Gasoline and diesel fuel	Lower Yard Fuel Island	Fuel Island-Lower Yard	OF-3 (W. Fork Clear Creek)	Unlikely	Spills are quickly identified and cleaned up. Tanks are within containment.
PS-14	Oils and/or antifreeze	Staging Area South of #2 Shaft	Storage of equipment and containers in the area south of #2 Shaft.	OF-7 (Butler Gulch)	Unlikely	Spills are quickly identified and cleaned up.
PS-15	Sediment	#5 Shaft Temporary Storage Yard	Staging area for retired assets, lumber, construction materials, pipe, new fill material and rip rap.	OF-5 (W. Fork Clear Creek)	Possible	Sediment could be carried by storm water to lower portion of surface area and report to Outfall OF-5.
PS-17	Fuel, oil, and lubricants	Underground Fuel Transfer Station/#5 Shaft Fans and Motors	Unloading and storage of fuel for use underground.	OF-5 (W. Fork Clear Creek)	Unlikely	Unloading/fueling occurs in a depressed area designed to capture a release should one occur during transfers and tank is within containment. The #5 Shaft fans/motors could have the potential for oil or lubricant leaks that could report to storm water. Spills are quickly identified and cleaned up. Fans and motors are inspected, maintained, and repaired, as necessary.
PS-U-3	Sediment, treatment chemicals	URAD WTP	Water treatment facility.	NA	Unlikely	Area is up-gradient from the mine water collection ponds which would capture and treat potentially impacted waters in the event of a release.

5.0 BEST MANAGEMENT PRACTICES

This section contains general structural and non-structural BMPs for reducing the potential of the sources identified above to contribute pollutants to storm water discharges. Site or activity specific BMPs appropriate for each potential storm water pollutant source are summarized in Table 5.1.

As new potential pollution sources and/or BMPs are identified, Table 5.1 (in addition to Table 4.1, Inspection Forms in Appendix B, and the Storm Water Management Maps, as applicable) will be updated.

Henderson's storm water permit requires SWMPs to include BMPs that are selected, installed, implemented and maintained in accordance with good engineering practices, that reduce pollutants in storm water discharges, and that assure compliance with the terms and conditions of COR-040000. To that end, Henderson references the EPA's National Menu of Best Management Practices (BMPs) for Stormwater (https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#edu) and the associated BMP guidance document titled *National Management Measures to Control Nonpoint Source Pollution from Urban Areas* (http://www.epa.gov/owow/nps/urbannmm/index.html) and (https://www.epa.gov/nps/urban-runoff-national-management-measures)) to provide guidance on BMP selection, implementation, limitations and maintenance requirements.

5.1 Storm Water Diversion

A key strategy utilized by Henderson to prevent potential storm water pollution is to minimize the amount of storm water that can come into contact with disturbed land and other industrial activities. The diversion systems described below are also shown on the Figures in Appendix A.

- Diversion ditches have been constructed on the south side of the Mine office and surface operations to divert water around industrial activities to the east end of the property.

5.2 Erosion and Sedimentation

If projects have a potential for polluting storm water or causing sedimentation or erosion, funds shall be allocated in the project's budget for implementing one or more of the BMPs outlined below. Compliance with this SWMP is a requirement of all construction projects.

5.2.1 Prevention of Erosion

As compared to the sediment removal practices that are discussed below, these BMPs are intended to prevent erosion which could eventually impact water quality.

Erosion and sedimentation shall be controlled through implementation of one or more of the following BMPs.

- Reseed disturbed soil areas with maintenance seed (if it is temporary) or Climax Seed Mix (for permanent or final construction).

- Install mulch, excelsior blankets or reseed areas on disturbed slopes greater than 3:1 and consideration should be given to installation on slopes between 5:1 and 3:1 on a case-by-case basis depending on the length, exposure, and texture of the soils on the slope.
- Avoid slopes steeper than 2:1 and when unavoidable, rock protection (rip rap) or excelsior mats with netting shall be installed.
- Install rip rap and at least 6-inches of suitable bedding in all water flow channels where the design flow will exceed ~2 feet per second. Generally, suitable bedding ranges from a minimum diameter of sand to a maximum diameter of 2-3 inches of coarse granular soils.
- Furrow contour side hill slopes whenever suitable equipment is available. Otherwise, final grading shall be performed in a manner that will result in tracks and depressions contoured across the slope instead of a down "fall-line." This will not only minimize wind erosion but will also "roughen" the earth to provide a microclimate of wind protection for new plants and will help conserve precipitation for use in growth of new seed.
- Minimize the time that bare soil is exposed.
- Install check dams and water bars wherever the slope exceeds approximately two percent (~2%) to reduce water velocities and erosion potential in constructed swales and channels. Rip rap linings shall be installed in steeper slopes or where the velocity exceeds two (2) feet per second.
- Minimize the disturbance of existing vegetation.
- Reseed and apply mulch as soon as possible to disturbed areas where erosion is probable. Mulch may be natural, consisting of slash, brush, manure, and vegetation previously chipped and stockpiled; and/or clean straw, free from noxious weed seed, mold, and other harmful elements; or wood cellulose fiber.
- Apply erosion control mats to all cut slopes steeper than 3:1. Staples shall be installed at a maximum spacing of 4 feet. Mats shall overlap on the ends and sides at least 6 inches. Regular duty excelsior mats shall be used for slopes less than 2:1. Heavy duty excelsior or jute mats shall be used for slopes greater than 2:1.
- Where erosion scarps have developed (particularly along the faces of flood detention structures), loose granular material shall be removed, and the scarp filled with suitable soils to the original profile of the bank or slightly above the original profile. If the scarp is not completely filled, the steeper area at the brow of the scarp will encourage erosion and may cause redevelopment of the scarp. The area upstream from the scarp shall be carefully inspected to determine if there was an irregularity in the ground profile that caused storm water to concentrate and erode the soils. Any such irregularity shall be removed by the most appropriate BMP listed herein.
- Cover soils known to have a relatively high erosion potential with coarser textured erosion resistant soils and mulch/reseed the topsoil.
- Where feasible, bypass live stream flows around construction sites during earthwork activities by installation of temporary (or permanent) pipes or rock lined ditches.

5.2.2 Sediment Removal

When the above prevention methods do not adequately control sedimentation and erosion, the following structural removal methods shall be used:

- Construct sediment traps below excavations involving small water flow rates that cannot be bypassed around the excavation.
- Construct storm water detention ponds and sediment basins for collecting runoff and slowing the velocity enough to settle the sediment.
- Construct silt fences, straw bale barriers, or gravel/sand filters at the toe of slopes where erosion prevention is not practical or sufficient to deter all erosion; or where the terrain is too steep for construction of sediment traps.
- Construct rock check dams to prevent sediment from traveling through channels, drains, and outfalls.
- Install wattles at, or prior to check dams, around drains, in storm water channels, and where deemed necessary to control/stop sediment carried by storm water. This type of BMP must be maintained and repaired/replaced as necessary to be effective in controlling sediment.

5.2.3 Preventive Maintenance Practices

Preventive maintenance tasks associated with operations are managed through a computer-based software program. Required maintenance has been identified and established for storm water management devices, such as storm water diversion ditches, and for on-site equipment and processes used to prevent conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters. When new equipment is brought on site additional maintenance tasks shall be identified as required. Deficiencies in preventive maintenance may be identified during routine inspections performed by area workers and through regular inspections performed by members of the Environmental Department (see Section 7.0). When issues are identified, they shall be brought to the attention of area supervisors and immediately addressed. Additional tasks shall be added to the preventive maintenance system, as needed.

5.2.4 Good Housekeeping and Materials Handling

Good housekeeping and materials handling practices are designed to maintain a clean and orderly work environment, reducing the possibility of storm water contamination. In addition to routine maintenance and inspections completed by the Environmental Department, additional housekeeping is managed through daily work area inspections conducted by all staff at the Mine. Identified issues are addressed as soon as possible and may be entered into the work order preventive maintenance system for ongoing management, as necessary. All Henderson staff receive training on proper materials handling and spill response on an annual basis.

5.3 Spill Prevention and Response Procedures

5.3.1 Spill Prevention and Preparedness

Spill prevention practices are designed to reduce the possibility of storm water contamination and include:

- Contractors are required to comply with the BMPs outlined in this SWMP and/or submit a detailed spill prevention plan;
- Wherever significant quantities of toxic materials or other pollutants are to be used on site by Contractors, the contractor is required to notify the environmental department and prepare a specific procedure for material containment and spill prevention. Spill prevention and response measures for bulk chemicals used by Henderson are addressed in the Spill Prevention, Control and Countermeasures (SPCC) Plan and Incident Response Manual;
- Fuel oil spill prevention procedures for temporary fuel tanks comply with the facility's SPCC Plan, including placement within adequately sized and impermeable containment structures. If discharging of water collected within containment structures is necessary, it shall first be inspected for signs of contamination. If contamination is present the water shall be diverted to the facility's process water system or hauled off-site;
- Fueling operations and vehicle maintenance shall be performed at designated facilities;
- When possible, chemicals shall be stored inside buildings or in covered storage sheds; When this is not possible, containers shall be placed in appropriate containment structures so as to capture a release prior to it contaminating storm water;
- Drip pans and buckets shall be used during maintenance activities and at locations where leakage is probable;
- Spill cleanup kits shall be marked and readily available near locations where spills are probable; and
- Releases shall be immediately cleaned up after their discovery.

5.3.2 Spill Response Procedures

Spill response procedures are addressed within several Henderson environmental management system documents including this SWMP, the Spill Prevention Control and Countermeasures Plan, Drinking Water Monitoring Plan, Environmental Management System (EMS) Manual and Incident Response Manual (IRM). In each instance, procedures shall provide reference to the IRM which serves as the primary environmental emergency response document and provides specific procedural guidance related to spill response measures.

5.4 Employee Training

Employees and contractors who are involved with mining activities that may impact storm water runoff receive training on the components and goals of this SWMP including, as applicable, the following:

- Overview of the goals of this SWMP.
- Types and location of potential pollutant sources associated with the areas where they

work.

- General and activity/site-specific BMP measures, including the following:
    - Sediment and Erosion Control Measures;
    - Spill Prevention and Response Procedures;
    - Good Housekeeping and Materials Handling; and
    - Preventive Maintenance.
- Site drainage with an emphasis on:
    - Process water boundaries;
    - Location of storm water outfalls; and
    - Location of specific potential pollution sites and affected outfall.
- Inspection and implementation requirements.
- Possible enforcement actions resulting from non-compliance.

Henderson utilizes multiple training forums to provide adequate training, including:

Training Forum	Description
New Hire Orientation (within 30-days of hiring)	This training includes SWMP introduction, spill prevention/response, good housekeeping, and hazardous materials management.
Contractor Awareness Training (prior to beginning work on-site)	The contractor environmental pamphlet and awareness training video provides SWMP introduction, spill prevention/response, good housekeeping, and hazardous materials management.
On the Job (continual)	This training includes area and job specific storm water BMP measures and drainages.
Environmental Refresher Training - Employees and Contractors (annual)	This training reinforces SWMP components and goals, mine operations and control features utilized to prevent storm water contamination from occurring.

Additional training shall be provided to affected employees when a new hazard is introduced that could potentially affect storm water management.

Records of training are maintained by the Environmental Department or the Human Resources Department.

Table 5.1 BMP Inventory

PS/OF #	Location	Good Housekeeping Materials Handling and Spill Prevention	Preventative Maintenance/Measures, Storm Water Diversions Measures	Sediment/Erosion Control and Management of Runoff
PS-1	Potable Water System	Treatment chemicals are stored in containment. Spills are immediately cleaned up.	System maintenance activities are completed as outlined in the preventive maintenance system. Pipe and equipment used for treatment chemical addition is repaired as necessary, as is damage to the containment structure.	N/A
PS-4	Cement Silos and Unloading Area	Industry unloading procedures are used and silo capacity is verified prior to ordering additional product and making transfers. Spills that occur during transfer of bulk product to silos are cleaned up.	Damaged equipment is repaired, and tanks are routinely inspected for signs of damage.	N/A
PS-5	Non-hazardous Waste Storage East of #2 Shaft	Trash and debris is regularly picked up and segregated in appropriate containers. Disposal practices are per RCRA requirements.	N/A	N/A
PS-7	West Lay-Down Yard	Spills are readily cleaned up with absorbent materials. No liquids are stored in this area.	The entire perimeter of the yard is bermed to divert storm water to managed outfalls.	Storm water from this area flows to managed outfalls to control sediment.
PS-9	Warehouse Docks and Equipment Yard	This storage is utilized by the warehouse and maintenance department. Spills are readily cleaned up with absorbent materials.	Storm water in this area is diverted to managed outfalls on the perimeter of the yard.	A large portion of the yard is covered in asphalt to minimize sedimentation. Other areas flow to managed outfalls to control sediment.
PS-11	Bulk Oil Storage Northwest of #1 Shaft	Clean up spilled product as soon as possible. Replace leaking containers. Storage tank capacities are verified prior to making transfers. Transfer hoses are hooked up inside building.	Containment berms, pans, transfer, and storage equipment is maintained to prevent leaks.	N/A
PS-13	Lower Yard Fuel Island	The fuel island is equipped with an automatic shut off. Spills are cleaned up as soon as possible. Water is inspected for signs of contamination prior to being discharged from the containment sump.	Repair pipes, fittings, and hoses to prevent leakage. Containment sump is routinely inspected and damage/deterioration is repaired, as needed. Storm water is diverted through a ditch on the north side of the 1.2 Pond and then north under the road to a sedimentation pond.	Sedimentation pond down gradient of fuel island.
PS-14	Storage Area South of #2 Shaft	Clean up spilled product as soon as possible. Replace leaking containers. Store materials over containment structures.	Maintain containment structures.	N/A
PS-15	#5 Shaft Yard – Temporary Storage Yard	Staging area limited to retired assets, lumber, construction materials, pipe, new fill material and rip rap. Spills are readily cleaned up with absorbent materials.	Storm water in this area is diverted via a combination of earthen berms and diversion ditches to managed outfalls.	Diversion ditches, rip rap and earthen berms.
PS-17	Underground Fuel Transfer Station/#5 Shaft Fans and Motors	Clean up observed spills with absorbent pads.	Transfer piping, valves, and connections are maintained to prevent leakage. Containment structure is regularly inspected for signs of deterioration/damage and repaired as needed.	N/A

Table 5.1 BMP Inventory

PS/OF #	Location	Good Housekeeping Materials Handling and Spill Prevention	Preventative Maintenance/Measures, Storm Water Diversions Measures	Sediment/Erosion Control and Management of Runoff
PS-U-3	URAD WTP Area	Chemicals are stored within industrial mine water boundaries and, to the extent possible, vehicle parking/use is maintained within the industrial mine water boundary.	Industrial mine water containment structures are maintained.	Area is relatively flat, erosion is unlikely.
OF-1	Northeast Corner of West Lay-Down Yard	N/A	Storm water outfalls are inspected semi-annually, and maintenance is performed as needed; storm water in this area is diverted via earthen berms around the outside of the lay-down yard and natural topography to the controlled outfall.	Storm water is discharged through a sedimentation pond and rip rap immediately above outfall. Other BMP's up-gradient of outfall include rip rap check dams and wattles. The yard is relatively flat preventing significant erosion.
OF-2	Northwest Corner of Office Parking Lot	N/A	Storm water outfalls are inspected semi-annually, and maintenance is performed as needed; storm water in this area is diverted via earthen berms and diversion ditches surrounding the parking lot and natural topography to the controlled outfall.	Storm water is discharged through sedimentation ponds and rip rap immediately above the outfall. Other BMPs up-gradient of the outfall include rip rap, wattles, and rock check dams along the earthen berms and in diversion ditches. Paved areas prevent erosion.
OF-3	Discharge Northeast of Fuel Island and Domestic WWTP	N/A	Storm water outfalls are inspected semi-annually, and maintenance is performed as needed; storm water drainages up-gradient of this area includes: (1) area around the Domestic Wastewater Treatment Plant and west end of 1.2 Pond; and (2) impervious area in the area referred to as the "Plant Services Areas" (bulk oil storage building, #1 Shaft, electrical substation, etc.) and is diverted via berms, diversion ditches, impervious areas, culverts and natural topography to controlled outfall.	BMPs up-gradient of this outfall include vegetation (immediately above the outfall) and a sedimentation pond immediately above the vegetation. Sediment control up-gradient from the sedimentation pond includes a combination of rip rap, rock check dams and additional vegetated areas.
OF-5	Pipe Chute Discharge from Sedimentation Pond to Bottom of Slope	N/A	Storm water outfalls are inspected semi-annually, and maintenance is performed as needed; storm water in this area is diverted via earthen berms, diversion ditches and natural topography to the sedimentation pond and pipe chute down the slope to the controlled outfall.	Storm water is discharged through rip rap and vegetation at the bottom of the slope and immediately above the outfall and through a sedimentation pond immediately above the pipe chute. Other BMPs up-gradient of the sedimentation pond include rip rap and check dams located in diversion ditches leading to the sedimentation pond.
OF-7	Northwest Corner of Warehouse Lay-Down Yard	N/A	Storm water outfalls are inspected semi-annually, and maintenance is performed as needed; storm water in this area is diverted via earthen berms and diversion ditches built around the lay-down yard and natural topography to the controlled outfall.	Rip rap check dams and/or wattles immediately above the outfall slow storm water and remove sediment. The yard is relatively flat preventing significant erosion.
OF-8a	Butler Gulch – Discharge from the Southern Perimeter of Upper Yard and Parking Area	NA	Storm water outfalls are inspected semi-annually, and maintenance is performed as needed; storm water in this area is diverted via the paved parking lot, earthen berms, diversion ditches on the south side of the lot and natural topography to the controlled outfall.	Storm water is discharged through a sedimentation pond. Rock check dams, wattles and/or rip rap immediately above the outfall slow storm water and remove sediment. Paved areas prevent erosion.
OF-8b	Butler Gulch – Discharge from the Potable Water Area	N/A	Storm water outfalls are inspected semi-annually, and maintenance is performed as needed; storm water in this area is diverted via earthen berms and diversion ditches along the road down from the potable water plant and natural topography to the controlled outfall.	Storm water is discharged through rock check dams and/or rip rap immediately above the outfall. Other BMPs up-gradient of the outfall include periodic placement of rip rap and wattles in the diversion ditch along the road.

Table 5.1 BMP Inventory

PS/OF #	Location	Good Housekeeping Materials Handling and Spill Prevention	Preventative Maintenance/Measures, Storm Water Diversions Measures	Sediment/Erosion Control and Management of Runoff
OF-8c	Butler Gulch – Discharge from ditch along north side of warehouse access road south of West Lay-down Yard	N/A	Storm water outfalls are inspected semi-annually, and maintenance is performed as needed; storm water in this area is diverted via earthen berms around the outside of the west lay-down yard and natural topography to the controlled outfall.	Storm water is discharged through a sedimentation pond, rock check dams and/or rip rap immediately above the outfall. The yard is relatively flat preventing significant erosion.
OF-9	Discharge pipe from the drain below the southeast corner of the employee parking lot	N/A	Storm water outfalls are inspected semi-annually, and maintenance is performed as needed; storm water in this area flows across the employee parking area toward the BMPs. Flow off the lot and natural topography on the southeast corner of the lot is channeled via diversion ditches along the south side of the parking lot. This storm water passes through a vegetated area with check dams into a drainpipe running under the east parking lot. Discharge from the pipe goes through rip rap and a vegetated area prior to reaching the controlled outfall near the creek.	Storm water is discharged through vegetated areas and rip rap below the discharge pipe to slow storm water and remove sediment. BMPs up-gradient of the outfall also include rip rap check dams and a sedimentation basin. The paved parking areas also prevent erosion.
OF-12	North Central Portion of Lower Storage Yard (below Southwest Energy's Yard)	N/A	Storm water outfalls are inspected semi-annually, and maintenance is performed as needed; storm water in this area is diverted via earthen berms and diversion ditches around the storage yard and natural topography to the controlled outfall.	Storm water is discharged through a vegetated area immediately above the outfall to the creek to slow storm water and remove sediment. Other BMPs up-gradient of the outfall include rip rap where storm water exits the yard. The yard is relatively flat preventing significant erosion.
OF-14	West of Truck Scale and southwest of OF-7	N/A	Storm water outfalls are inspected semi-annually, and maintenance is performed as needed; storm water in this area is diverted via earthen berms around the outside of the lay-down yard and natural topography to the controlled outfall.	Storm water is discharged through rock check dams and/or rip rap immediately above the outfall. The yard is partially paved and relatively flat preventing significant erosion.
OF-15	North of the West Fork of Clear Creek above grate where creek enters the culvert under the Mine entrance road	N/A	Storm water outfalls are inspected semi-annually, and maintenance is performed as needed; storm water in this area is diverted via earthen berms and diversion ditches surrounding the parking lot and natural topography to the controlled outfall.	Storm water is discharged through a sedimentation pond, rock check dams and/or rip rap immediately above the outfall. Paved areas prevent erosion.

6.0 IDENTIFICATION OF DISCHARGES OTHER THAN STORM WATER

The Mine site and URAD WTP were initially evaluated for evidence of non-storm water discharges in 2006. Continuing evaluations are incorporated into routine inspections. Evaluation for evidence of non-storm water discharges also occurs during the facility's semi-annual storm water inspections (see Section 7.0). During the initial evaluation, each pollution source and outfall were visually inspected, and no signs of non-storm water discharges were observed reporting to storm water outfalls or drainage systems. In addition, no signs of non-storm water discharge have been observed during routine inspections. Although not observed during this evaluation, Henderson has the potential for the following non-storm water discharges, which are authorized under the general storm water permit.

- Firefighting activities;
- Uncontaminated compressor condensate;
- Air conditioner condensate;
- Uncontaminated seeps and springs; and
- Foundation or footing drains.

All other non-storm water discharges are strictly prohibited unless they are collected and discharged under the facility's CDPS Individual Permit Number CO-0041467.

7.0 SWMP INSPECTIONS

7.1 Performance of Inspections

Two formal site inspections (one in the spring and one in the fall) are performed and documented to satisfy annual reporting requirements. These inspections shall be conducted by the personnel outlined in Section 3.0 of this SWMP (or qualified designated persons) and include a review of all disturbed areas (see Figures in Appendix A for delineation of disturbed and undisturbed areas), areas used for material storage or handling that are exposed to precipitation, and other areas with potential sources of pollution with an emphasis on each of the potential pollutant sources identified Section 4.0 of this SWMP.

The inspections:

- Look for evidence of, or the potential for, pollutants entering the drainage system; and
- Review the adequacy and upkeep of storm water management measures, sediment and erosion control measures, and other BMPs identified in Section 5.0 of this SWMP.

Spill response equipment is regularly inspected and maintained as a part of the Mine SPCC Plan.

Conditions not conforming to the SWMP shall be proactively managed and corrected. If revision of this SWMP is required, such revisions shall be made and implemented promptly.

7.2 Inspection Recordkeeping

An inspection record (see Appendix B) summarizing the scope of the inspection, personnel making the inspection, the date(s) of the inspection, major observations relating to implementation of the SWMP, and actions taken are maintained in the environmental files for a minimum of three years.

8.0 ANNUAL REPORTING

An annual report shall be completed, signed by the Facility Manager, and mailed to the address below by February 15th of each year. The report shall be completed using the State of Colorado's "Storm Water Annual Report-Metal Mining (& Coal)" form provided on the CDPHE website:

https://cdphe.colorado.gov/wq-commerce-and-industry-compliance-assistance-and-guidanceMailing Address:

Colorado Department of Public Health and Environment
Water Quality Control Division
WQCD-P-B2
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530

Completed reports, and any relevant correspondence, shall be maintained per Henderson's Environmental Records Procedure, and for no less than five (5) years.

9.0 CONSISTENCY WITH OTHER PLANS

This SWMP has been developed in conjunction with other related plans developed as part of Henderson's environmental management system including the Henderson Mine and URAD Spill Prevention Control and Countermeasures Plan (SPCC), Incident Response Manual (IRM), Environmental Protection Plan (EPP), EMS Manual and Drinking Water Monitoring Plan. As appropriate, the SWMP incorporates portions of these plans by reference.

10.0 TEMPORARY ACTIVITIES

Temporary activities, including construction projects, are addressed as an addendum to this SWMP in Appendix C.

11.0 SWMP REVIEWS, REVISIONS OR CHANGES

11.1 Division Review

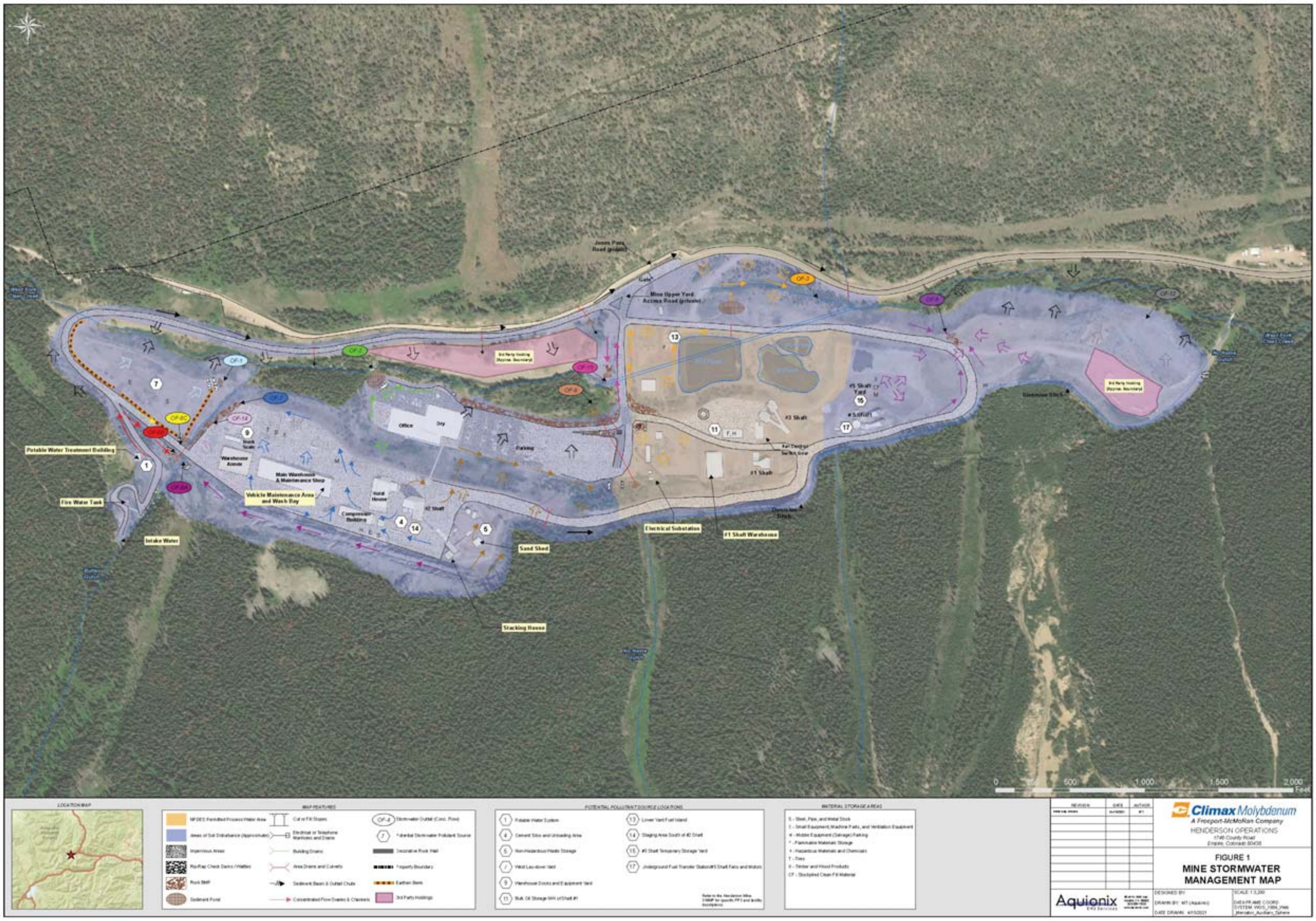
The Colorado Water Quality Control Division (Division) reserves the right to request and review the plans, and to require additional measures to prevent and control pollution, as needed. Upon review of the SWMP, the Division may notify the permittee at any time that the Plan does not meet one or more of the minimum requirements of the permit. After such notification, changes shall be made and an updated Plan including requested changes shall be submitted to the Division. Unless otherwise provided, the permittee shall have 30 days after such notification to both make and implement the necessary changes to the Plan.

11.2 Permittee Review/Change

Henderson shall amend this SWMP whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to the waters of the State, or if the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges. If existing BMPs need to be modified or if additional BMPs are necessary, the Plan changes and implementation must be completed before the next anticipated storm, or not more than 60 days after: the change in design, construction, operation, or maintenance; or the SWMP has been determined to be ineffective, unless this time frame is extended by the Division. Amendments to the Plan shall be summarized in the Annual Report.

Appendix A

Figure 1 – Mine Storm Water Management Map
Figure 2 – URAD Water Treatment Plant Storm Water Management Map



Jones Pass Road (gravel)
Mine Upper Yard Access Road (gravel)
OF-3
OF-4
OF-7
OF-1
OF-2
OF-8
OF-9
OF-14
OF-15
OF-8D
3rd Party Holding (Approx. Boundary)
Office
Parking
Potable Water Treatment Building
Fire Water Tank
Intake Water
Warehouse Annex
Main Warehouse & Maintenance Shop
Vehicle Maintenance Area and Wash Bay
Compressor Building
#2 Shaft
Sand Shed
Stacking House
Electrical Substation
#1 Shaft Warehouse
#1 Shaft
#3 Shaft
#5 Shaft Yard
0 250 500 1,000 1,500 2,000 Feet
LOCATION MAP
MAP FEATURES
NPDES Permitted Process Water Area
Areas of Soil Disturbance (Approximate)
Impervious Areas
Rip-Rap Check Dams / Wattles
Rock Berm
Sediment Pond
Cut or Fill Slopes
Electrical or Telephone Manholes and Drains
Building Drains
Area Drains and Culverts
Sediment Basin & Outfall Chute
Concentrated Flow Swales & Channels
Stormwater Outfall (Conc. Flow)
Potential Stormwater Pollutant Source
Decorative Rock Wall
Property Boundary
Earthen Berm
3rd Party Holdings
POTENTIAL POLLUTANT SOURCE LOCATIONS
1 Potable Water System
4 Cement Silos and Unloading Area
5 Non-Hazardous Waste Storage
7 West Lay-down Yard
9 Warehouse Docks and Equipment Yard
11 Bulk Oil Storage NW of Shaft #1
13 Lower Yard Fuel Island
14 Staging Area South of #2 Shaft
15 #5 Shaft Temporary Storage Yard
17 Underground Fuel Transfer Station/#5 Shaft Fans and Motors
MATERIAL STORAGE AREAS
S - Steel, Pipe, and Metal Stock
E - Small Equipment, Machine Parts, and Ventilation Equipment
M - Mobile Equipment (Salvage) Parking
F - Flammable Materials Storage
H - Hazardous Materials and Chemicals
T - Tires
W - Timber and Wood Products
CF - Stockpiled Clean Fill Material
REVISION
DATE
AUTHOR
Climax Molybdenum
A Freeport-McMoRan Company
HENDERSON OPERATIONS
1746 County Road
Empire, Colorado 80438
FIGURE 1
MINE STORMWATER
MANAGEMENT MAP
Aquionix
EHS Services
DESIGNED BY:
DRAWN BY: MT (Aquionix)
DATE DRAWN: 4/15/2021
SCALE: 1:3,200

LOCATION MAP

MAP FEATURES

- Inactive URAD Mine Areas
- Surface Stormwater Area Disturbed By WTP Facilities
- Concentrated Surface Flow Direction
- Sheet Surface Flow Direction
- Property Boundary
- River, Stream or Creek
- (U-3) Potential Stormwater Pollutant Source
- River, Stream or Creek Underground Pipeline
- Road
- Diversion Ditch

NOTES:
(1) Inactive URAD Mine Areas managed under Inactive URAD Mine Stormwater Management Plan (SWMP)
(2) Underground pipeline locations are approximate

MATERIAL STORAGE AREAS

H - Hazardous Materials and Chemicals

POTENTIAL POLLUTANT SOURCES

(U-3) URAD Water Treatment Plant Area

REVISION	DATE
[illegible]	04/15/2021

Climax Molybdenum
A Freeport-McMoRan Company

HENDERSON OPERATIONS
1746 County Road
Empire, Colorado 80438

FIGURE 2

URAD WATER TREATMENT PLANT STORMWATER MANAGEMENT MAP

Aquionix

DESIGNED BY:
DRAWN BY: MT (AQUIONIX)
DATE DRAWN: 4/19/2021

SCALE 1:[illegible]
DATA FRAME COORD. SYSTEM: WGS_1984_Web_Mercator_Auxiliary_Sphere

S:\ArcGIS and AutoCAD files\CMC - Henderson -370\Henderson GIS\mxds\Urad\Stormwater

Appendix B

Semi-Annual Inspection Forms

Appendix B – Mine Semi-Annual SWMP Compliance Inspection, Permit No. COR-040079

PS #/Outfall	Comments	Action Required	Scheduled Completion	Person Responsible	Satisfactory *(Y/N)*
PS-1 Potable Water System			☐ Immediate ☐ 60 Days		
PS-4 Cement Silos and Unloading Area			☐ Immediate ☐ 60 Days		
PS-5 Waste Sorting and Recycling Facility West of #2 Shaft			☐ Immediate ☐ 60 Days		
PS-7 West Lay-Down Yard			☐ Immediate ☐ 60 Days		
PS-9 Warehouse Docks and Equipment Yard			☐ Immediate ☐ 60 Days		
PS-11 Bulk Oil Storage Northwest of #1 Shaft			☐ Immediate ☐ 60 Days		
PS-13 Lower Yard Fuel Island			☐ Immediate ☐ 60 Days		
PS-14 Storage Area South of #2 Shaft			☐ Immediate ☐ 60 Days		

Appendix B – Mine Semi-Annual SWMP Compliance Inspection, Permit No. COR-040079

PS #/Outfall	Comments	Action Required	Scheduled Completion	Person Responsible	Satisfactory *(Y/N)*
PS-15 #5 Shaft Temporary Storage Yard			☐ Immediate ☐ 60 Days		
PS-17 Underground Fuel Transfer Station/#5 Shaft Fans and Motors			☐ Immediate ☐ 60 Days		
OF-1 NE Corner of West Lay-Down Yard			☐ Immediate ☐ 60 Days		
OF-2 NW Corner of Office Parking Lot			☐ Immediate ☐ 60 Days		
OF-3 Discharge NE of Fuel Island/Domestic WWTP			☐ Immediate ☐ 60 Days		
OF-5 Pipe Chute Discharge from Sediment Pond at Bottom of Slope			☐ Immediate ☐ 60 Days		
OF-7 NW Corner of Warehouse Lay-Down Yard			☐ Immediate ☐ 60 Days		

Appendix B – Mine Semi-Annual SWMP Compliance Inspection, Permit No. COR-040079

PS #/Outfall	Comments	Action Required	Scheduled Completion	Person Responsible	Satisfactory *(Y/N)*
OF-8a Butler Gulch – Discharge from the Southern Perimeter of Upper Yard Warehouse Dock Area			☐ Immediate ☐ 60 Days		
OF-8b Butler Gulch– Discharge from the Potable Water Area			☐ Immediate ☐ 60 Days		
OF-8c Butler Gulch- Discharge downgradient of the SE Corner of West Lay-Down Yard			☐ Immediate ☐ 60 Days		
OF-9 Discharge pipes from the drains below the southeast corner of the employee parking lot.			☐ Immediate ☐ 60 Days		
OF-12 North Central Portion of Lower Storage Yard (below Southwest Energy's Yard)			☐ Immediate ☐ 60 Days		

Appendix B – Mine Semi-Annual SWMP Compliance Inspection, Permit No. COR-040079

PS #/Outfall	Comments	Action Required	Scheduled Completion	Person Responsible	Satisfactory *(Y/N)*
OF-14 West of Truck Scale and southwest of OF-7			☐ Immediate ☐ 60 Days		
OF-15 North of the West Fork of Clear Creek above grate where creek enters the culvert under the Mine entrance road.			☐ Immediate ☐ 60 Days		

Each of the above items shall be inspected for:

1. Evidence of, or the potential for, pollutants entering the drainage system;
2. The adequacy and upkeep of storm water management measures, sediment and erosion control measures, and other BMPs to ensure they are operating properly; and
3. Adequacy and presence of designated spill response equipment.

Document any additional observations including, as applicable, locations of discharges of pollutants from the site, location of previously unidentified sources of pollutants, locations of BMPs needing maintenance or repair, location of failed BMPs that need replacement, and locations where additional BMPs are needed. Any incident of noncompliance observed shall be documented.

Any repairs or maintenance needs identified by the inspection shall be completed immediately where the potential to adversely affect water quality is imminent. Revised or additional control measures identified by the inspection shall be implemented in a timely manner, but in no case more than 60 calendar days after the inspection. Based on the results of this inspection, if revisions to the description of the potential pollutant sources and/or the pollution prevention and control measures identified in the SWMP are needed, the SWMP shall be revised as soon as practicable.

Inspection Completed By: _____

Signature: _____

Date: _____

Appendix B – URAD WTP Semi-Annual SWMP Compliance Inspection, Permit No. COR-040079

PS #/Outfall	Comments	Action Required	Scheduled Completion	Person Responsible	Satisfactory *(Y/N)*
PS-U-3 URAD Water Treatment Plant			☐ Immediate ☐ 60 Days		

Each of the above items shall be inspected for:

1. Evidence of, or the potential for, pollutants entering the drainage system;
2. The adequacy and upkeep of storm water management measures, sediment and erosion control measures, and other BMPs to ensure they are operating properly; and
3. Adequacy and presence of designated spill response equipment.

Document any additional observations including, as applicable, locations of discharges of pollutants from the site, location of previously unidentified sources of pollutants, locations of BMPs needing maintenance or repair, location of failed BMPs that need replacement, and locations where additional BMPs are needed. Any incident of noncompliance observed must be documented.

Any repairs or maintenance needs identified by the inspection shall be completed immediately where the potential to adversely affect water quality is imminent. Revised or additional control measures identified by the inspection shall be implemented in a timely manner, but in no case more than 60 calendar days after the inspection. Based on the results of this inspection, if revisions to the description of the potential pollutant sources and/or the pollution prevention and control measures identified in the SWMP are needed, the SWMP shall be revised as soon as practicable.

Inspection Completed By: _____

Signature: _____

Date: _____

Appendix C

Temporary Activities