



COLORADO

Division of Reclamation,
Mining and Safety


Department of Natural Resources

MINERALS PROGRAM INSPECTION REPORT

PHONE: (303) 866-3567

The Division of Reclamation, Mining and Safety has conducted an inspection of the mining operation noted below. This report documents observations concerning compliance with the terms of the permit and applicable rules and regulations of the Mined Land Reclamation Board.

MINE NAME: Providence Mine	MINE/PROSPECTING ID#: M-2012-052	MINERAL: Silver and gold	COUNTY: Teller
INSPECTION TYPE: Monitoring	INSPECTOR(S): Elliott R. Russell	INSP. DATE: July 12, 2018	INSP. TIME: 12:00
OPERATOR: Cripple Creek & Victor Gold Mining Company	OPERATOR REPRESENTATIVE: Justin Bills and Erik Munroe	TYPE OF OPERATION: 110d - Designated Limited Impact	

REASON FOR INSPECTION: Normal I&E Program	BOND CALCULATION TYPE: Complete Bond	BOND AMOUNT: \$17,200.00
DATE OF COMPLAINT: NA	POST INSP. CONTACTS: None	JOINT INSP. AGENCY: None
WEATHER: Clear	INSPECTOR'S SIGNATURE: 	SIGNATURE DATE: October 22, 2018

The following inspection topics were identified as having Problems or Possible Violations. OPERATORS SHOULD READ THE FOLLOWING PAGES CAREFULLY IN ORDER TO ASSURE COMPLIANCE WITH THE TERMS OF THE PERMIT AND APPLICABLE RULES AND REGULATIONS. If a Possible Violation is indicated, you will be notified under separate cover as to when the Mined Land Reclamation Board will consider possible enforcement action.

GENERAL INSPECTION TOPICS

The following list identifies the environmental and permit parameters inspected and gives a categorical evaluation of each

(AR) RECORDS----- PB	(FN) FINANCIAL WARRANTY----- Y	(OT) OTHER----- PB
(HB) HYDROLOGIC BALANCE----- Y	(BG) BACKFILL & GRADING----- Y	(RD) ROADS----- Y
(PW) PROCESSING WASTE/TAILING---- N	(SF) PROCESSING FACILITIES----- N	(EX) EXPLOSIVES----- N
(MP) GENL MINE PLAN COMPLIANCE- Y	(FW) FISH & WILDLIFE----- Y	(TS) TOPSOIL----- Y
(SM) SIGNS AND MARKERS----- Y	(SP) STORM WATER MGT PLAN---- N	(RV) REVEGETATION---- PB
(ES) OVERBURDEN/DEV. WASTE----- N	(SC) EROSION/SEDIMENTATION--- PB	(RS) RECL PLAN/COMP-- N
(AT) ACID OR TOXIC MATERIALS----- N	(OD) OFF-SITE DAMAGE----- N	(ST) STIPULATIONS----- PB

Y = Inspected / N = Not inspected / NA = Not applicable to this operation / **PB** = Problem cited / **PV** = Possible violation cited

PROBLEMS/POSSIBLE VIOLATIONS

INSPECTION TOPIC: Availability Of Records

COMPLIANCE PROBLEM #1: Rule 1.13.5 states, if an Operator temporarily ceases production of the mining operation for one hundred eighty (180) days or more, the Operator must file a Notice of Temporary Cessation in writing to the Office.

CORRECTIVE ACTIONS: The Operator shall either file for Temporary Cessation, re-initiate activity at the mine site, or notify the Division that mining has concluded and final reclamation will begin by the corrective action date.

CORRECTIVE ACTION RESOLED: October 9, 2018

INSPECTION TOPIC: Sediment Control

COMPLIANCE PROBLEM #2: Erosion gullies and ruts were observed on-site. This is a problem at this time for failure to protect the affected land from erosion pursuant to C.R.S. 34-32-116(4)(i).

CORRECTIVE ACTIONS: The operator shall provide photo documentation to the Division verifying erosion gullies and ruts have been repaired, and that the site has been reconstructed and stabilized to prevent erosion damage by the corrective action date.

CORRECTIVE ACTION DUE DATE: November 21, 2018

INSPECTION TOPIC: Other

COMPLIANCE PROBLEM #3: There are two open and unsecure boreholes within the Air Raise area.

CORRECTIVE ACTIONS: The Operator shall secure the open boreholes or plug and abandon the boreholes in accordance with the approved reclamation plan. The Operator shall provide photo documentation to the Division verifying the open boreholes have been appropriately safeguarded by the corrective action date.

CORRECTIVE ACTION DUE DATE: November 21, 2018

INSPECTION TOPIC: Revegetation

COMPLIANCE PROBLEM #4: There are state-listed noxious weeds present on site. This is a problem for failure to employ weed control methods for state listed noxious weed species within the permitted area, and to reduce the spread of weeds to nearby areas as required by Rule 3.1.10(6)

CORRECTIVE ACTIONS: Implement weed control and provide proof to the Division that this has been done by the corrective action date.

CORRECTIVE ACTION DUE DATE: November 21, 2018

INSPECTION TOPIC: Permit Stipulations

COMPLIANCE PROBLEM #5: A small stockpile of waste rock was observed on the surface of the mine site near the Sangre de Christo Tunnel portal. The Division has no record of a geochemical analysis for this material in accordance with Stipulation No. 1 of the approved permit.

CORRECTIVE ACTIONS: The Operator shall conduct testing on the stockpiled material in accordance with the approved permit OR remove this material from the surface of the site and dispose of it appropriately.

CORRECTIVE ACTION DUE DATE: November 21, 2018

OBSERVATIONS

This inspection was conducted as part of the Division's routine monitoring program for permitted operations. Elliott Russell, with the Division, conducted the inspection while Justin Bills and Erik Munroe, representing the Operator, accompanied the inspection.

The Providence Mine is a 110d gold and silver operation and is approved to affect 9.93 acres of land. Affected lands will be reclaimed to support rangeland post-mining land use. The site is located one-half mile northeast of Cripple Creek, Colorado. The site consists of the Sangre de Cristo Tunnel area (9.35 acres) and the Air Raise area (0.58 acres).

Availability Of Records: Annual fees are paid through October 2018. The previous inspection was on January 1, 2016; there are no open infractions.

The site was inactive at the time of the inspection; the Operator stated there has been no mining activity at the site since before the 2014 succession of operators (SO-01). The permit file also reflects that there has been no mining activity at the site for several years. Rule 1.13.5 states, if an Operator temporarily ceases production of the mining operation for one hundred eighty (180) days or more, the Operator must file a Notice of Temporary Cessation. After the inspection, the Division met with Meg Burt, with Cripple Creek & Victor Gold Mining Company, to discuss Temporary Cessation and possibly reclaiming the mine site if the Operator doesn't intend to mine the site. The Operator views the Providence Mine as a potential asset to the Operator's other mining permit, the Cresson Project (Permit No. M-1980-244). It was determined the Operator will apply for Temporary Cessation and then within the first 5-year term of temporary cessation, the Operator will either incorporate the Providence Mine into the Cresson Project with the next amendment application (AM-13) or begin final reclamation. On October 9, 2018, the Operator submitted Notice of Temporary Cessation (TC-01), resolving the cited Compliance Problem #1.

Hydrologic Balance: No standing water or exposed groundwater was observed at the site. The Sangre de Cristo Tunnel portal was dry and no evidence of drainage observed.

Gen. Compliance With Mine Plan: The operation appeared to be in compliance with the approved mine plan. Google Earth was used to measure the disturbed area, which was estimated to be approximately 2.6 acres.

Signs and Markers: The permit sign was properly posted and permit boundary was marked.

Financial Warranty: The Division re-calculated the reclamation cost estimate and determined the \$17,200 bond held by the Division is adequate for the observed mine disturbance.

Sediment Control: Portions of the storm water containment berm around the crest of the Sangre de Cristo Tunnel area had eroded and two erosion gullies were observed. The Operator will need to backfill the two erosion gullies and re-establish the berm to ensure all storm water is managed in accordance with the approved permit. This has been cited as Compliance Problem #2 requiring corrective action; please see the second page of this report for more information.

Off-site Damage: The operation appeared to be confined to the permit boundary and no off-site damage was observed.

Other: The Air Raise area, located approximately 1,800 feet east-northeast of the Sangre de Cristo Tunnel area, contains an air ventilation shaft (permitted at a 48" diameter) and two pilot boreholes for future raises for additional ventilation or secondary escape ways. The air ventilation shaft was fenced and locked, however the two pilot holes, approximately 12" diameter, were open and unsecured. As these open boreholes pose a potential safety issue, Compliance Problem #3 has been cited requiring corrective action; please see the second page of this report for more information.

Revegetation: A large amount of musk thistle, a List B noxious weed, was observed across the mine site. This

has been cited as Compliance Problem #4 requiring corrective action; please see the second page of this report for more information. The Division has attached a musk thistle fact sheet from the Colorado Department of Agriculture for the operator's reference.

Permit Stipulations: The Division observed a small stockpile, approximately 10 cubic yards, near the entrance to the Sangre de Christo Tunnel portal. The Operator wasn't sure of the origin of this material and believed it was placed there by the previous operator prior to SO-01. Based on the appearance and location, the Division believes this material came from within the mine and is either ore or waste rock. Stipulation No. 1 of the approved permit states: *The permittee will commit to performing annual testing of ore and waste rock if removed to the surface of the permit area. Results to be included with Annual Report.* The permit file doesn't contain any information regarding the results of any Meteoric Water Mobility Procedure (MWMP) characterization of the geochemistry and leaching potential of this stockpiled material. This has been cited as Compliance Problem #5 requiring corrective action; please see the second page of this report for more information. After the inspection, the Division and Operator discussed that in this particular situation, instead of testing the unknown stockpiled material the Operator could haul this material to one of the Valley Leach Facilities of the adjacent Cresson Project and submit appropriate documentation of such action.

This concludes the Division's Inspection Report; a subset of photographs taken during the time of the inspection are included below. If you need additional information or have any questions, please contact me at Division of Reclamation, Mining and Safety, 1313 Sherman Street, Room 215, Denver, CO 80203, by telephone at **303-866-3567 x8132**, or by email at elliott.russell@state.co.us.

PHOTOGRAPHS



Photo 1. Mine site overview (Sangre de Cristo Tunnel area); looking east.



Photo 2. Sangre de Cristo Tunnel area; looking south.



Photo 3. First erosion gully resulting from the washed-out berm; looking west.



Photo 4. Second erosion gully resulting from the washed-out berm; looking southwest.



Photo 5. Air ventilation shaft (Air Raise area); looking southeast.



Photo 6. First open 12" borehole in the Air Raise area; looking northwest.



Photo 7. Second open 12" borehole in the Air Raise area; looking west.



Photo 8. Sample photo of musk thistle infestation; looking southeast.



Photo 9. Sample photo of musk thistle infestation; looking southeast.



Photo 10. Sangre de Cristo Tunnel portal overview, stockpiled ore or waste rock material circled in red; looking east.



Photo 11. Stockpiled ore or waste rock material; looking north.

Inspection Contact Address

Meg Burt
Cripple Creek & Victor Gold Mining Company
100 N 3rd Street
Victor, CO 80860

Attachment: Musk thistle fact sheet

CC: Michael Cunningham with DRMS
Justin Bills with CC&V



© Bruce Ackley, OH State University

Musk thistle *Carduus nutans* L. is a non-native biennial forb that reproduces solely by seed. During the first year of growth, a rosette forms in spring or fall. During the second year in mid to late spring, the stem bolts, flowers, sets seed, and the plant dies.

Musk thistle can grow up to 6 feet tall. The leaves have spines, are waxy, and dark green in color with a prominent light green to white midrib that can be seen from a distance. Leaves are dentately lobed; leaf bases sometimes extend down below the point of attachment. The terminal flower heads are purple, large in size (1.5 to 3 inches in diameter) and bend over as if nodding. These flower heads are made up of only disk flowers. They are surrounded by numerous, wide and stout lance-shaped, spine-tipped bracts that resemble an open pineapple. The pappus has

plumose bristles that appear barbed under magnification. Musk thistle produces many flower heads. The tallest shoots flower first; lateral shoots develop in leaf axils. A robust plant may produce 100 or more flowering heads. Reproduction is usually via out-crossing through insect pollination, but self-pollination also occurs. Flowers emerge in May through September. Seeds develop shortly after flowers emerge. Flower buds can contain viable seeds from self-pollination. Seeds can mature on severed bud and flower-heads. Seeds remain viable in the soil for up to about 14 years. Seeds can germinate and emerge from spring through fall.

Musk thistle habitat is found in a variety of environments extending from shortgrass prairie to alpine. It is strongly associated with heavily disturbed sites, where over-use occurs or where site conditions are poor due to land management practices. This includes over-grazed areas, large fires, trails, ditches and roadsides. Infested livestock pasturs suffer from significantly decreased carrying capacity.

Because musk thistle reproduces solely from seed, the key for successful management is to prevent seed production. Once flowers emerge and start to produce seed, effective management options will become limited. Once sites are infested, musk thistle can form dense stands. Prevention, adjusting land management practices, a robust integrated treatment plan and restoration are critical to eliminating this species.



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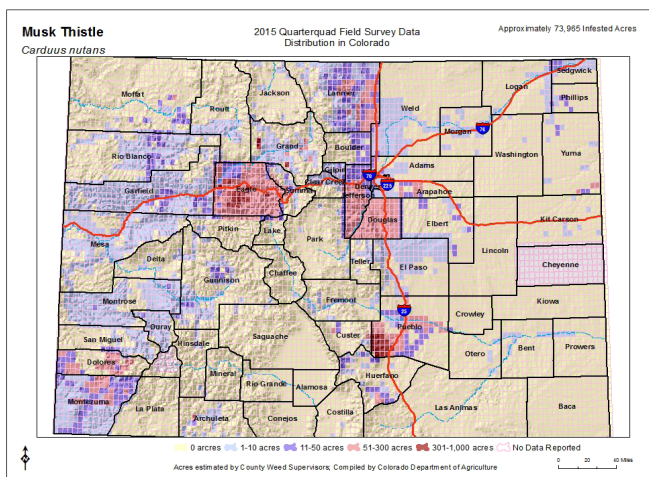
© Les Mehrhoff, DiscoverLife.org



Musk thistle

Carduus nutans L.

2015 Quarter Quad Survey



management practices, a robust integrated treatment plan and restoration are critical to eliminating this species.

Musk thistle is designated as a "List B" species in the Colorado Noxious Weed Act. It is required to be eradicated; some populations may be contained or suppressed depending on state regulations. For management directions for each county, refer to the most recent Rule, or visit www.colorado.gov/ag/weedcontacts for details.

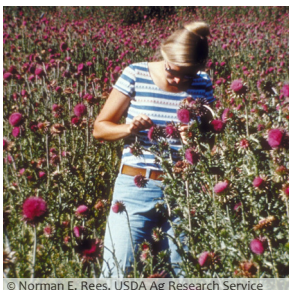
Key ID Points

1. Leaf with white midrib and leaf margins with spines.
2. Pappus with plumose barbed bristles.
3. Wide, stout lance-shaped bracts with spiny tips.

Integrated Weed Management Recommendations

Musk thistle *Carduus nutans* L.

Effective integrated management means using a variety of eradication methods that also includes restoration, prevention of seed production and dispersal, and monitoring. Maintain robust healthy native landscapes and restore degraded sites. Avoid soil disturbance. As with most biennials, prevent seed production in the first and second year of musk thistle growth. Prevent seed from dispersing, such as on contaminated equipment. Rest sites until they are effectively restored. Change land use practices. Use methods appropriate for the site.



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CULTURAL CONTROL METHODS

Musk thistle is not tolerant of competition and needs light to germinate seeds. Cultural methods should aim to maintain or restore a competitive assemblage of forbs, cool and warm season grasses. Implement whole site restoration of soils, plants and water regimes where stands of musk thistle exist where needed. Use locally adapted species that are ecologically appropriate for the site to improve competitiveness. Include annual as well as perennial species. Incorporate soil amendments, soil microbes and mycorrhizal fungi in restoration and land management efforts. Minimize soil compaction and disturbance, especially in wetlands and moist soil. Irrigation can increase competitive species.



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BIOLOGICAL CONTROL METHODS

Although horses, cattle, goats and sheep may eat flower heads on a few plants, seeds pass through their digestive tracks unaltered and spread. The leaf and stalk spines can cause domestic livestock to avoid mature musk thistle. Thus, musk thistle can become an "increaser" in over-grazed systems. Properly managed grazing can improve vigor of desired species and indirectly reduce musk thistle. *Trichosirocalus horridus* is the only biological control agent available for musk thistle in Colorado. The other species, *Rhinocyllus conicus*, is not host specific and will damage native thistles, and therefore cannot be released as an agent in Colorado. For more information, visit the Colorado Department of Agriculture's Palisade Insectary website at www.colorado.gov/ag/biocontrol.



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MECHANICAL CONTROL METHODS

Methods, such as tilling, hoeing and digging, are best for infestations smaller than 0.5 acres; weigh this against other plants present, ecology and site condition. Sever roots below the soil surface during the first year before the plant stores energy, and in the second year before flower production. Mowing, chopping and deadheading stimulates more flower production; these methods require consecutive years of season-long treatments. All flowerbuds and heads must be collected, bagged, and disposed of or destroyed; seeds will mature and germinate if left on the ground. Prescribed fire that results in high soil burn severity damage roots and above ground biomass, but is not recommended due to impacts on desired plants. Fire generally favors musk thistle germination.

CHEMICAL

NOTE: The following are recommendations for herbicides that can be applied to pastures and rangeland. Rates are approximate and based on equipment with an output of 30 gal/acre. Follow the label for exact rates. Always read, understand, and follow the label directions. The herbicide label is the LAW!

HERBICIDE	RATE	APPLICATION TIMING
Aminopyralid* (Milestone)	6 oz./acre + 0.25% v/v non-ionic surfactant	Apply in spring rosette to early bolting growth stages or in fall to rosettes. *Product not permitted for use in the San Luis Valley.
Chlorsulfuron** (Telar)	1-2.6 oz. product/acre + 0.25% v/v non-ionic surfactant	Apply in spring from rosette through very early flower growth stages. (Can prevent viable seed formation if applied no later than the first viable flowers begin to open.) **This herbicide has residual soil activity that will affect all broadleaf seedlings germinating after application has occurred.
Clopyralid (Transline)	0.67-1.33 pints product/acre + 0.25% v/v non-ionic surfactant	Apply to rosettes through flower bud stage in spring, or to fall rosettes.



Colorado Department of Agriculture - Conservation Services

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