112c Annual Report

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DIVISION OF RECLAMATION, MINING & SAFETY MINERALS
FEE REPORT MAP PW

(DRMS Office Use Only)

Permit Number:	M-1977-227
Permittee Name:	MWCA, Inc.
Operation Name:	Mesita Hill Pit
County:	Costilla
Anniversary Date:	February 9, 2016
Current Bond Amt:	$67,462.00
Annual Fee Due:	$791.00
Permit Acreage:	201.00
DRMS Specialist	LJW

According to C.R.S. 34-32.5-116 or 34-32-116, each year, on the anniversary date of the permit, an operator shall submit the Annual Fee, an Annual Report and Map showing the extent of current disturbances to affected land, required monitoring information, reclamation accomplished to date and during the preceding year, any new disturbance that is anticipated to occur during the upcoming year, any reclamation that will be performed during the upcoming year, the dates for the beginning of active operations, and the date active operations ceased for the year.

Information contained in this report will be reviewed by the Division upon receipt and prior to the next compliance inspection of the site. If, while completing this report, you learn that your site is not in compliance with the rules and the act, it is advisable that the issues be rectified promptly to avoid possible enforcement action.

1. Is the site identification sign posted in accordance with Rule 3.1.12(1)? (YES) NO
2. Is the affected area boundary clearly marked in accordance with Rule 3.1.12(2)? (YES) NO
3. Is the mine site in final reclamation (all material extraction and stockpile removal is complete)? YES (NO)
   If "YES," please note time limits related to completion of reclamation, Rule 3.1.3.
4. What was the date of last excavation, processing or hauling activity at the mine? 2008 - site reclamation
5. Does the mine operate more than 180 days per year? YES (NO)
   If "NO", please review Rule 1.13 to assure that your mine is in compliance.
6. Has this mine been granted: a) approval of TEMPORARY CESSATION Status? YES (NO)
   b) approval for INTERMITTENT OPERATION? YES (NO)
7. Number of acres currently affected (mining + incomplete and or unreleased reclamation): 5 acres - fines piles
8. Number of acres that were newly affected during the current report year: 0
9. Number of acres that were reclaimed during the current report year: 0
10. Estimated new acreage to be affected in the next report year: 0
11. Estimated acres to be reclaimed in the next report year: 0

12. **Total acres** in various stages of reclamation, since permitted mining activities began:

Total acres backfilled:	est. 100 acres	Total acres seeded w/ approved mix:	220	Total acres w/topsoil replaced:	est. 80 acres	Total acres mulched w/ approved mulch:	N/A
Total acres graded:	est. 125 acres	Total acres fertilized w/ apvd fertilizer:	N/A	Topsoil replacement depth (in.):	est. 6"	Mulch application rate (tons/ac):	N/A
Seed application method:	Hand sow native mix	Fertilizer application method:	N/A	Mulch application method:	N/A		

13. Is weed control being conducted in accordance with an approved Weed Control Plan? (YES) NO N/A
If "YES", indicate the weed species, control area, control type, application rate and treatment date on the report map.

14. Is adequate topsoil reserved for reclamation, based on your approved permit? (YES) NO N/A
If "NO", please explain:

15. Is the reserved topsoil vegetated/stabilized in accordance with Rule 3.1.9(1)? YES NO (N/A)
If "NO" please explain:

16. If mining has exposed groundwater, is the site in compliance with the approved mining plan and Office of the State Engineer (Well Permit, S.W.S.P., and/or Permanent Augmentation Plan)? YES NO (N/A)

17. Are all hazardous materials stored within approved spill containment structures? YES NO (N/A)

18. Is your financial warranty value sufficient to cover the cost to complete reclamation? (YES) NO N/A

19. Is your basis for legal right to enter still valid? (YES) NO

20. Does your permit require you to submit monitoring information annually? YES (NO) N/A
If "Yes", please attach the required monitoring results to this Annual Report.

21. As required by Colorado Mined Land Reclamation Act and/or Colorado Land Reclamation Act for the Extraction of Construction Materials (C.R.S. 34-32-116 or 34-32.5-116), attach a map to this report that accurately depicts the permit boundary, current affected area boundary and location of the acreages specified in items 7- 12 and 14. UPDATED

MAP ATTACHED: _____ 2015 update map attached

Refer to 2008 map - submitted Feb 5, 2009

Division records indicate the following permittee contact information. If this information is not current, please type or print **current** contact information:

Permittee Contact:	Paul L. Glader	
Permittee Company:	MWCA, Inc.	
Address:	6500 Mineral Dr., #200 Coeur d'Alene, ID 83815-9408	
Phone Number:	(208) 769-4112	
Fax Number:	(208) 292-5512	
Email Address:	Pglader@hecla-mining.com	

I, the undersigned, hereby state that the information provided in this report is true and accurate, and that site operations are being conducted in accordance with the Division approved mining and reclamation plans.

Signature of Permittee, Corporate Officer, Owner, or Documented Designee

1/12/16
Date

January 12, 2016

MWCA, Inc.
6500 Mineral Drive, Suite 200
Coeur d'Alene, Idaho 83815-9408

Division of Reclamation, Mining and Safety
1313 Sherman Street
Room 215
Denver, Colorado 80203

Reference: Permit # M-1977-227

Subject: Mesita Hill Pit Annual Report for 2015

Dear Sir/Madam,

Enclosed is the annual report and a check for the annual fee of $791.00. No new disturbances or reclamation have occurred during 2015, thus the disturbances and reclaimed areas shown by the map submitted with the 2008 report dated February 5, 2009 are unchanged. An updated map is included with this report.

Please call me at 208.769.4112 if you have any questions.

Sincerely,

Paul L. Glader
Corporate Environmental Director
MWCA, Inc/Hecla Limited

Tel.: 208.769.4100 Fax: 208.769.4122

MWCA, Inc.

Date: January 12, 2016

Reference: Permit # M-1977-227

Subject: Mesita Hill Pit Annual Report for 2015

The only activity conducted at Mesita Hill in 2015 was monitoring of the success of vegetation growth from the revegetation conducted in November 2008 after completion of the 2008 reclamation activities, and minor spot spraying of weeds.

Reclamation completed in 2008 included site ground contouring, filling in smaller pits, and larger pits contoured to allow livestock grazing. Available growth material was spread as far as possible. Contouring outside the permit boundary was also conducted as possible without disturbing mature vegetation.

The site was visited on June 20 and July 28, 2015 to monitor vegetation success. See attached Bamberg Ecological report dated August 2015. This report noted that vegetation cover and diversity is continuing to improve, and noxious weed cover is not present.

No new disturbances or reclamation have occurred during 2015, thus the areas shown by the map submitted with the 2008 report dated February 5, 2009 are unchanged. An updated map is included with this report.

Paul L. Glader
Corporate Environmental Director
MWCA, Inc/Hecla Limited

Tel.: 208.769.4112

2015 REVEGETATION MONITORING REPORT

MESITA HILL MINE

(DRMS Mine Id # M-1977-227)

COSTILLA COUNTY, COLORADO

Prepared for:

MWCA, Inc.
6500 N. Mineral Drive, Suite 200
Coeur d'Alene, Idaho 83815-9408

Prepared by:

Bamberg Ecology LLC
1312 17th Street, Suite 102
Denver, CO 80202

August 2015

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1.0 INTRODUCTION

This 2015 Annual Revegetation Monitoring Report is for the reclamation program at Mesita Hill Mine (DRMS Mine Id # M-1977-227) owned by MWCA, Inc. Mesita Hill Mine is an open-pit volcanic scoria mining operation encompassing a 201.2-acre permit area (175 acres of disturbance) and is located in Costilla County of southern Colorado in the San Luis Valley. The mine is in the San Luis Hills, south of Highway 160 and east of Highway 285, 2 miles (3 kilometers) west of the community of Mesita (Sec 26, Township 2 North, Range 74 West of the 6th Principal Meridian; Figure 1 in Appendix A). Scoria has a specific market and the mine, which has been in periodic operation since 1948, is currently inactive.

The site was surveyed by Ingrid Bamberg, Bamberg Ecology LLC, on June 20 and July 28, 2015, to identify the current stage of reclamation progress. Revegetation progress, including recent germination of perennials and annuals, and general conditions of the reclaimed areas was evaluated. Since no quantitative revegetation criteria are required for this mine site, the site was monitored using qualitative survey methods for plant cover species composition, and was photographed for documentation. This report discusses the current status of the mine site's reclamation.

2.0 SITE DESCRIPTION

The Mesita Hill mine site is a broad, low-relief, basaltic shield volcano with typical slope angles of one to two degrees. The scoria material in this location is only slightly welded and, due to slow market demand, has been mined over the long term. For this reason and that no explosives are used, the Mesita Hill mining operation has been relatively undisruptive to the surrounding landscape and community. The mine has several pits and rock outcrop areas with the north pit, at about 40-50 feet deep, the largest remaining unfilled on the property (Figures 2 and 3 in Appendix A).

The San Luis Valley is a semiarid landscape with vegetation dominated by drought-tolerant shrubs and shortgrass prairie species. Shrubs in the surrounding landscape are generally of a low-growing habit and are dominated by broom snakeweed (*Gutierrezia sarothrae*), rabbitbrush (*Chrysothamnus* sp.), winterfat (*Krascheninnikovia lanata*), and saltbush (*Atriplex* sp.). Grasses are dominated by blue grama (*Bouteloua gracilis*); other grasses may historically have been more dominant but appear to have been diminished by livestock grazing. Local land uses,

restricted by the lack of surface water, are rangeland and wildlife habitat.

The annual mean temperature is 42.2°F with an average annual total precipitation of 11.8"; from rain (9.2") and snow (26.0" at 2.6" water equivalent)[1]. The growing season averages 94 days. Over the last five years, monthly precipitation patterns in the region as typified by the San Luis, Colorado weather station show the variable nature of this climatic element (Figure 4 in Appendix A). This semi-arid region follows a bimodal precipitation pattern with fall (August to September) have the highest rainfall and late spring (April to May) providing a second, lighter rainfall period for soil moisture recharge.

In Figure 3, precipitation is analyzed for the 12-month period immediately prior to the annual June monitoring survey, i.e., June of the prior year to May of the monitored year. The 12-month total precipitation for 5 cycles (June-May) preceding were:

2010-2011	12.1"
2011-2012	12.4"
2012-2013	8.4"
2013-2014	15.6"
2014-2015	16.7"

Precipitation has been greater than typical (11.8" per year) during four of the five 12-month cycles prior to the monitoring in June 2015.

3.0 REVEGETATION SUCCESS CRITERIA

Revegetation success at the Mesita Hill Mine has no standard defined in the mine permit. Portions of the mine were disturbed prior to laws for reclamation and not re-disturbed under subsequent permits (see "Pre-law" locations in Figure 2 and 3, Appendix A). The reclamation plan for this mine site was permitted in 1988 and falls within the Surface Mining Control and Reclamation Act of 1977 (SMCRA) and is prior to, but conforming with, subsequent laws including the Colorado Land Reclamation Act for the Extraction of Construction Materials.

Reclaimed areas, especially in semiarid environments, tend to be variable in their plant cover and density, with some portions well above the standard while others are more barren. A reclaimed site, and areas within the site, should be evaluated as a whole with the understanding that some portions with lower plant cover, whether due to rock outcrops, poor soil, steep slopes,

1 Data from National Weather Service, U.S. Department of Commerce

or other conditions, will be offset by portions with higher plant cover.

Revegetation can generally be considered successful when native perennial vegetation within reclaimed portions represents about 5% vegetative cover and all native vegetation, both perennial and annual, is stable. Stability is determined by the presence of plants setting seed and the presence of seedlings. Generally, adequately reclaimed mines are able to meet standard success criteria within two to three years under normal rainfall conditions. Therefore, the revegetation success at the Mesita Hill Mine will be evaluated for the purposes of this report with the concept of a stable, self-sustaining revegetation represented by a stable native perennial species cover of at least 5% on the reclaimed portions of the mine site. Stability is defined by the presence of plants setting seed and the resultant seedlings continuing with growth and reproduction.

4.0 CURRENT RECLAMATION STATUS

The mine site underwent a reclamation effort in October and November of 2008 including partial slope reduction on the north pit, redistribution of remaining stockpiled topsoil, ripping of the backfilled central area surface, and seeding of these areas, i.e., seven years prior to this 2015 survey. Mine disturbance areas with re-spread topsoil cover include the perimeter of the mine disturbance (Appendix A, Figure 2). Topsoil placement was spread across the site as identified below:

Area	Topsoil placement
Northern portion	Mosaic of topsoil around outer portion
Northeast portion	Majority topsoil covered
Main Pit – north slope	Upper portion with topsoil
Main Pit – east slope	Upper portion with topsoil
Main Pit – south slope	Upper portion with topsoil
Main Pit – west slope	No topsoil
Northwest portion	Mosaic of topsoil
Western portion	Mosaic of topsoil around outer portion
Southwest slope	Topsoil covered in upper portion
Southern portion	Topsoil covered
Southeastern hillock	Topsoil covered
Central flat	No topsoil

Limited stockpiled topsoil, which has been entirely spread, did not allow for a topsoil cover of the central portion of the mine. The largest portion(of what?) is a former mined area that was backfilled with remnant scoria material from the site and graded level ("Central Flat" area in Appendix A, Figure 3). Also a remnant area of various pits and outcrops is present on the western and northern portion of the site. These areas have very low vegetative cover due to the consoli-dated igneous material surface; however they provide increased bird and small animal habitat.[2]

The access road and a cement pad with bins will remain as permanent features as approved by Colorado State Division of Reclamation, Mining and Safety. Two fine-material scoria stockpiles remain on the eastern portion of the site (Appendix A, Figure 3).

4.1 Survey Methods

The monitoring survey method used on June 20 and July 28, 2015 matches previous surveys and consisted of recording average cover and diversity in relatively similar areas as presented in the next section (Section 4.2 Survey Results). Vegetative cover was determined by ocular observation of the entire area and estimating as an overall average. Plant diversity was determined by traversing each area and recording all species observed.

4.2 Survey Results

Erosion and Slope Stability

Almost seven years after major earthwork efforts, the grading at the Mesita Hill Mine blends well with the surrounding landscape. Only minor erosion was observed on one northwest hillside and no riling was observed on sloped surfaces. The grading of the scoria substrate and replaced topsoil has remained stable, even with average to heavy rainfall events.

Vegetation Cover

Most of the Mesita Mine site had good vegetative ground cover (Table 1). The perimeters of the site have the greatest plant cover, partially in the northeast and northwest (Photo 1). These are the areas with the most extensive topsoil cover, greatest topographic relief, and the longest time since reclamation. Vegetative cover type and percentage were locally variable depending on substrate, location, and reclamation event (with some variation in seed mixes used).

2 M.A. Rumble, 1989, Wildlife Associated with Scoris Outcrops: Implication for Reclamation of Mined Lands, U.S. Forest Service Research Paper RM-285; available online 17Jul2014 at www.fs.fed.us/rm/pubs_rm/rm_rp285.pdf

Table 1. Vegetative Coverage Values, Mesita Hill Site, July 2015.

Area	Average Total Cover (%)	Range of Cover (%)	Average Shrub Cover (%)
Northern portion	40	30 to 50	20
Northeast portion	75	30 to 90	65
Main Pit – north slope	35	10 to 40	30
Main Pit – east slope	40	15 to 60	35
Main Pit – south slope	30	10 to 45	20
Main Pit – west slope	20	5 to 30	10
Northwest portion	70	10 to 85	60
Western portion	65	20 to 90	30
Southwest slope	40	30 to 100	25
Southern portion	50	40 to 100	30
Southeastern hillock	60	45 to 80	45
Central flat	20	1 to 30	12

In the last two years with above average winter and spring precipitation, shrub cover has increased significantly. New seedlings were observed in all reclaimed portions giving evidence of self-regeneration by the native vegetation (Photo 2). Exceptions to the good cover were observed in a couple of limited areas in and around minor remaining pits and outcrops on the western portion where vegetative cover was low (Photo 3). Even in these areas some plant presence was observed during this annual monitoring, attesting to the beginning of soil system development on these raw run-of-mine surfaces.

Slopes of the Main Pit (central north in Figure 3, Appendix A; Photo 4) had variable cover depending on location. The upper portion, where the slopes were reduced and topsoil placed, have good to excellent cover. The lower slopes have low vegetation cover with some bare areas.

The central flat area with the run-of-mine scoria surface averaged 20% vegetative ground cover, double or more the cover last year (Photo 5). This area has been slower to grow and regenerate than the remainder of the site. This may be due to the lower moisture retention of the substrate and a greater surface temperature during the summer days from the dark surface and lack of topographic relief. The southwest portion of the central flats continues to have very low cover with large areas bare, but also had increase cover from previous years.

Vegetation Diversity

Plant species diversity was good during the 2015 inspection and has continued to increase

since the 2008 reclamation effort (Table 2). The dominant pioneer plant species from 2013 and 2014, blazing star (*Mentzelia laevicaulis*) which is a biennial herbaceous plant, was joined by an annual buckwheat (*Eriogonum deflexum*) in 2015. The dominant shrubs were four-wing saltbush (*Atriplex canescens*), green rabbitbrush (*Chrysothamnus viscidiflorus*) and broom snakeweed (*Gutierrezia sarothrae*). Grass were more abundant than observed in 2014, but showed evidence of grazing, and included blue grama (*Bouteloua gracilis*), Indian ricegrass (*Achnatherum hymenoides*), and western wheatgrass (*Pascopyrum smithii*).

Table 2. Vegetative Diversity, Mesita Hill Site, July 2015.

Area	Diversity (# of spp)
Northern portion	10
Northeast portion	8
Main Pit – north slope	7
Main Pit – east slope	10
Main Pit – south slope	8
Main Pit – west slope	7
Northwest portion	8
Western portion	8
Southwest slope	10
Southern portion	9
Southeastern hillock	7
Central flat	6

Other plant species present on the site included wirelettuce (*Stephanomeria tenuifolia*), buckwheat (Eriogonum *deflexum*, bottlebrush grass (*Hordeum jubatum*), three-awn grass (*Aristida* sp.), winterfat (*Krascheninnikovia lanata*), and a couple of annual flowering plants. Some plants, particularly the grasses, were clipped, presumably from grazing by cattle and wildlife.

Wildlife

Scoria rock outcrops have been found to have greater bird populations and bird species richness than in the surrounding sagebrush and grassland habitats[2]. In studies, these differences were attributed to the structural features provided by the outcrops. In addition, most small mammal populations were also larger in the outcrops habitats.

Evidence of wildlife presence on the site have continued to increase since reclamation efforts. Bird observations included passerine birds, common nighthawk (*Chordeiles minor*), and

common raven (*Corvus corax*). A mourning dove (*Zenaida macroura*) with nest was present. The large raptor nest on a rock face in the western portion of the site was occupied by a great horned owl (*Bubo virginianus*) with two owlets (observed through binoculars) during the June 2015 site survey. Direct observation included pronghorn antelope (*Antilocapra americana*), numerous eastern cottontail rabbit (*Sylvilagus floridanus*), short horned lizard (Phrynosoma hernandesi), other lizards, and insects (including spider and butterfly). Animal sign included rodent (burrows) and domestic cow (dung and tracks).

5.0 NOXIOUS WEEDS

No Colorado state-listed noxious weeds were observed during the 2015 site monitoring. Colorado Noxious Weed List is divided into a List A, B, C and Watch List based on control requirements as designated by the Commissioner and other entities (http://www.colorado.gov/cs/Satellite/ag_Conservation/CBON/1251618874438). List A species are designated for eradication (22 species statewide). List B weed species have state noxious weed management plans designed to stop the continued spread of these species (37 species statewide). For List C weed species, local governing bodies facilitate more effective integrated weed management on private and public lands with management plans designed to provide additional education, research, and biological control resources to jurisdictions that choose to require management of List C species (15 species statewide). Watch List weed species pose a potential threat to the agricultural productivity and environmental values of the lands of the state. The Watch List is intended to serve advisory and educational purposes only (22 species statewide).

Table 3. Costilla County Noxious Weed List

Common Name	Scientific Name	Colorado State List
Bull thistle	Cirsium vulgare	B
Canada thistle	Cirsium arvense	B
Hoary cress	Cardaria draba	B
Houndstongue	Cynoglossum officinale	B
Leafy spurge	Euphorbia esula	B
Musk thistle	Carduus nutans	B
Russian knapweed	Acroptilon repens	B
Yellow toadflax	Linaria vulgaris	B
Field bindweed	Convolvulus arvensis	C

Costilla County lists nine noxious weed species (eight from the List B and one from List C) as presented in Table 3. Previously two patches of noxious weeds near the mine entrance were present during 2005 to 2011. These noxious weed patches were comprised of Canada thistle

and Russian knapweed. These patches of noxious weeds appear to have been eradicated and no additional plants were noted. Two non-native species, Russian thistle (a.k.a. tumbleweed; *Salsola kali*) and pigweed (*Amaranthus* sp.), were present in low numbers in some areas of the reclamation site. However, these are not listed as a noxious weed. Therefore, noxious weeds were not a concern at this site for 2015.

6.0 CONCLUSIONS

Revegetation efforts at the Mesita Hill mine site are successful to the standards required of this mine site. The native vegetation is established and is continuing to self-regenerate and expand its cover. Noxious weed cover was not present. Vegetative cover and diversity across the reclaimed portions of the mine site has continued to increase since reseeding in fall 2008 with a shift in dominant vegetation cover from scattered grasses to a substantial number of shrubs and perennial forbs. This change in species composition might be due to grazing and browsing pressure from the free-range cattle and wildlife, including pronghorn, rabbits, and rodents. In addition, for the first several years following revegetation efforts, mine disturbance areas with topsoil had the greatest revegetation success; however, excellent cover and diversity was observed in 2015 across the majority of the mine site. This is also evidence that the mine site vegetative community and soil system are settling into a stable and sustainable state.

Appendix A

Figures for Mesita Hill Mine

2015

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Figure 1. Mesita Hill Mine location in south-central Colorado.

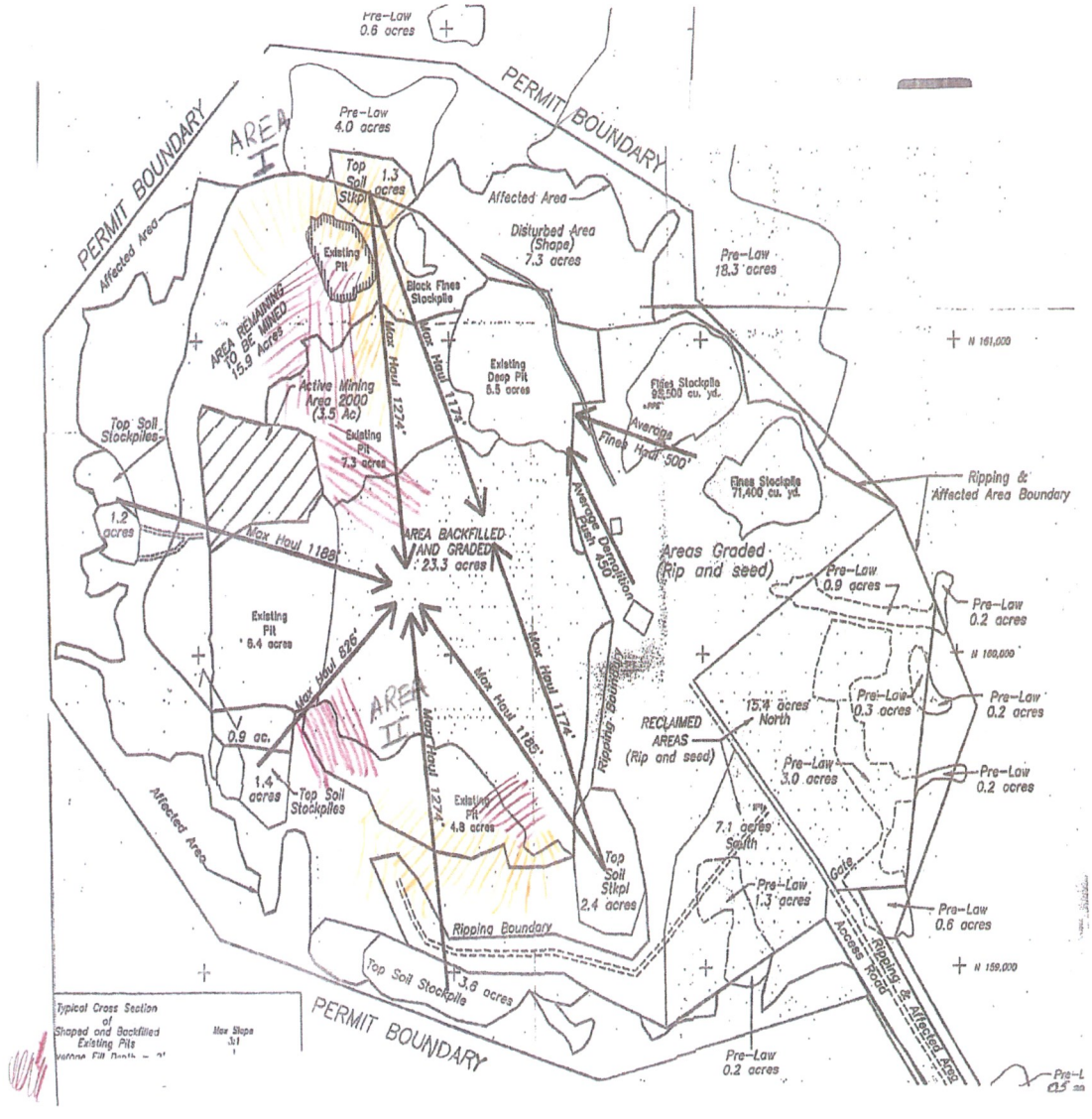


Figure 2. Mesita Hill Mine site layout during operations.

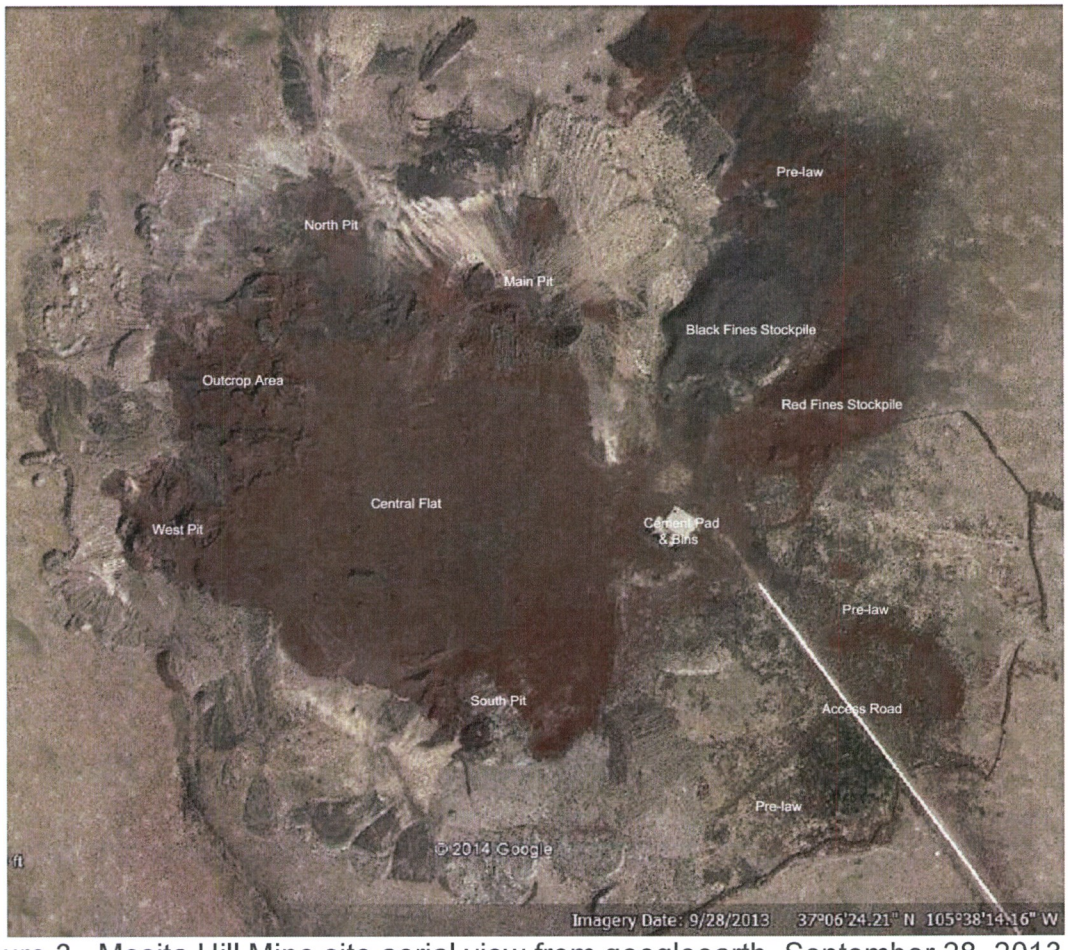
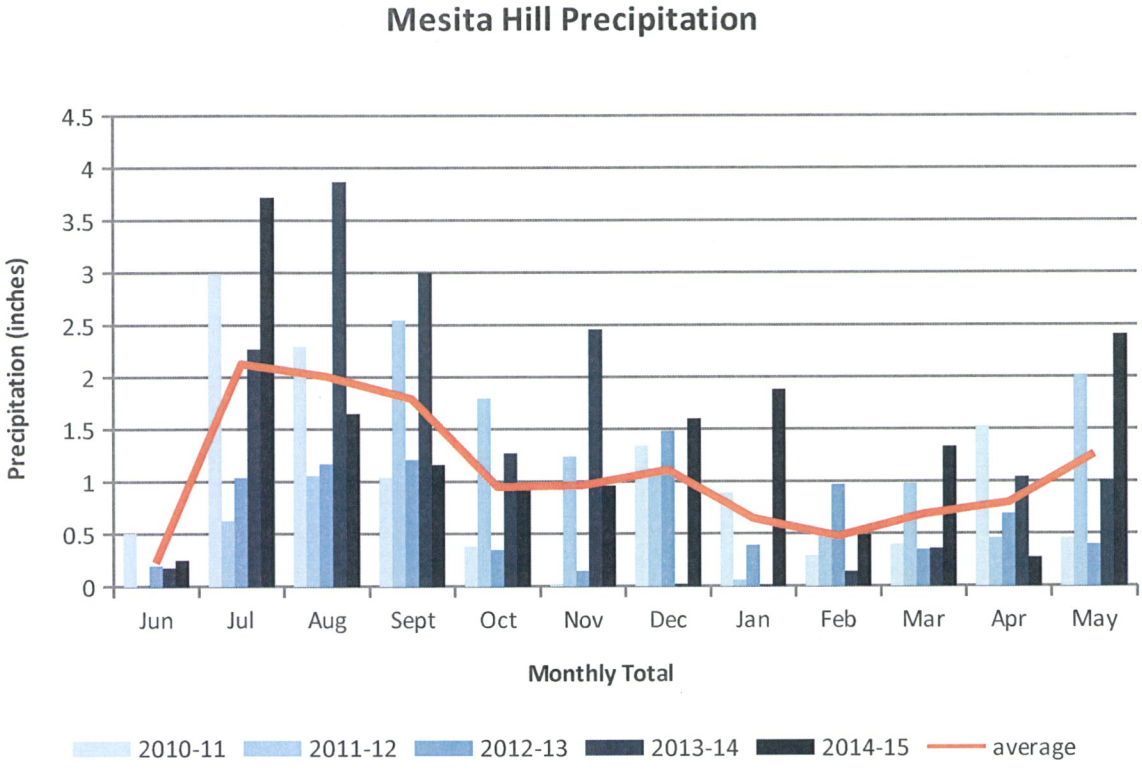


Figure 3. Mesita Hill Mine site aerial view from googleearth, September 28, 2013.



Note: Data for this graph was obtained from http://www.ncdc.noaa.gov/cdo-web/
Station: SAN LUIS 8.8 SW, CO US (GHCND US1COCS0012).

Figure 4. Precipitation totals by month from June 2010 to May 2015 (blue bars) at San Luis, Colorado; average monthly precipitation for this time frame is identified with the tan line.

Appendix B
Photographs at Mesita Hill Mine
2015

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Photo 1. Many areas have excellent shrub and perennial herb cover, northeastern portion adjacent to Main Pit, Mesita Hill Mine, July 2015.

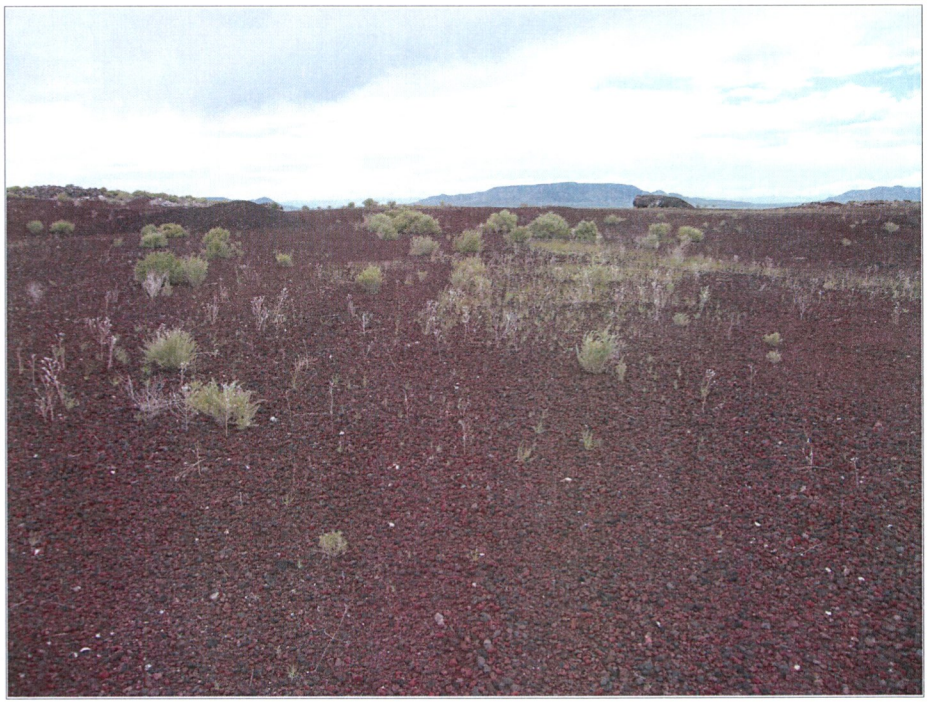

Photo 2. The site has good regeneration as evidenced by seed set and seedlings, Mesita Hill Mine, July 2015.

Photo 3. Remnant pit and outcrop area with have lower vegetative cover but provide good bird and small animal habitat, Mesita Hill Mine, July 2015.

Photo 4. The Main Pit slopes have vegetated well providing added stability, Mesita Hill Mine, July 2015.

Photo 5. The Central Flat portion has no topsoil or topographic relief however the shrub density is continuing to increase, Mesita Hill Mine, July 2015.

Photo 6. Wildlife has adapted to the site and includes nesting Great Horned Owl (picture taken with telephoto lens), Mesita Hill Mine, June 2015.

Division of Reclamation, Mining, and Safety

Fee Receipt for M1977227

MWCA, Inc.

000000000

Receipt #: 20881
Date: 01/27/2016
Permit: M1977227

Payment Method	Revenue Code	Fee Description/Notes	Amount
109421 SDT	4300-MAF0	Minerals Annual Fees M1977-227	$791.00
		Receipt Total:	**$791.00**