



MINE PLAN

COMPANY NAME
Valle Mining Company

TYPE OF PLAN (CHECK ONE):
 SHORT TERM, FOR ONE PERMIT YEAR
 LONG TERM, FOR PERIOD THROUGH DATE: **07-14-2105**

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION AND TOPOGRAPHY
 Valles Mines, in the Mineral Belt at the north end of Ste. Francois County shows existing soil and vegetation models for Dolomitic Glade or Woodland Community specifications (Ref. 1). Our highest peak, the 'Valley' point on the USGS Halifax quad sheet, stands at 1133 feet as the center of our Cambrian Eminence outcrops. 18th and 19th century management used annual burning and free-range grazing, marked by a 3500 acre clearcut in 1914 and a Defense Department in-stream ore washer in WWII. Wherever reverse thrust faulting displaced metallic ores in the Potosi Formation upwards within reach of the surface, miners hand-dug surface pits. These led to subsurface digs then "deep digs" down to the 200+ foot level. Over 200 mine sites remain unreclaimed on the 3500+ acreage. Outcroppings show as a series of glades. Frazier Quarry, formerly a former 4 acre ore dump marks a series of outcrops of dolomitic limestone near 6 untested areas that may require reclamation to complete their exploration after drilling and blasting or excavating for sampling. All areas are reached by abandoned County roads, notably the Hillsboro-Farmington Road or historic ox-cart roads, notably the Valles Mines-Ste. Genevieve Road and Selma Road. While all tree cover in mine areas had been removed once, new forest stand maps (Ref.4) and 1986 regeneration cuts today prove root structures have reestablished.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

A. TOPSOIL	
AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING <p style="text-align: center;">0-12" INCHES</p>	IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE? <input type="checkbox"/> YES OR <input checked="" type="checkbox"/> NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL
Our limited tests at the Frazier have shown that topsoil can be stripped using a bulldozer downhill or high lift uphill and piled for impoundment and seeding. 6" or less soil depth to top-of-rock was a major factor in the prospecting. Accumulating topsoil from about 1/4 acre resulted in a pile 30' wide and 5 feet tall.

Scraping the surface uncovered top-of-rock contours shaped like lobes on a head of cauliflower. The rock surface did not shatter or fracture when scraped and contained very few rock shards indicating all topsoil should be usable. The particular rock surface we scraped appeared to match other weathered outcroppings on the VMC property of the Eminence formation where the 900-1000 foot elevation matches and depth to top of rock is 2 feet or less the entire extent of their surface exposure.

Topsoil removal will be at least 20 feet ahead of pit excavation.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

All test and quarry locations lie below the elevation (1000+ feet) of the cherty Gasconade rock unit uphill and at the top of their watersheds in forests supplying sufficient supply of mature stems. Sufficient hardwood trees as needed will be limbed and used for topsoil containment. If required, ends will be chainsawed to half-lap and hammerdrilled to accept 1/2 rebar fasteners. See Pg. 3, '... log reuse for den habitats' during reclamation).

Our tests show while regrowth from native seed in the topsoil works eventually, a short term seeding immediately is required to retain silt runoff. We expect to use a dozer's tracks to compact the mound's base perimeter. At the same time, we will seed the mound's bare earth with oats, winter wheat and Canada rye and then mulch. The seasonal timing will coincide with enough rainfall to properly germinate the cover crop without risking soil erosion from 'gully washers'. Depending on the weather cycle, shot rock burms may be added downhill as well as tree trunk curbing initially until germination takes over. Daily inspection may be required until the soil is stable.

Geologic considerations: Topsoil storage uphill of the highwall may cross faultlines of adjacent geologic structures but any storage site chosen will be inspected thoroughly to prevent runoff through cracks, dips, airholes, drifts, shafts, etc.

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B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

As the Frazier Quarry represents a startup operation, work will precede any use of spoil. First we will crush and remove the 3000 yards of dolomite dumps now on the ground until we can see what room we have to work with. Then, starting at the lowest point we will strip 1/2 acre, stockpile the topsoil and spoil on the uphill side of the new highwall.

While repairing the existing haul road system and grading a work area and quarry floor, we will also begin a series of log berms to impound the topsoil and what spoil may result. Sufficient amounts will be retained to return to the permitted and bonded areas after mining for filling and grading before topsoil replacement to restore the Frazier Quarry to a Dolomitic Glade.

While 'fines' from crushing will be retained separately for processing as a secondary aggregate, inspection of the spoil now along the high edge of the bonded area will determine any runoff problems requiring additional dirt retention walls sufficient to contain runoff. To return spoil to begin the reclamation, we will push it off the top, grade and seed it.

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

The Frazier Quarry area stands near our "Big Lode" mine which is considered a 'dry' mine. We have yet to find acid mine drainage (AMD) or acid rock drainage (ARD) or any other outflow of acidic water from it. We do not expect any interaction. We are bonding 1/2 acre for regrading/seeding the side walls of a decline entrance into the Big Lode to a machine transversible slope to allow inspection and sampling.

Any residual iron pyrite in abandoned dump areas will be buried in dolomitic fines and overburden to block contact with air. To deny water to any possible chemical reaction, any catch basins will be located well below (downhill from) any such areas. Additionally, being located at the top of a watershed on a steep and rocky mountainside has benefits of both running water off fast and receiving very little runoff from uphill.

Iron pyrite oxidation (iron-sulfide) generating acidity has not been found within the dolomite of the surrounding rock at Frazier Quarry. We also expect the dolomite to neutralize cross contamination from trucks.

D. PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

The proposed pit runs NW to SE with its highwall on the NE side. The current test hole bisects this NW-SE line and establishes the elevation of the floor of the pit. We will work approx. 200 feet NW off the NW face of the test hole maintaining the bottom of the test hole to establish a quarry floor and work area. As the pit progresses SE for 800 ft. it is expected to leave a short highwall along the existing haul road on the SW side as the road inclines uphill. After 800 ft. and sometime in the future we hope to turn north and to join an existing 1/4 acre test hole on top of the ridge.

An existing haul road (shown as a loop on the quad sheet map) runs from the old 'Rock Road' on high ground along the ridge above the pit, turning downhill to the foot of the Frazier permitted area. The road loops here at the old dump site and travels back to the old 'Rock Road' this time along the bottom of the hill. This Loop Road will remain as-is. All work is expected within the Loop.

Depending on test results from the floor of the quarry, which should extend 200' X 800' at this point, if no further vertical progression is called for, reclamation could begin.

YES NO

Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of-way of any public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right-of-way, and in no case may the excavation be closer to the right-of-way than fifty feet or twenty-five feet plus one and one-half (1½) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

Will any excavation start at or within fifty feet (50') of any property line? (NOTE: If the answer is "YES", a safety barrier may be needed.)

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RECLAMATION PLAN - 10 CSR 40-10.020(2)(D)2.

A. REVEGETATION (Attach additional sheets, if needed)

REVEGETATION MIX #1 For slopes less than 1:5 (GLADE)	PURPOSE OR LAND USE Wildlife	B. SEEDING OR PLANTING TIME Nov. 1 to Jan 15th.
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DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

We expect to reclaim quarry floor and exposed ledge by replacing a thin layer of the retained topsoil using a bulldozer or highlift. Topsoil having been contained by log berm and shot rock barriers above the highwall or across the road on the same elevation as the floor, will return to the floor area first by pushing off the shotrock retaining wall, grading it for the flattest contour, then covering it with topsoil from above or across the road (200 ft. away). This allows us to retain features such as boulders (over 24" in height) and logs in the design. For details on sloping and den habitat, see below "Reveg #2 - For Slopes 1:2 to 1:5".

Seeding for soil containment will follow immediately by hand after grading or by ATV ('4 wheeler') with seed spreader. Boulder placement no closer than the width of an ATV will allow future mowing or remedial seeding. No holes or dips larger than can be easily and safely navigated by an ATV will be allowed or boulders smaller than 24" in height.

SEEDED SPECIES	POUNDS/ACRE	FORBS	POUNDS/ACRE
Grasses - Glade Mix - Year 1		Forbs - Glade Mix - Year 1	
Little bluestem	2.0	Gray-headed coneflower	0.25
Big bluestem	1.0	Plains coreopsis	0.25
Sideoats grama	2.0	Pale purple coneflower	0.50
Indian grass	1.0	Lanceleaf coreopsis	0.25
Switch grass	0.5	Black-eyed susan	0.25
Canada Wildrye	1.0	Rigid goldenrod	0.25
Total per acres	7.5	Total per acre	1.75

REVEGETATION MIX #2 For slopes 1:2 to 1:5	PURPOSE OR LAND USE Wildlife	B. SEEDING OR PLANTING TIME Nov. 1 to Jan 15th.
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DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

Non-consolidated material and spoil will transition the highwall to the glade surface with a slope no greater than 1:5. Some logs will be partially buried by riprap and spoil at the base of the wall to create eventual den habitats after rotting. To reduce erosion and reduce weeds, we will incorporate a nurse crop along with the native grass mix at a rate of 60-90 pounds of oats per acre. To improve distribution we will mix 4 parts sawdust or moist sand to 1 part seed mix. We do not anticipate having a no-till drill but might use one if available. We do anticipate mowing for weed control as necessary in Year 1. Invasive species have not been found after 4 years on our 1/4 acre test site nearby however, periodic inspection for invasive species by qualified personnel will decide if herbicides are required. To control trees and shrubs on the glade, we anticipate a late winter or early spring mowing using an ATV with a mower able to cut 6" to 12" heights, such as a Kunz Engineering AcrEase MR55 series Rough Cut/57" Pull Mowers or Wikco Model ESERM-4816 Estate Rough Cut Mower. Seeding times may range from Nov. 1 to Jan 15th.

SEEDED SPECIES	POUNDS/ACRE		OZS/ACRE
Grasses	1:2 to 1:5 Mix	Forbs - Year 1	
Little bluestem	4.00	Gray-headed coneflower	0.5
Big bluestem	2.00	Plains coreopsis	0.5
Sideoats grama	4.00	Pale purple coneflower	1.0
Indian grass	2.00	Lanceleaf coreopsis	0.5
Switch grass	1.00	Black-eyed susan	0.5
Canada Wildrye	2.00	Rigid goldenrod	0.5
Total per acres	15.00	Total per acre	3.50

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

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RECLAMATION PLAN - 10 CSR 40-10.020(2)(D)2.

A. REVEGETATION (Attach additional sheets, if needed)

REVEGETATION MIX #1

PURPOSE OR LAND USE

Wildlife

B. SEEDING OR PLANTING TIME

Nov.1 to Jan. 15th

Critical Erosion Areas or Slopes greater than 1:2

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

In the event that extreme measures are needed, the mix below will be applied. An appropriate 'erosion control product' from the list below may also be required until the Native (Ref. 2, 3) plants are established.

SEEDED SPECIES		POUNDS/ACRE		OZS/ACRE	
Grasses		Erosion Control Plantings		Forbs/Wildflowers	
Seedbed type:	Good	Fair		Lance-leaved coreopsis	2.0
Little bluestem	9.60	11.70		Plains coreopsis	2.0
Big bluestem	12.00	18.00		Black-eyed Susan	1.0
Sideoats grama	11.25	16.80		Pale purple coneflower	1.0
Indian grass	11.70	17.55		Rough or tall blazingstar	0.2
Switch grass	10.50	21.00		Ashy or western sunflower	0.2
Canada Wild rye	15.00	18.00		Purple prairie clover	2.0
				Illinois bundleflower	2.5
				Partridge Pea	1.5
				Blue wild Indigo	0.5
				Pale purple coneflower	1.0
Total per acres	95.05	128.05		ttl	13.9

Erosion Controls

Mulch Not To Exceed 1.5 tons/acre

- Wheat Straw
- Prairie Hay

Slope-Stabilization Mats

- | | |
|-------------------|------------------------------|
| Type | Sold as |
| Fiber Mat | Geojute® |
| Wood shavings mat | Curlex® No.1 |
| Straw mat | North American Green |
| | S75 Single net straw blanket |

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

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B. GRADING

DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES

We expect a terraced hillside with at least one highwall on the north parallel to the Loop Road and stepped to the correct height for safety.

If the rock unit stays consistent as we work to its end as drilled, we will turn north into the hillside a short distance, far enough to leave a miniature 1/2 acre canyon structure behind. The total structure should leave behind 3 sides below grade and an east facing entry at the lowest level of the quarry.

Unconsolidated material will be scaled off the rock faces as work progresses and separated into 2 size groups, i.e., rocks larger than 24" and all material smaller than 24". Upon reclamation as a glade, the first material will create land features when spread out and the second group will allow construction of transitional slopes at the foot of the highwalls, sloping not more than 1:5. For example, this could provide a 3D shape similar to an amphitheater with 3000 person lawn seating for 'rock' concerts.

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES

GRADING

1st: The larger material as boulders will be separated to allow the safe passage of an ATV between for eventual sowing and mowing. Smaller material will be sloped at the base of the walls. Topsoil containment logs used previously will be partially buried by the smaller material to allow for den habitat upon rotting. All work will be in accordance with 10 CSR 40-10.050 (10)(A).

REPLACEMENT OF TOPSOIL

2nd: Topsoil replacement depends on the exposure of stone ledge and its slope. Topsoil for Glade (see Reveg #1, "For slopes less than 1:2") will be approx. 3" deep. The next kind of slope (see Reveg #2, "Slopes 1:2 to 1:5") will first have its framework around which its shape is built made of smaller material covered in spoil, then topsoil to a depth of 6"-12". Steeper slopes may have no topsoil at all but a course of rip-rap that will silt in and eventually trap organic material to create their own, however, to prevent turbidity in runoff, erosion control products may be needed in accordance with 10 CSR 40-10.050 (10)(A).

REVEGETATION

3rd stage in reclamation is immediate seeding for soil stabilization. We will be planting Native Warm-season Grasses and forbs that require a nurse crop in all but the flattest cases to hold the soil until the desired species can root. (See "Chapter One: Reconstructing a Tallgrass Prairie, A Seeding Guide for Missouri", Shaw Nature Reserve, MDC & MDA and "Native Warm-Season Grass and Wildflower Planting Recommendations" MDC). Regular inspection for erosion follow until eliminated. Native Valles Mines Wildflower species will follow in Year 2 of a reclamation site's revegetation to include at least our native species at Frazier Quarry's 1/4 acre test (see "Regeneration from Bare Earth Excavation 2003" as well as "Valles Mines Wildflowers as Identified by Mrs. Dale (Merle) Frazier and Steve Frazier". Additional wildflower species may be added subject to price/availabiltiy from local native seed nurseries in accordance w 10 CSR 40-10.050 (10)(B).

AVERAGE DEPTH OF REPLACED TOPSOIL (INCHES)

Glades: 3" Slopes: 3 - 12"

D. USE OF LAND WHEN RECLAIMED

Estimate acreage of each land use below, after reclamation

ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

611

Agricultural (pasture, cropland, and horticultural)

0

Development (residential, industrial, and recreational)

0

Water impoundments (for wildlife, agriculture, or development)

0

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References

- 1) MDOC pub: "Natural Terrestrial Communities of Missouri" 2005
- 2) Jan Dellamano, MDC & Scott Woodbury, Shaw Nature Preserve
- 3) Frazier, Mrs. Dale (Merle) & Steven, with identification help from MDC Powder Valley
- 4) 1975 Forest Stand Map by Edgar Falkner, certified photogrammetrist, certified mapping scientist.

Valles Mines - Frazier Quarry site

REGENERATION from bare earth excavation 2003

Listing of specimens gathered from the site Sept 2007

Wildflowers

Prairie Dock	<i>silphium terebinthinaceum</i>
Field Thistle	<i>cirsium discolor</i>
Tall Thistle	<i>cirsium altissimum</i>
Dogbane (Indian Hemp)	<i>apocynum cannabinum</i>
Partridge Pea	<i>chamaechrista fasciculata</i>
Dittany	<i>cunila organoides</i>
Tall Bellflower	<i>campanula americana</i>
Lead Plant	<i>amorpha canescens</i>
White Snakeroot	<i>eupatorium rugosum</i>
White Heath Aster	<i>aster pilosus</i>
Horseweed	<i>conyza canadensis</i>
Flowering Spurge	<i>euphorbia corollata</i>
Black-eyed Susan (Missouri)	<i>rudbeckia missouriensis</i>
Ox-eye sunflower	<i>heliopsis helianthoides</i>

Grasses

Switchgrass	<i>panicum virgatum</i>
Big Bluestem	<i>andropogon gerardii</i>
Little Bluestem	<i>schizachyrium scoparium</i>
Canada Rye	<i>elymus canadensis</i>
River Oats	<i>chasmanthium latifolium</i>

Trees

Red Bud	<i>cercis canadensis</i>
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Unidentified samples

- small curly sedge
- blue aster
- oak with clustered leaves
- 3 assorted flowered stems
- miniature cone tree
- moth mullein (below)



Valles Mines Wildflowers by the Fraziers					
August 2007, Mrs. Merle Frazier and Steve Frazier					
BY LATIN NAME					
Yarrow	Achillea millefolium	S		BY ALPHABETICAL ORDER	
Swamp Milkweed	Asclepias syriaca	M		Black Cohosh	Cimicifuga racemosa
Butterfly Weed	Asclepias tuberosa	M		Black-eyed Susan	Rudbeckia hirta
Supple-Jack	Berchemia scandens	M		Bluebells	Mertensia virginica
Trumpet Creeper	Campsis radicans	M		Brown-eyed Susan	Rudbeckia triloba
Indian Paintbrush	Castilleja mutis	S		Butterfly Weed	Asclepias tuberosa
Black Cohosh	Cimicifuga racemosa	M		Culver's-Root	Veronicastrum virginicum
Purple Coneflower	Echinacea purpurea	S		Fire Pink	Silene virginica
Glade Coneflower	Echinacea simulata	M		Foxglove Beard Tongue	Penstemon digitalis
Wild Geranium	Geranium maculatum	S		Glade Coneflower	Echinacea simulata
Willow leaved sunflower	Helianthus salicifolius	S		Golden Ragwort	Senecio aureus
Golden Seal	Hydrastis canadensis	S		Golden Seal	Hydrastis canadensis
Short-Stemmed Iris	Iris brevicaulis	M		Indian Paintbrush	Castilleja mutis
Southern Blue flag	Iris virginica	S		Indian Pink	Spigelia marilandica
Rough Blazing Star	Liatris aspera	M		Meadow Phlox	Phlox maculata
Bluebells	Mertensia virginica	S		Missouri Primrose	Oenothera missouriensis
Wild Bergamot	Monarda	M		Purple Beardtongue	Penstemon cobaea
Missouri Primrose	Oenothera missouriensis	M		Purple Coneflower	Echinacea purpurea
Virginia Creeper	Parthenocissus quinquefolia	S		Riddell's Goldenrod	Solidago ridellii
Purple Beardtongue	Penstemon cobaea	M		Rough Blazing Star	Liatris aspera
Foxglove Beard Tongue	Penstemon digitalis	M		Royal Catchfly	Silene regia
Meadow Phlox	Phlox maculata	M		Short-Stemmed Iris	Iris brevicaulis
Wild Sweet William	Phlox maculata	M		Solomon's Seal	Polygonatum biflorum
Solomon's Seal	Polygonatum biflorum	S		Southern Blue flag	Iris virginica
Black-eyed Susan	Rudbeckia hirta	S		Supple-Jack	Berchemia scandens
Brown-eyed Susan	Rudbeckia triloba	M		Swamp Milkweed	Asclepias syriaca
Golden Ragwort	Senecio aureus	S		Trumpet Creeper	Campsis radicans
Royal Catchfly	Silene regia	M		Virginia Creeper	Parthenocissus quinquefolia
Fire Pink	Silene virginica	M		Water Canna	Thalia dealbata
Riddell's Goldenrod	Solidago ridellii	M		Wild Bergamot	Monarda
Indian Pink	Spigelia marilandica	M		Wild Geranium	Geranium maculatum
Water Canna	Thalia dealbata	S		Wild Sweet William	Phlox maculata
Culver's-Root	Veronicastrum virginicum	M		Willow leaved sunflower	Helianthus salicifolius
				Yarrow	Achillea millefolium

Valles Mines Wildflowers by the Fraziers				
August 2007, Mrs. Merle Frazier and Steve Frazier				

Paw paw	Asimina triloba	S	American Beauty Berry	Callicarpa americana	M
American Beauty Berry	Callicarpa americana	M	Blackberry	Rubus eubatus	M
Persimmon	Diospyrus kaki	M	Elderberry	Sambucus	M
Wild Plum	Prunus americana	M	Fragrant Sumac	Rhus aromatica	M
Fragrant Sumac	Rhus aromatica	M	Persimmon	Diospyrus kaki	M
Prairie Rose	Rosa arkansana	M	Prairie Rose	Rosa arkansana	M
Blackberry	Rubus eubatus	M	Paw paw	Asimina triloba	S
Elderberry	Sambucus	M	Sassafras	Sassafras albidum	S
Sassafras	Sassafras albidum	S	Wild Plum	Prunus americana	M