State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801
(801) 538-5340 telephone
(801) 359-3940 fax
(801) 538-7223 TTY
www.nr.utah.gov

Michael O. Leavitt
Governor

Robert L. Morgan
Executive Director

Lowell P. Braxton
Division Director

July 1, 2003

TO: Minerals File

FROM: Tom Munson, Senior Reclamation Hydrologist

RE: Site Inspection, Graymont Western US Inc., Cricket Mountain Quarry, M/027/006, Millard County, Utah

Date of Inspection: June 17, 2003
Time of Inspection: 10:00 a.m.
Conditions: Mostly clear, 90's
Participants: Bob Robison, Geologic Services Manager (801 264-6878), Joe Brooke, Plant Supervisor, and Terry McIntyre (435-864-3823 ext 35), Graymont; Doug Jensen, Paul Baker, and Tom Munson - DOGM

Purpose of Inspection:

The operator would like to expand into new areas without increasing the bond, so we talked about criteria the Division would use to evaluate partially reclaimed areas. We also looked at some areas that were reclaimed within the past year and others reclaimed previously to see what treatments have worked.

Observations:

We met on site. The issues we discussed during the inspection were as follows:1) revegetation methods and standards, regrading methods, and where variances might be applied; and 2) how to maintain a bond within a certain dollar amount as the mine expanded.

The operator intends to expand the mine to what is called the Allsop area, north of the existing mine. The plan for the Allsop Mine has not yet been submitted, but the operator is working on it. That mine will last approximately seven years, and in about 2011, the operator plans to open a new mine, the Iron Basin Mine, to the south. This mine will require a substantial monetary investment to move the crusher and to update the electrical system, but it will increase the life of the mine by about 40 years. Iron Basin will be essentially 100 percent high calcium limestone.

The operator hopes to avoid increasing the current bond by reclaiming mined areas as new mining areas are opened. We are figuring that they were going to maintain, stage development, to keep the bonding to a minimum.

Our first stop was the Flat Iron Quarry. This quarry was approved in 1999. At the current time, the operator has regraded 7.8 acres over which six inches of soil was applied. The ultimate disturbance for this particular quarry is ultimately 120 acres. We looked at the regraded area the operator

seeded in March, which includes several benches and a saddle area. There was very little vegetation in the lower part of this area, but there was more in the upper saddle area where the soil appeared more sandy and friable. The main species in this upper area was fourwing saltbush.

The next area we looked at was the Poison Mountain Quarry where we walked numerous benches and old test plot areas to determine the revegetation success of these areas. At the Poison Mountain Quarry, the operator is crushing dolomite limestone which is being used in steel plants. This pit also produces high calcium limestone.

Some of the benches have had very good revegetation success and some have little vegetation, even including weeds. Desirable species growing on these benches include crested wheatgrass, fourwing saltbush, forage kochia, Russian wild rye, a limited amount of yellow sweet clover, bluebunch wheatgrass, shadscale, penstamen, and globemallow. On one of the benches where revegetation efforts were successful, the operator included yellow sweet clover in the initial seed mix; there were still a few residual clover plants.

A large waste rock dump on the west side of the Poison Mountain Quarry was reclaimed last fall and seeded in late winter. At the time of the inspection, we were unable to detect any plant growth in this area.

We also looked at the west [north??] waste dump, for which the operator has been granted a variance to allow this dump to remain at angle of repose. There was a road that exists above the dump, that will need to be regraded. We talked about using a trackhoe to regrade the road. We suggested that the operator put a berm around the top of the dump and slope the area back toward the hill. Drainage could be directed into the undisturbed area without having to go over a steep dump outslope.

We then went to the fines pile and saw the enormous amount of fines they have stockpiled on the site for use in reclamation.

We ended the inspection by summarizing a lot of the issues. A lot of them related to bonding. The operator was informed that it was possible to obtain partial release for areas that had been regraded, even though revegetation had not attained release levels.

Photos were taken of the various sites visited.

Conclusions and Recommendations:

The operator does periodic surveys of the vegetation in reclaimed and undisturbed areas. The Division should look closely at the data and determine whether vegetation on the benches is likely to achieve the success standard. The standard is not necessarily applied to each individual area. Instead, it is usually best to take random samples over the entire reclaimed area and compare this average with the success standard.

It is recommended that Division staff perform annual inspections of this mine site.

jb
cc: Bob Robison, Graymont
O:\M027-Millard\M0270006-CricketMtn\inspections\insp-06172003.doc

ATTACHMENT

Photographs

M027/006, Cricket Mountain Quarry, Graymont Western US Inc.

Inspection 06/17/2003; Report Dated: 7/1/2003

Photo 1 - Flat Iron Quarry - Area where topsoil has been removed prior to waste storage

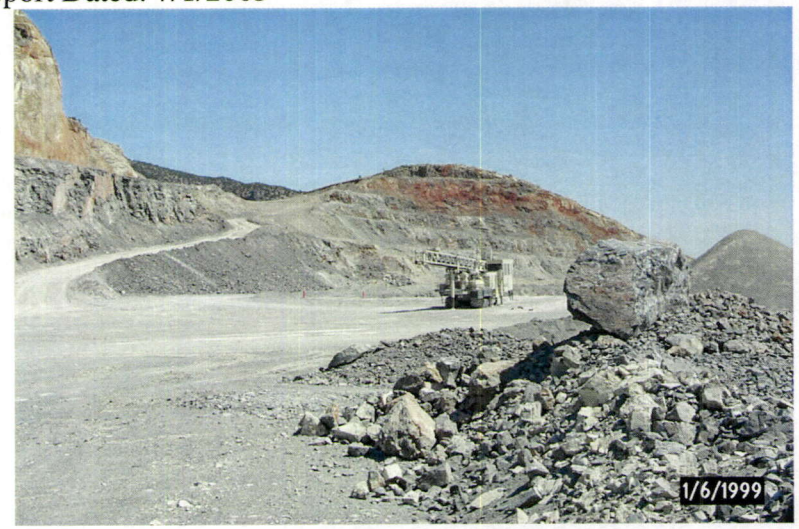

Photo 3 - Flat iron quarry highwall and pad

Photo 2 - Area where topsoil has been removed prior to waste storage

Photo 4 - Flat iron quarry highwall and pad

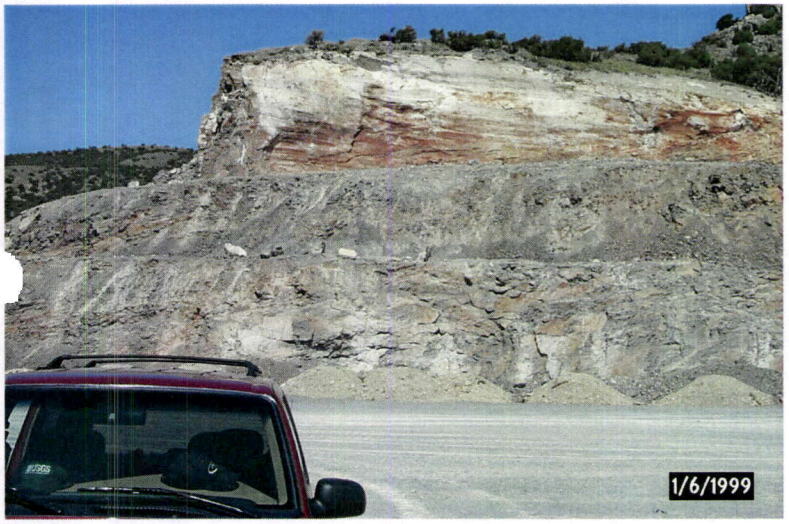

Photo 5 - Flat iron quarry highwall and pad

Photo 6 - Flat Iron Quarry Saddle Area Reclamation (Poor Success)

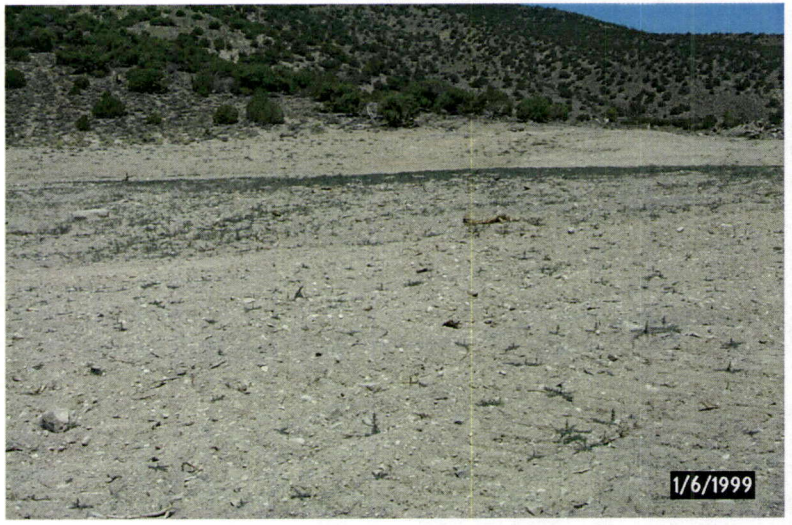

Photo 7 - Flat Iron Quarry Saddle Area Reclamation

Photo 8 - Flat Iron Quarry Saddle Area Reclamation (Poor Success)

Photo 9 - Flat Iron Quarry Saddle Area Reclamation (Poor Success)

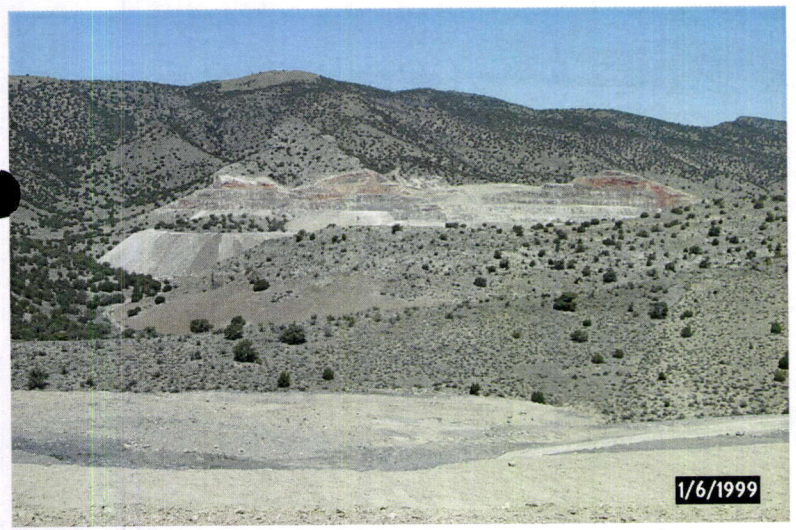

Photo 10 - Flat Iron Quarry

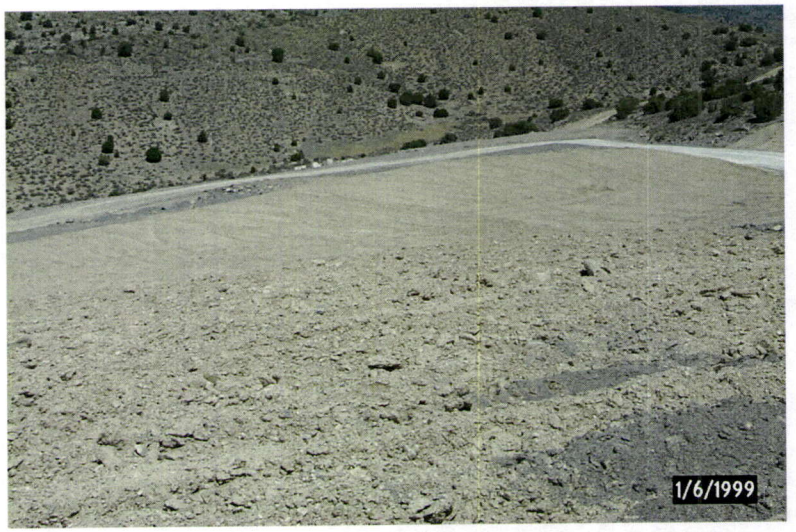

Photo 11 - Outslope Reclamation Poison Mountain Quarry (Poor Success)

Photo 12 - Outslope Reclamation Poison Mountain Quarry

Photo 13 - Outslope Reclamation Poison Mountain Quarry

Photo 14 -Road Reclamation Poison Mountain Quarry

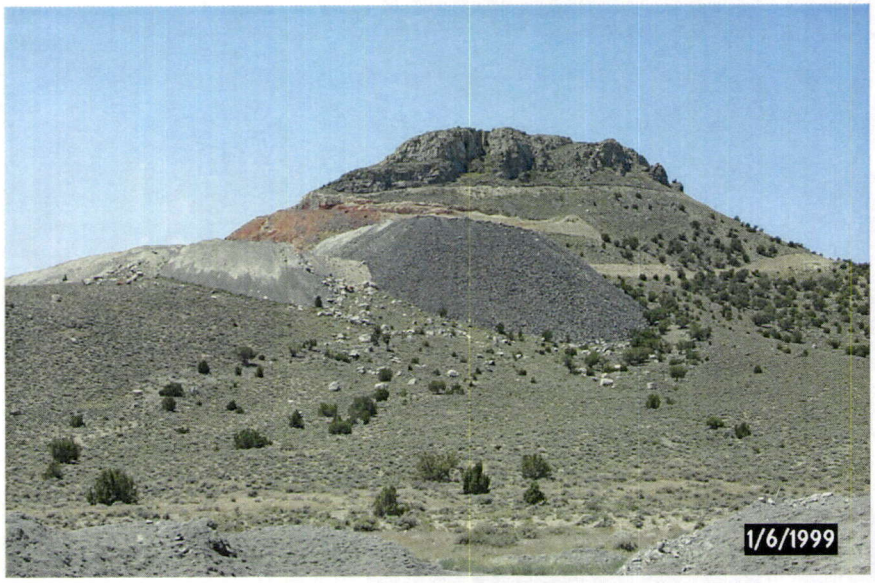

Photo 15 - West Waste Dump

Photo 16 - West Waste Dump Road Reclamation Project

Photo 17 - West Waste Dump Road Reclamation Project

Photo 18 - West Waste Dump Road Reclamation Project

Photo 19 - Revegetation of bench(russian wildrye and crested wheat grass)

Photo 20 - Revegetation of bench(russian wildrye and crested wheat grass)

Photo 21 - Bench with fines added (ripped and seeded), not successful

Photo 23 – Russian Wildrye

Photo 22 - Forage Kocia-Wow!!!

Photo 24 – Blue Bunch Wheat grass

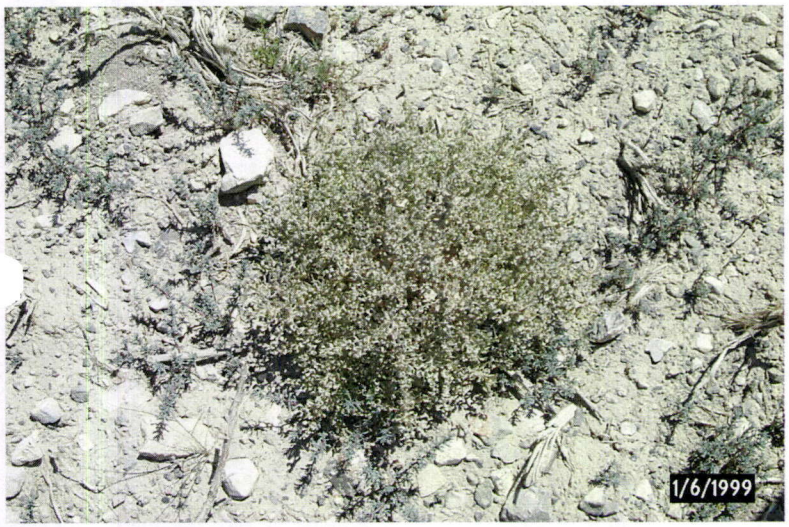

Photo 25 - Shadscale

Photo 26 - Fourwing Salt Brush