

CASTLE GATE MINE

C/007/004

2005 ANNUAL REPORT

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2005 Annual Report
0004 Date *03/10/06*
Incoming

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GENERAL INFORMATION

Permitte Name	Castle Gate Holding Company
Mine Name	Castle Gate Mine
Operator Name (If other then permittee)	
Permit Expiration Date	December 24, 2009
Permit Number	C/007/004
Authorized Representative Title	Dennis N. Ware, Controller and Administrative Manager
Phone Number	(435) 472-4737
Fax Number	(435) 472-4782
E-mail Address	dware@foundationcoal.com
Mailing Address	P.O. Box 30, Helper, UT 84526
Designated Representative	Dennis N. Ware
Resident Agent	C.T. Corporation
Resident Agent Mailing Address	50 West Broadway, Salt Lake City, UT 84101
Number of Binders Submitted	Two

IDENTIFICATION OF OTHER PERMITS

Identify other permits that are required in conjunction with mining and reclamation activities.

Permit Type	ID Number	Description	Expiration Date
MSHA Mine ID(s)	42-00165	Legal Identity	
	42-01202		
MSHA Impoundment(s)			
NPDES/UPDES Permit(s)			
PSD Permit(s) (Air)			
Other			

CERTIFIED REPORTS

List the certified inspection reports as required by the rules and under the approved plan that must be periodically submitted to the Division. Specify whether the information is included as Appendix A to this report or currently on file with the Division.

Certified Reports:	Required		Included or on file with DOGM		Comments
	Yes	No	Included	On File	
Excess Spoil Piles	<input type="checkbox"/>	X	<input type="checkbox"/>	<input type="checkbox"/>	
Refuse Piles	<input type="checkbox"/>	X	<input type="checkbox"/>	<input type="checkbox"/>	
impoundments	<input type="checkbox"/>	X	<input type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

REPORTING OF OTHER TECHNICAL DATA

List other technical data and information as required under the approved plan, which must be periodically submitted to the Division. Specify whether the information is included as Appendix B to this report or currently on file with the Division.

Technical Data:	Required		Included or on file with DOGM		Comments
	Yes	No	Included	On file	
Climatological	<input type="checkbox"/>	X	<input type="checkbox"/>	<input type="checkbox"/>	
Subsidence Monitoring	<input type="checkbox"/>	X	<input type="checkbox"/>	<input type="checkbox"/>	
Vegetation Monitoring	X	<input type="checkbox"/>	X	<input type="checkbox"/>	Year 10 of 10 in Sowbelly Canyon
Raptor Survey	<input type="checkbox"/>	X	<input type="checkbox"/>	<input type="checkbox"/>	
Soils Monitoring	<input type="checkbox"/>	X	<input type="checkbox"/>	<input type="checkbox"/>	
Water Monitoring	X	<input type="checkbox"/>	<input type="checkbox"/>	X	
First quarter	X	<input type="checkbox"/>	<input type="checkbox"/>	X	
Second quarter	X	<input type="checkbox"/>	<input type="checkbox"/>	X	
Third quarter	X	<input type="checkbox"/>	<input type="checkbox"/>	X	
Fourth quarter	X	<input type="checkbox"/>	<input type="checkbox"/>	X	
Geological / Geophysical	<input type="checkbox"/>	X	<input type="checkbox"/>	<input type="checkbox"/>	
Engineering	<input type="checkbox"/>	X	<input type="checkbox"/>	<input type="checkbox"/>	
Non Coal Waste / Abandoned Underground Equipment*	<input type="checkbox"/>	X	<input type="checkbox"/>	<input type="checkbox"/>	
Other Data	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

*Reminder: If equipment has been abandoned during 2005, an amendment must be submitted that includes a map showing its location, a description of what was abandoned, whether there were any hazardous or toxic materials and any revision to the PHC as necessary.

APPENDIX A

Certified Reports

Excess Spoil Piles
Refuse Piles
Impoundments

As required under R645-301-514

CONTENTS

NONE

APPENDIX B

Reporting of Technical Data

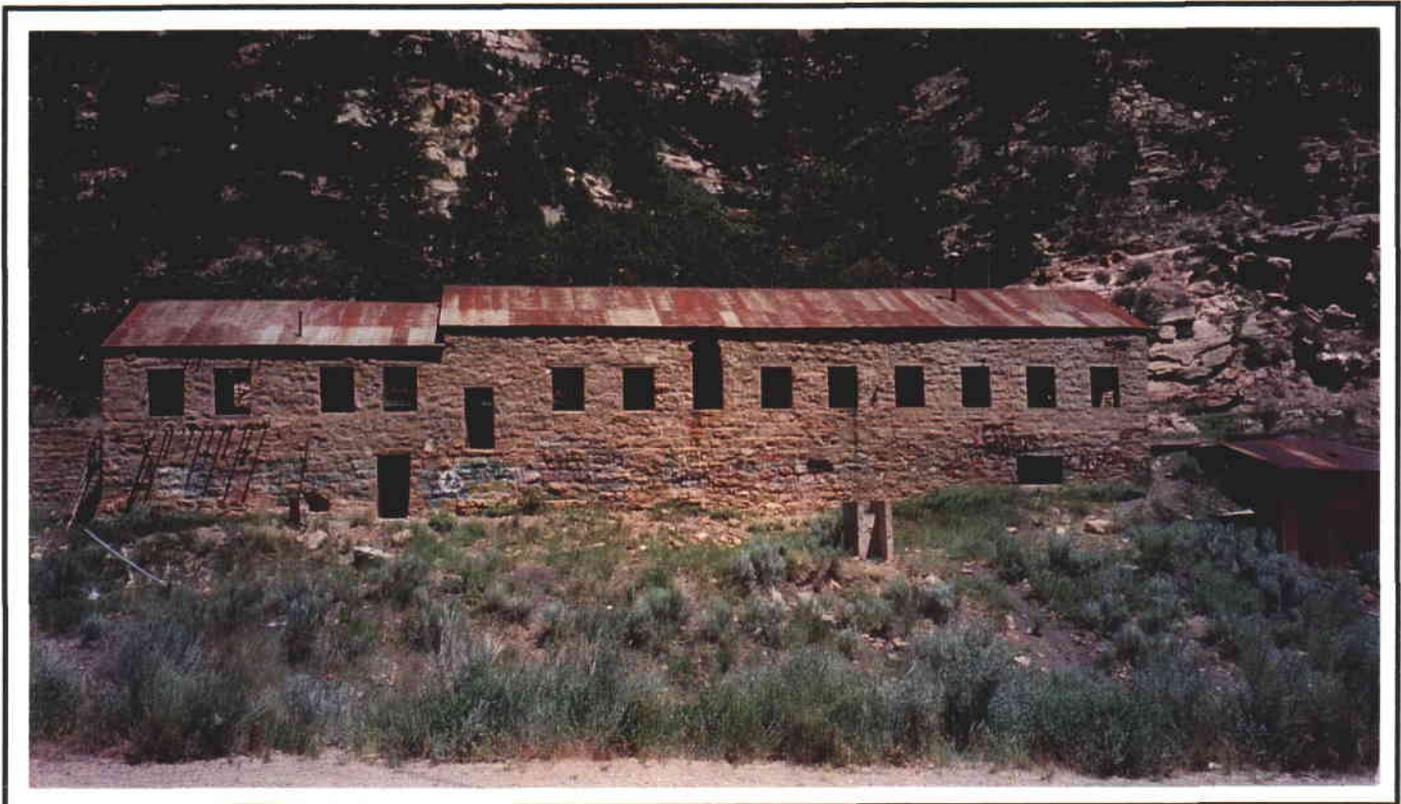
Including monitoring data, reports, maps, and other information
As required under the approved plan or as required by the Division

In accordance with the requirement of R645-310-130 and R645-301-140

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**VEGETATION MONITORING
FOR PHASE III BOND RELEASE
IN SOWBELLY CANYON**

**YEAR TWO
2005**



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for

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February 2006

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**VEGETATION MONITORING
FOR PHASE III BOND RELEASE
IN SOWBELLY CANYON**

**YEAR TWO
2005**

INTRODUCTION

This document contains the second-year results of vegetation sampling that has been conducted for the past two consecutive years in Sowbelly Canyon. Sowbelly Canyon (also known as Sowbelly Gulch) is an area that was once mined for coal. An earlier report that included sampling results for first-year monitoring in the study area was prepared and submitted to Plateau Mining Corporation. This report was called:

**VEGETATION MONITORING
FOR PHASE III BOND RELEASE
IN SOWBELLY CANYON
YEAR ONE
2004**

The disturbances to the land surface from the mining activities have been reclaimed and reseeded to an approximate "natural" condition with the goal to blend in with the native plant communities of the surrounding areas.

Plateau Mining Corporation will apply to the State of Utah, Division of Oil, Gas and Mining (DOG M) to receive final bond release on this mined property. In order to do this, the process requires at least 10 years of time to pass following revegetation activities, called the

“responsibility period”. This time period usually allows enough time for the plants in the reclaimed areas to become established and hopefully provide a vegetative cover that is “*diverse, effective and permanent.*” During the final two years of this responsibility period, the vegetation of the reclaimed land can be monitored to determine whether or not the area has met pre-determined standards for revegetation success. This document was prepared to address vegetation sampling results for Year 2, or the last year required for monitoring for final bond release.

Brief History

Sowbelly Canyon is located within the Wasatch Plateau approximately 4 miles west-northwest of the city of Helper, Utah. This canyon has been the site of mining activities for nearly 100 years. Spring Canyon Coal Company was one of the first mining companies in the canyon, conducting their operations between 1890 and 1970. Subsequently, McCulloch Oil purchased the site followed by Franklin Real Estate, Price River Coal and Castle Gate Coal Company. Plateau Mining Corporation currently owns the property. In recent years the disturbed areas of Sowbelly Canyon have been reclaimed with the final seeding accomplished in Fall 1995. Preliminary vegetation sampling has been conducted since that time to monitor the early establishment of the revegetated plant communities.

General Site Description

The average elevation of the Reclaimed and Reference Areas of Sowbelly Canyon is approximately 7,000 ft above sea level. The canyon sides are dominated by pinyon-juniper and Gambel's oak/grass plant communities. Most of the Reclaimed Areas are located near the canyon bottoms that, prior to disturbance, were probably once dominated by Gambel's oak, sagebrush and grass communities. During reclamation activities, a drainage channel was re-created at the canyon bottoms. The Reclaimed Areas were seeded with native plant species. In addition, containerized plant species such as serviceberry (*Amelanchier utahensis*), chokecherry (*Prunus virginiana*), willows (*Salix* spp.), and Wood's rose (*Rosa woodsii*) have been transplanted along the channel in the valley bottom.

Reference Area

A general Reference Area to be used as a standard for final revegetation success was chosen at a much earlier date. The Mining and Reclamation Plan (MRP) stated that "*the AML Reference Areas shown on Exhibit 9-6 will be used to evaluate previously mined areas*". Because the AML (Abandoned Mined Lands) areas were relatively extensive, at least for use as one Reference Area, biologists from DOGM along with representatives from Plateau Mining Corporation, chose a smaller portion of the AML areas as a Reference Area for Sowbelly Canyon. This Reference Area was located down-canyon (or south) and very close to the Reclaimed Areas.

METHODS

For Year 2, quantitative and qualitative data were recorded from the vegetation of the Reclaimed and Reference Areas in Sowbelly Canyon using virtually identical methodologies as were employed in Year 1. Sampling in 2005 was conducted in late-July. Methodologies used for sampling were performed in accordance with the guidelines provided by DOGM.

Transect and Quadrat Placement

Random/regular placement of sample quadrats were designed as an attempt to provide unbiased accuracy of the data compiled. This was accomplished by establishing several long transect lines along the entire length of the Reclaimed Areas. These lines were placed in the lowest portion of the reclaimed drainage system. At regular intervals along the drainage transect lines, random numbers were generated and used to measure distances at right angles from the drainage and to determine sample locations. Whether these random numbers were odd or even determined which side of the drainage (east or west) a given quadrat was placed. The random numbers selected could be high enough to place quadrats to the lateral limits of the Reclaimed Areas and all areas in-between. This insured that the sample quadrats were placed randomly over the entire study area in an attempt to adequately address and represent the site as a whole.

Cover, Frequency and Composition

Cover estimates were made using ocular methods with meter square quadrats. Species composition and relative frequencies were also assessed from the quadrats. Additional information recorded on the raw data sheets were: estimated precipitation, slope, exposure, grazing use, animal disturbance and other appropriate notes. Plant nomenclature follows "A Utah Flora" (Welsh et al. 2003).

Sample Size & Adequacy

Sampling adequacy was calculated using formula given below.

$$nMIN = \frac{t^2 s^2}{(dx)^2}$$

where,

nMIN = minimum adequate sample
t = appropriate confidence t-value
s = standard deviation
x = sample mean
d = desired change from mean

The values used for "t" and "d" insured that sample adequacy was met with 90% confidence within a 10% deviation from the true mean.

Diversity & Similarity Indices

There are several well-documented methods to assess diversity and similarities in plant communities. The "Motyka Index" is a modified form of the "Sorenson Index", both similarity indices. This index was used on the data and the equation is shown below:

$$IS_{MO} = \left(\frac{2MW}{MA+MB} \right) \times 100$$

where,

MW = \sum of the smaller quantitative values of species of two communities,
MA = \sum of the quantitative values of all species in one community,
MB = \sum of the quantitative values of all species in another community.

A diversity index has been reported in this document for the Reclaimed and Reference Areas. MacArthur's Diversity Index is an effective diversity measurement and is computed using the following equation:

$$1/\sum pi^2$$

where,

pi is the proportion of sum frequency contributed by the i th species in the sample area of concern.

The proportional contribution of each species is then squared and the values for all species in the sample areas are summed. This index integrates the number of species and the degree to which frequency of occurrence was equitably distributed among those species.

Photographs

Color photographs of the sample areas were taken at the time of sampling and submitted with this report.

Raw Data

The raw data for total cover, cover by species, frequency and composition were also submitted in the Appendix of this report which should facilitate future scrutiny of the data and further statistical testing if desired. Specific sample areas are shown on the raw data sheets.

RESULTS

Reclaimed Areas

The total living cover for the combined data of the Reclaimed Areas in Sowbelly Canyon was 52.38% (Table 1-A). Grasses were the dominant lifeform in these areas comprising 68.28% of the total living understory cover, followed distantly by shrubs at 17.75% and forbs at 13.96% (Table 1-B).

The dominant plant species in the reclaimed areas were thickspike wheatgrass (*Elymus lanceolatus*), Western wheatgrass (*Elymus smithii*), rubber rabbitbrush (*Chrysothamnus nauseosus*), and blueleaf aster (*Aster glaucodes*). For a list of all plant species present in the

sample quadrats along with their cover and frequency values, refer to Table 2.

Reference Area

The Reference Area, or area chosen to be used for revegetation success standards, had a total living cover of 49.00% (Table 3-A). Like the Reclaimed Areas, grasses were the dominant lifeform and comprised 61.23% of the total living cover. Forbs at 21.21% and shrubs at 17.56% followed the grasses in the proportion of the total living cover (Table 3-B).

The plant species that dominated the Reference Area were thickspike wheatgrass, cheatgrass (*Bromus tectorum*), and rubber rabbitbrush. For cover and frequency values by species refer to Table 4.

Data Set Comparisons

Comparisons were made in the 2005 data sets between the Reclaimed and Reference Areas. To also compare Year 1 and Year 2, results from the 2004 data sets were included in the figures of this 2005 report.

FIG. 1. STUDENT'S T TEST - A Total Living Cover Comparison Between the Reclaimed and Reference Areas at Sowbelly Canyon.

2004

Reclaimed Area: $\bar{x}=54.00$; $s=11.74$; $n=80$

Reference Area: $\bar{x}=49.50$; $s=12.46$; $n=50$

$t = 2.077$; $df = 128$, $SL = p < .05$

2005

Reclaimed Area: $\bar{x}=52.38$; $s=12.45$; $n=80$

Reference Area: $\bar{x}=49.00$; $s=12.88$; $n=50$

$t = 1.486$; $df = 128$, $SL = N.S.$

First, statistical tests were implemented to compare the total living plant cover of the two areas.

A "Student's t-test" analysis suggested the Reclaimed Areas were not significantly different for total living cover when compared to the Reference Area in 2005 (Fig. 1). In 2004, the Reclaimed Areas cover was greater than the Reference Area.

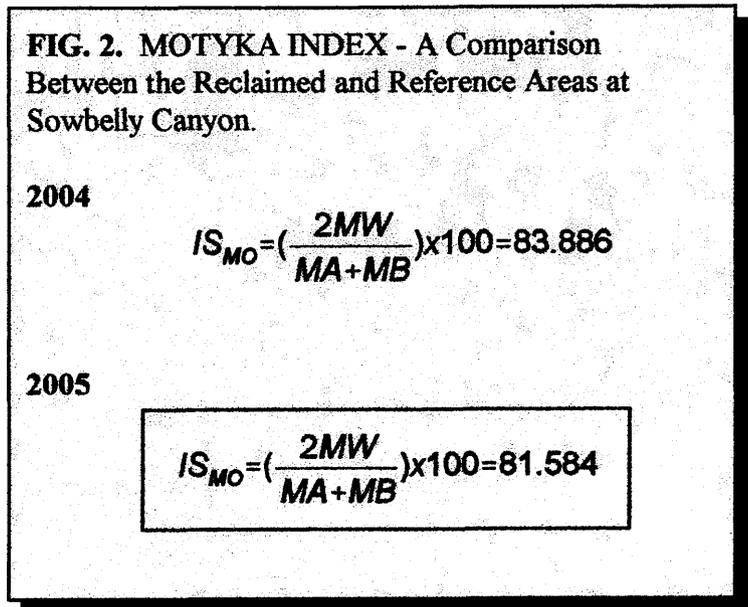
Next, similarity and diversity indices were computed and the areas were compared.

The Motyka Index was recommended to be used to compare species diversity in the Mining and Reclamation Plan (MRP). Although this index is more of a *similarity index* than a *diversity index*, it has been employed to compare the data sets. The MRP assigned the following categories to be used for comparisons in the Motyka Index:

- Non-Weedy Shrub Cover,
- Weedy Shrub Cover,
- Native Perennial Grass Cover,
- Introduced Perennial Grass Cover,
- Non-Weedy Forb & Grass Cover,
- Weedy Forb & Grass Cover.

When using the above categories and employing the Motyka Index, the 2004 similarity value for the two communities was 83.89%; in 2005 it was 81.58% (Fig. 2).

MacArthur's Diversity Index was also employed to the data sets of the Reclaimed and Reference Areas. This comparison suggests that the total diversity of the Reclaimed Areas was greater than



that of the Reference Area in 2004 and 2005 (Fig. 3).

DISCUSSION

Plateau Mining Corporation and State of Utah, Division of Oil, Gas and Mining (DOG M) worked together formulating revegetation success standards in the MRP for Sowbelly Canyon. Because the area was disturbed by mining operations prior to the current revegetation regulations and requirements, standards for revegetation success were modified. State

regulation R645-301-356.250 states that: *“for areas previously disturbed by mining that were not reclaimed to the requirements of R645-200 through R645-203 and R645-301 through R645-302 and that are remined or otherwise redisturbed by coal mining and reclamation operations, at a minimum, the vegetative ground cover will be not less than the ground cover existing before redisturbance and will be adequate to control erosion”*.

The Sowbelly Canyon area was continuously mined since the time it was first disturbed by mining activities. Because of this there was no vegetative cover data “existing before redisturbance” as mentioned above in the state regulation. Therefore, DOGM and Plateau agreed that upon final reclamation the standards for revegetation success would be determined using a specific

FIG. 3. MacARTHUR'S INDEX - A Comparison Between the Reclaimed and Reference Areas at Sowbelly Canyon.

$$1/\sum p_i^2 =$$

2004

Reclaimed Area: 12.250

Reference Area: 10.354

2005

Reclaimed Area: 11.662

Reference Area: 8.757

Reference Area – but success parameters would be dictated more from the species present, diversity, and similarity indices rather than strictly by cover, productivity and woody species density as the more recent regulations would dictate. Erosion control (as stated in the regulation above) should also be considered for a successful revegetation standard.

With the above considerations, sampling quantitatively for cover would still be necessary in the Reclaimed and Disturbed Areas to adequately address the success standards. That said, and even though such a comparison was not necessary here, the total living cover of the Reclaimed Areas was as good as or better than the Reference Area in 2004 and 2005. Moreover, the plant species present in the quadrats in the Reclaimed Areas were comprised almost exclusively of “desirable” rather than “weedy” species. Not only does this suggest successful revegetation from a cover perspective, but it also suggests that erosion control is probably better in the Reclaimed Area when compared to the Reference Area.

In addition, as shown in the RESULTS section above, diversity and similarity indices revealed favorable results for the Reclaimed Areas in Sowbelly Canyon when compared to the Reference Area. In other words, the Reclaimed Areas were more diverse than the Reference Area, but the two areas were still quite similar.

The vegetation monitoring data sets for 2 consecutive years (2004 and 2005), along with statistical analyses and other methods to compare the Reclaimed Areas with the Reference Area in Sowbelly Canyon show that Phase III Bond Release may be warranted.

TABLE 1: Total cover and composition summary for the Reclaimed Areas in Sowbelly Canyon (2005).

A. TOTAL COVER	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZE
Total Living	52.38	12.45	80
Litter	14.25	8.83	80
Bareground	14.83	10.12	80
Rock	18.55	12.36	80

B. COMPOSITION

Shrubs	17.75	24.26	80
Forbs	13.96	17.79	80
Grasses	68.28	26.81	80

TABLE 2: Species cover and frequency summary for the Reclaimed Areas in Sowbelly Canyon (2005).

SPECIES	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZE	RELATIVE FREQUENCY
TREES & SHRUBS				
<i>Artemisia tridentata</i>	1.81	6.67	80	10.00
<i>Atriplex canescens</i>	0.50	4.44	80	1.25
<i>Ceratoides lanata</i>	0.25	1.63	80	2.50
<i>Chrysothamnus nauseosus</i>	6.84	12.12	80	37.50
<i>Gutierrezia sarothrae</i>	0.28	1.83	80	2.50
FORBS				
<i>Artemisia dracunculus</i>	0.15	0.95	80	2.50
<i>Aster glaucodes</i>	6.24	10.96	80	36.25
<i>Hedysarum boreale</i>	0.19	1.67	80	1.25
<i>Linum lewisii</i>	0.60	1.79	80	11.25
<i>Melilotus officinalis</i>	0.55	1.78	80	10.00
<i>Penstemon palmeri</i>	0.13	1.11	80	1.25
GRASSES				
<i>Agropyron cristatum</i>	1.19	4.35	80	10.00
<i>Bromus carinatus</i>	0.91	3.66	80	7.50
<i>Bromus tectorum</i>	1.40	3.39	80	18.75
<i>Dactylis glomerata</i>	0.13	1.11	80	1.25
<i>Elymus cinereus</i>	3.50	6.53	80	30.00
<i>Elymus hispidus</i>	3.19	11.27	80	10.00
<i>Elymus lanceolatus</i>	7.74	10.84	80	45.00
<i>Elymus salinus</i>	0.56	2.74	80	5.00
<i>Elymus smithii</i>	7.38	11.88	80	43.75
<i>Elymus spicatus</i>	5.36	9.05	80	37.50
<i>Hordeum jubatum</i>	0.06	0.56	80	1.25
<i>Poa secunda</i>	2.06	6.36	80	12.50
<i>Stipa hymenoides</i>	1.38	6.32	80	5.00

TABLE 3: Total cover and composition summary for the Reference Area in Sowbelly Canyon (2005).

A. TOTAL COVER	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZE
Total Living	49.00	12.88	50
Litter	15.20	11.53	50
Bareground	11.28	9.33	50
Rock	24.52	17.64	50

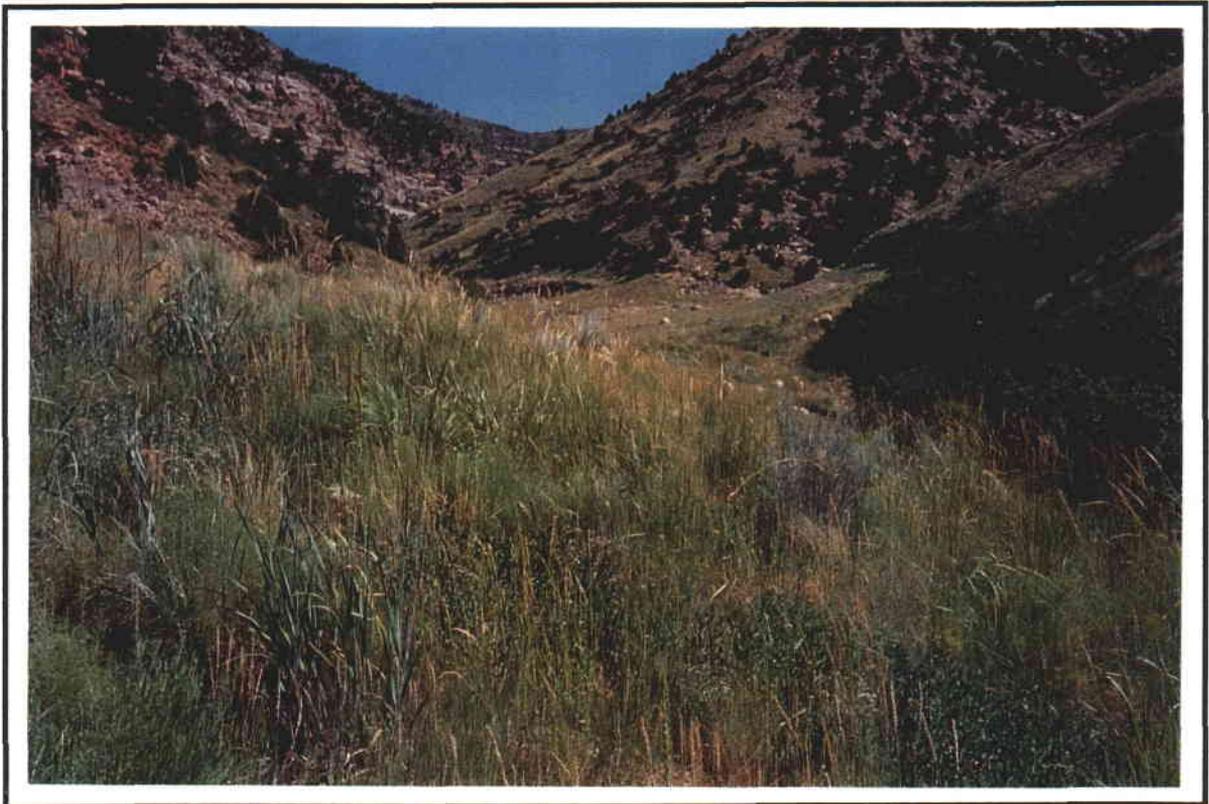
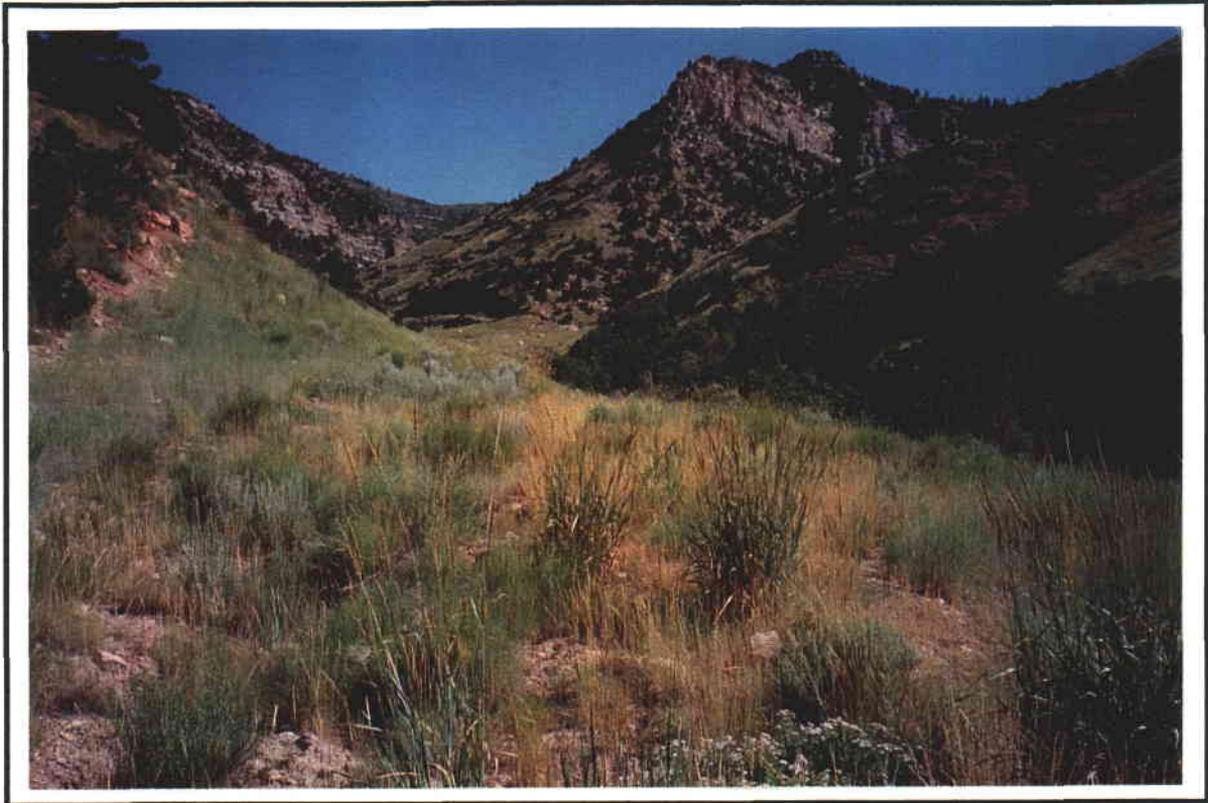
B. COMPOSITION

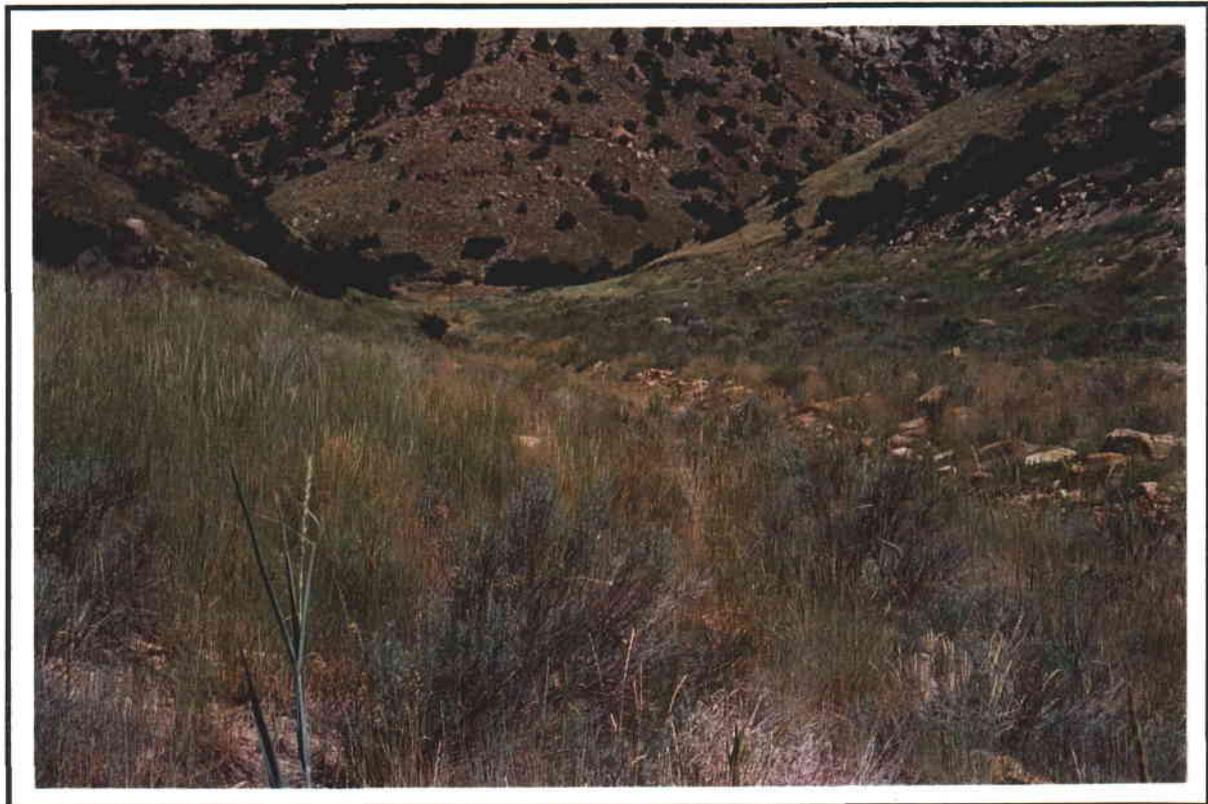
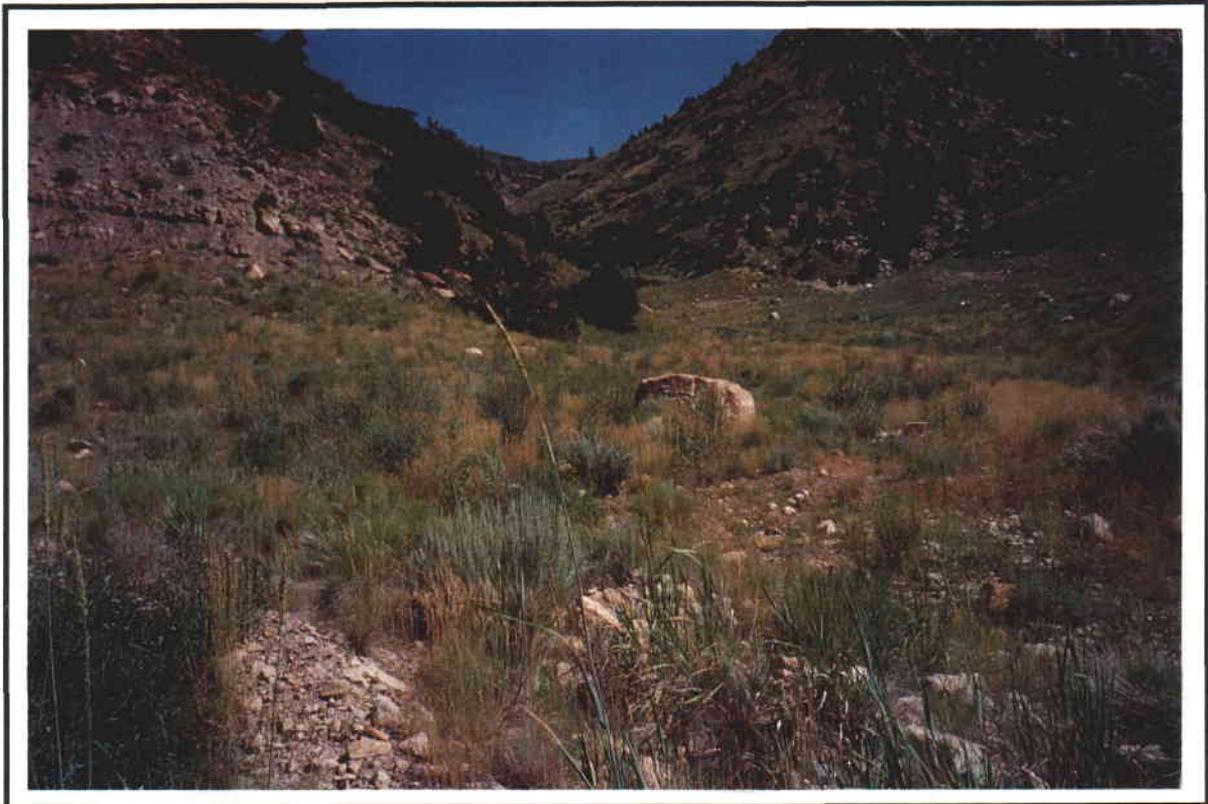
Shrubs	17.56	24.27	50
Forbs	21.21	20.33	50
Grasses	61.23	24.85	50

TABLE 4: Species cover and frequency summary for the Reference Area in Sowbelly Canyon (2005).

SPECIES	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZE	RELATIVE FREQUENCY
TREES & SHRUBS				
<i>Artemisia tridentata</i>	0.14	0.98	50	2.00
<i>Atriplex canescens</i>	0.80	3.22	50	6.00
<i>Chrysothamnus nauseosus</i>	7.06	13.58	50	40.00
<i>Gutierrezia sarothrae</i>	0.16	0.81	50	4.00
FORBS				
<i>Artemisia ludoviciana</i>	5.94	8.14	50	54.00
<i>Aster glaucodes</i>	3.60	10.15	50	12.00
<i>Medicago sativa</i>	0.40	1.69	50	6.00
<i>Penstemon palmeri</i>	0.40	1.69	50	6.00
<i>Sisymbrium altissimum</i>	0.44	1.70	50	8.00
<i>Tragopogon dubius</i>	0.04	0.28	50	2.00
GRASSES				
<i>Bromus inermis</i>	0.50	3.50	50	2.00
<i>Bromus tectorum</i>	8.00	12.08	50	52.00
<i>Dactylis glomerata</i>	1.10	5.32	50	6.00
<i>Elymus hispidus</i>	3.00	7.55	50	18.00
<i>Elymus lanceolatus</i>	10.42	15.26	50	50.00
<i>Elymus salinus</i>	1.10	7.02	50	4.00
<i>Elymus smithii</i>	4.66	11.78	50	28.00
<i>Stipa hymenoides</i>	1.24	3.42	50	18.00

COLOR PHOTOGRAPHS
Reclaimed Areas
[Sample Area A (beginning south to north)]



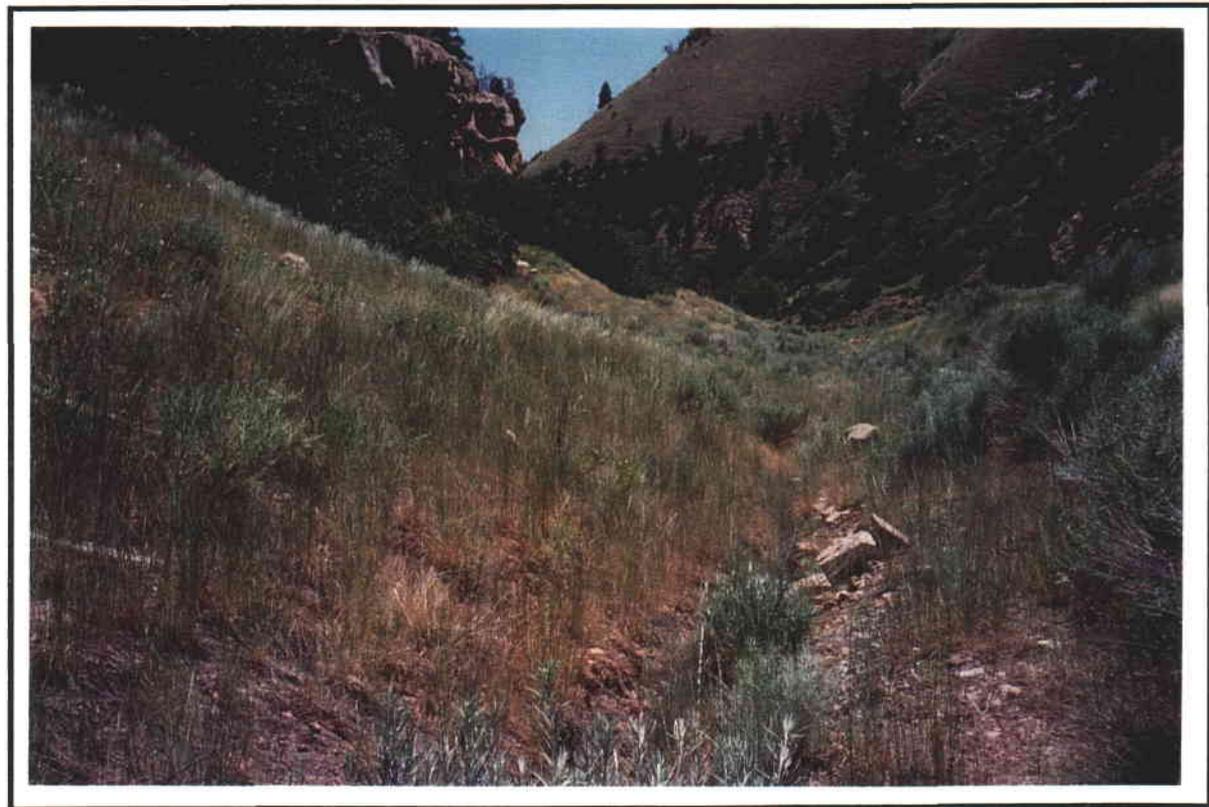


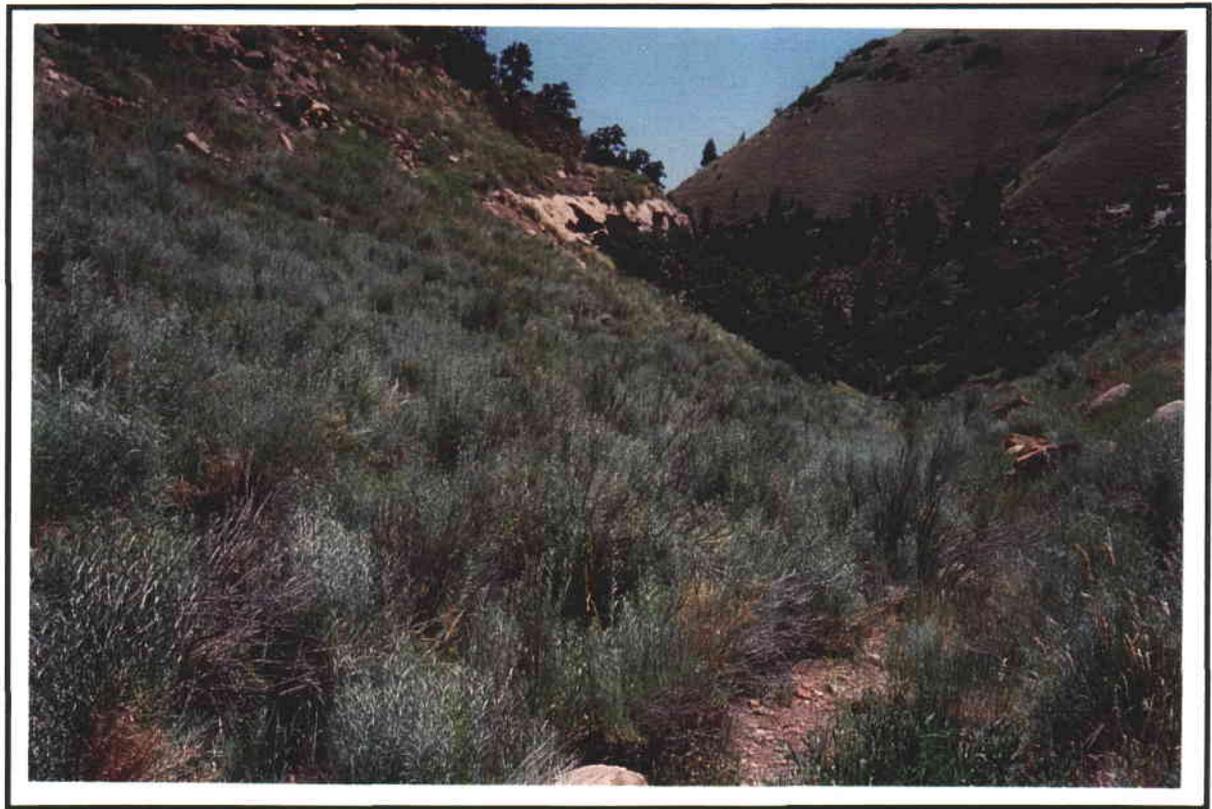


(Sample Areas B and C)



Reference Area
[Sample Area (beginning south to north)]





APPENDIX

Raw Data

PLATEAU MINING

Sowbelly

Reclaimed Area

Exposure: Variable

Slope: Variable

Sample Date: 27-28 July 2005

1 thru 60 Transect "A"

	1.00	2.00	3.00	4.00	5.00	6.00	7.00
TREES & SHRUBS							
<i>Artemisia tridentata</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Atriplex canescens</i>	0.00	40.00	0.00	0.00	0.00	0.00	0.00
<i>Ceratoides lanata</i>	0.00	7.00	0.00	0.00	0.00	0.00	0.00
<i>Chrysothamnus nauseosus</i>	0.00	0.00	30.00	0.00	0.00	0.00	0.00
<i>Gutierrezia sarothrae</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FORBS							
<i>Artemisia dracunculus</i>	0.00	0.00	0.00	7.00	0.00	0.00	0.00
<i>Aster glaucodes</i>	0.00	0.00	0.00	0.00	7.00	20.00	35.00
<i>Hedysarum boreale</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Linum lewisii</i>	0.00	0.00	0.00	0.00	0.00	5.00	5.00
<i>Melilotus officinalis</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Penstemon palmeri</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GRASSES							
<i>Agropyron cristatum</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Bromus carinatus</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Bromus tectorum</i>	0.00	5.00	5.00	0.00	0.00	0.00	15.00
<i>Dactylis glomerata</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Elymus cinereus</i>	0.00	0.00	0.00	0.00	10.00	0.00	0.00
<i>Elymus hispidus</i>	0.00	0.00	0.00	35.00	15.00	0.00	0.00
<i>Elymus lanceolatus</i>	20.00	13.00	0.00	0.00	0.00	45.00	0.00
<i>Elymus salinus</i>	0.00	0.00	0.00	0.00	0.00	0.00	10.00
<i>Elymus smithii</i>	10.00	0.00	0.00	10.00	0.00	0.00	0.00
<i>Elymus spicatus</i>	10.00	0.00	0.00	3.00	18.00	0.00	0.00
<i>Hordeum jubatum</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Poa secunda</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Stipa hymenoides</i>	0.00	0.00	30.00	0.00	0.00	0.00	0.00
COVER							
Total Living Cover	40.00	65.00	65.00	55.00	50.00	70.00	65.00
Litter	10.00	10.00	10.00	15.00	10.00	10.00	10.00
Bareground	35.00	10.00	10.00	20.00	25.00	10.00	15.00
Rock	15.00	15.00	15.00	10.00	15.00	10.00	10.00
% COMPOSITION							
Shrubs	0.00	72.31	46.15	0.00	0.00	0.00	0.00
Forbs	0.00	0.00	0.00	12.73	14.00	35.71	61.54
Grasses	100.00	27.69	53.85	87.27	86.00	64.29	38.46

8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00
0.00	0.00	0.00	0.00	0.00	20.00	0.00	15.00	0.00	25.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	13.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	55.00	10.00	5.00	0.00	0.00	8.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30.00	7.00	25.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	7.00	0.00	0.00	0.00	0.00	15.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20.00	8.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	7.00
0.00	0.00	30.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.00	5.00	0.00	0.00	10.00	10.00	0.00	0.00	5.00	30.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00	10.00	10.00	20.00	0.00	5.00	15.00	0.00	0.00	0.00
0.00	10.00	0.00	0.00	0.00	0.00	10.00	30.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.00	0.00
65.00	40.00	65.00	40.00	65.00	45.00	35.00	45.00	35.00	70.00
10.00	5.00	10.00	10.00	25.00	15.00	10.00	15.00	5.00	10.00
15.00	30.00	15.00	30.00	5.00	10.00	15.00	15.00	35.00	5.00
10.00	25.00	10.00	20.00	5.00	30.00	40.00	25.00	25.00	15.00
0.00	0.00	0.00	32.50	84.62	66.67	14.29	33.33	0.00	47.14
46.15	17.50	38.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53.85	82.50	61.54	67.50	15.38	33.33	85.71	66.67	100.00	52.86

18.00	19.00	20.00	21.00	22.00	23.00	24.00	25.00	26.00	27.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00	0.00	0.00	25.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	15.00	0.00	0.00	0.00	0.00	5.00	5.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	0.00	10.00	10.00	10.00	15.00	5.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40.00	23.00	25.00	0.00	0.00	0.00	0.00	20.00	5.00	20.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	10.00	0.00	20.00	10.00	5.00	25.00	0.00	0.00	20.00
10.00	0.00	0.00	10.00	15.00	40.00	0.00	15.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75.00	35.00	25.00	70.00	25.00	60.00	35.00	45.00	35.00	55.00
10.00	5.00	10.00	20.00	10.00	20.00	25.00	25.00	10.00	10.00
5.00	35.00	35.00	5.00	10.00	10.00	30.00	10.00	20.00	10.00
10.00	25.00	30.00	5.00	55.00	10.00	10.00	20.00	35.00	25.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.09
13.33	5.71	0.00	35.71	0.00	0.00	0.00	0.00	0.00	0.00
86.67	94.29	100.00	64.29	100.00	100.00	100.00	100.00	100.00	90.91

38.00	39.00	40.00	41.00	42.00	43.00	44.00	45.00	46.00	47.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	10.00	0.00	60.00	0.00	15.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.00	0.00	0.00
0.00	0.00	0.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	30.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	5.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	10.00	35.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.00	0.00
0.00	5.00	15.00	15.00	0.00	15.00	15.00	10.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	15.00	0.00	10.00	10.00	15.00	0.00	0.00	0.00	65.00
0.00	0.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	5.00	0.00	15.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
70.00	55.00	30.00	50.00	60.00	65.00	75.00	70.00	50.00	65.00
15.00	10.00	10.00	15.00	30.00	10.00	23.00	5.00	7.00	15.00
5.00	25.00	25.00	5.00	5.00	10.00	1.00	10.00	35.00	10.00
10.00	10.00	35.00	30.00	5.00	15.00	1.00	15.00	8.00	10.00
57.14	36.36	0.00	0.00	0.00	0.00	0.00	64.29	0.00	0.00
21.43	18.18	16.67	20.00	16.67	0.00	80.00	21.43	30.00	0.00
21.43	45.45	83.33	80.00	83.33	100.00	20.00	14.29	70.00	100.00

48.00	49.00	50.00	51.00	52.00	53.00	54.00	55.00	56.00	57.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	5.00	0.00	0.00	40.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	15.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20.00	0.00	10.00	0.00	10.00	25.00	0.00	0.00	5.00	5.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	15.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	10.00	70.00	15.00	0.00	50.00	0.00	0.00	0.00
0.00	20.00	30.00	0.00	0.00	0.00	0.00	8.00	0.00	15.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	25.00	0.00	0.00	0.00	0.00	0.00	20.00	0.00	15.00
35.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	25.00	0.00	0.00	40.00	0.00
60.00	55.00	50.00	70.00	65.00	65.00	50.00	40.00	60.00	50.00
10.00	20.00	5.00	5.00	10.00	15.00	10.00	5.00	15.00	15.00
25.00	15.00	30.00	15.00	20.00	15.00	25.00	10.00	5.00	30.00
5.00	10.00	15.00	10.00	5.00	5.00	15.00	45.00	20.00	5.00
0.00	9.09	0.00	0.00	61.54	0.00	0.00	30.00	25.00	0.00
33.33	0.00	20.00	0.00	15.38	38.46	0.00	0.00	8.33	10.00
66.67	90.91	80.00	100.00	23.08	61.54	100.00	70.00	66.67	90.00

61 thru 70 Transect "B"

58.00	59.00	60.00	61.00	62.00	63.00	64.00	65.00	66.00	67.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15.00	20.00	10.00	10.00	0.00	5.00	20.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00	15.00	0.00	0.00	15.00	40.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	15.00	10.00
0.00	0.00	5.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	5.00	0.00	20.00	0.00	0.00	10.00	25.00	0.00
10.00	0.00	0.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00
0.00	20.00	10.00	45.00	15.00	0.00	0.00	30.00	0.00	10.00
5.00	15.00	25.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45.00	65.00	55.00	65.00	40.00	40.00	30.00	55.00	65.00	60.00
10.00	15.00	5.00	10.00	10.00	10.00	5.00	20.00	10.00	20.00
20.00	15.00	25.00	15.00	5.00	20.00	45.00	10.00	15.00	5.00
25.00	5.00	15.00	10.00	45.00	30.00	20.00	15.00	10.00	15.00
33.33	30.77	18.18	15.38	0.00	12.50	66.67	0.00	0.00	0.00
22.22	0.00	0.00	0.00	0.00	37.50	33.33	0.00	23.08	66.67
44.44	69.23	81.82	84.62	100.00	50.00	0.00	100.00	76.92	33.33

71 thru 80 Transect "C"

68.00	69.00	70.00	71.00	72.00	73.00	74.00	75.00	76.00	77.00
0.00	0.00	0.00	10.00	20.00	0.00	0.00	0.00	0.00	5.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	5.00	40.00	0.00	20.00	5.00	15.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	0.00
0.00	0.00	0.00	15.00	0.00	5.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	5.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	15.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00
0.00	25.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	10.00	20.00	5.00	0.00	0.00	0.00	5.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	15.00	0.00	0.00	10.00	30.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	25.00	0.00	0.00	0.00	0.00	0.00	45.00	0.00	0.00
20.00	0.00	10.00	35.00	0.00	0.00	0.00	0.00	10.00	5.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	15.00	0.00	0.00	0.00	35.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45.00	50.00	50.00	70.00	60.00	60.00	40.00	65.00	55.00	40.00
5.00	30.00	30.00	20.00	30.00	5.00	35.00	15.00	15.00	50.00
5.00	10.00	10.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
45.00	10.00	10.00	5.00	5.00	30.00	20.00	15.00	25.00	5.00
55.56	0.00	0.00	14.29	41.67	66.67	0.00	30.77	9.09	50.00
0.00	0.00	0.00	21.43	0.00	8.33	25.00	0.00	0.00	12.50
44.44	100.00	100.00	64.29	58.33	25.00	75.00	69.23	90.91	37.50

PLATEAU MINING

Sowbelly

Reclaimed Area

Exposure: Variable

Slope: Variable

Sample Date: 27-28 July 2005

78.00	79.00	80.00	Mean	SDev	Freq	
<hr/>						TREES & SHRUBS
0.00	0.00	0.00	1.81	6.67	10.00	<i>Artemisia tridentata</i>
0.00	0.00	0.00	0.50	4.44	1.25	<i>Atriplex canescens</i>
0.00	0.00	0.00	0.25	1.63	2.50	<i>Ceratoides lanata</i>
25.00	5.00	7.00	6.84	12.12	37.50	<i>Chrysothamnus nauseosus</i>
0.00	0.00	0.00	0.28	1.83	2.50	<i>Gutierrezia sarothrae</i>
<hr/>						FORBS
0.00	0.00	0.00	0.15	0.95	2.50	<i>Artemisia dracunculus</i>
0.00	0.00	0.00	6.24	10.96	36.25	<i>Aster glaucodes</i>
0.00	0.00	0.00	0.19	1.67	1.25	<i>Hedysarum boreale</i>
3.00	5.00	0.00	0.60	1.79	11.25	<i>Linum lewisii</i>
7.00	0.00	0.00	0.55	1.78	10.00	<i>Mellilotus officinalis</i>
0.00	0.00	0.00	0.13	1.11	1.25	<i>Penstemon palmeri</i>
<hr/>						GRASSES
0.00	10.00	0.00	1.19	4.35	10.00	<i>Agropyron cristatum</i>
0.00	0.00	8.00	0.91	3.66	7.50	<i>Bromus carinatus</i>
0.00	0.00	0.00	1.40	3.39	18.75	<i>Bromus tectorum</i>
0.00	0.00	0.00	0.13	1.11	1.25	<i>Dactylis glomerata</i>
0.00	0.00	0.00	3.50	6.53	30.00	<i>Elymus cinereus</i>
0.00	0.00	0.00	3.19	11.27	10.00	<i>Elymus hispidus</i>
15.00	30.00	25.00	7.74	10.84	45.00	<i>Elymus lanceolatus</i>
0.00	0.00	0.00	0.56	2.74	5.00	<i>Elymus salinus</i>
0.00	0.00	0.00	7.38	11.88	43.75	<i>Elymus smithii</i>
0.00	0.00	5.00	5.36	9.05	37.50	<i>Elymus spicatus</i>
0.00	0.00	0.00	0.06	0.56	1.25	<i>Hordeum jubatum</i>
0.00	0.00	0.00	2.06	6.36	12.50	<i>Poa secunda</i>
0.00	0.00	0.00	1.38	6.32	5.00	<i>Stipa hymenoides</i>
<hr/>						COVER
50.00	50.00	45.00	52.38	12.45		Total Living Cover
15.00	10.00	10.00	14.25	8.83		Litter
5.00	25.00	10.00	14.83	10.12		Bareground
30.00	15.00	35.00	18.55	12.36		Rock
<hr/>						% COMPOSITION
50.00	10.00	15.56	17.75	24.26		Shrubs
20.00	10.00	0.00	13.96	17.79		Forbs
30.00	80.00	84.44	68.28	26.81		Grasses

PLATEAU MINING

Sowbelly Reference Area

Exposure: Variable

Slope: Variable

Sample Date: 27-28 July 2005

	1.00	2.00	3.00	4.00	5.00	6.00	7.00
TREES & SHRUBS							
<i>Artemisia tridentata</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Atriplex canescens</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Chrysothamnus nauseosus</i>	40.00	40.00	5.00	5.00	0.00	20.00	75.00
<i>Gutierrezia sarothrae</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FORBS							
<i>Artemisia ludoviciana</i>	5.00	8.00	0.00	5.00	0.00	0.00	0.00
<i>Aster glaucodes</i>	0.00	0.00	45.00	0.00	20.00	0.00	0.00
<i>Medicago sativa</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Penstemon palmeri</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Sisymbium altissimum</i>	0.00	2.00	0.00	0.00	0.00	0.00	0.00
<i>Tragopogon dubius</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GRASSES							
<i>Bromus inermis</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Bromus tectorum</i>	5.00	5.00	0.00	0.00	0.00	0.00	0.00
<i>Dactylis glomerata</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Elymus hispidus</i>	0.00	0.00	15.00	0.00	0.00	0.00	0.00
<i>Elymus lanceolatus</i>	0.00	0.00	0.00	12.00	40.00	35.00	0.00
<i>Elymus salinus</i>	0.00	5.00	0.00	0.00	0.00	0.00	0.00
<i>Elymus smithii</i>	5.00	0.00	0.00	13.00	0.00	0.00	0.00
<i>Stipa hymenoides</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
COVER							
Total Living Cover	55.00	60.00	65.00	35.00	60.00	55.00	75.00
Litter	10.00	30.00	15.00	15.00	35.00	35.00	15.00
Bareground	10.00	5.00	5.00	5.00	4.00	5.00	5.00
Rock	25.00	5.00	15.00	45.00	1.00	5.00	5.00
% COMPOSITION							
Shrubs	72.73	66.67	7.69	14.29	0.00	36.36	100.00
Forbs	9.09	16.67	69.23	14.29	33.33	0.00	0.00
Grasses	18.18	16.67	23.08	71.43	66.67	63.64	0.00

8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	15.00	0.00	0.00	0.00
15.00	0.00	5.00	23.00	20.00	0.00	0.00	0.00	0.00	10.00
0.00	0.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00	0.00	1.00	0.00	5.00	0.00	15.00	5.00	10.00	5.00
0.00	30.00	25.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	10.00	10.00	20.00	15.00	10.00	5.00	10.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	10.00	0.00	0.00	0.00	0.00	15.00	20.00	35.00	10.00
0.00	10.00	14.00	0.00	5.00	10.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	10.00	0.00	0.00	0.00	10.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
50.00	60.00	50.00	35.00	40.00	40.00	60.00	35.00	50.00	35.00
10.00	15.00	25.00	5.00	5.00	5.00	5.00	10.00	5.00	10.00
30.00	5.00	5.00	10.00	5.00	10.00	15.00	5.00	30.00	40.00
10.00	20.00	20.00	50.00	50.00	45.00	20.00	50.00	15.00	15.00
30.00	0.00	20.00	65.71	50.00	0.00	25.00	0.00	0.00	28.57
20.00	50.00	52.00	0.00	12.50	0.00	25.00	14.29	20.00	14.29
50.00	50.00	28.00	34.29	37.50	100.00	50.00	85.71	80.00	57.14

18.00	19.00	20.00	21.00	22.00	23.00	24.00	25.00	26.00	27.00
0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	10.00	0.00	15.00	8.00	5.00	15.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00
0.00	0.00	5.00	0.00	0.00	0.00	0.00	0.00	5.00	5.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20.00	0.00	10.00	0.00	5.00	0.00	5.00	0.00	0.00	0.00
0.00	0.00	0.00	35.00	5.00	0.00	0.00	15.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00	60.00	15.00	10.00	10.00	10.00	0.00	0.00	55.00	35.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	10.00	0.00	5.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	7.00	5.00	0.00	0.00	0.00
45.00	60.00	40.00	55.00	35.00	30.00	25.00	30.00	60.00	40.00
5.00	25.00	10.00	10.00	10.00	5.00	5.00	5.00	20.00	40.00
5.00	5.00	10.00	10.00	15.00	10.00	15.00	10.00	5.00	5.00
45.00	10.00	40.00	25.00	40.00	55.00	55.00	55.00	15.00	15.00
33.33	0.00	25.00	0.00	42.86	26.67	60.00	50.00	0.00	0.00
0.00	0.00	12.50	0.00	0.00	0.00	0.00	0.00	8.33	12.50
66.67	100.00	62.50	100.00	57.14	73.33	40.00	50.00	91.67	87.50

28.00	29.00	30.00	31.00	32.00	33.00	34.00	35.00	36.00	37.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00	0.00	20.00	15.00	0.00	0.00	10.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	10.00
0.00	0.00	0.00	0.00	0.00	10.00	5.00	0.00	0.00	5.00
0.00	0.00	0.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	5.00	10.00	15.00	0.00	20.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00	0.00	30.00	0.00	5.00	0.00	0.00	0.00	0.00	0.00
30.00	0.00	5.00	10.00	50.00	5.00	10.00	0.00	0.00	30.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.00
0.00	30.00	0.00	0.00	0.00	0.00	0.00	30.00	5.00	0.00
0.00	0.00	0.00	5.00	0.00	10.00	0.00	0.00	0.00	0.00
50.00	35.00	55.00	35.00	55.00	30.00	35.00	55.00	60.00	65.00
35.00	10.00	15.00	10.00	5.00	5.00	5.00	10.00	25.00	5.00
5.00	10.00	25.00	10.00	10.00	35.00	5.00	30.00	5.00	20.00
10.00	45.00	5.00	45.00	30.00	30.00	55.00	5.00	10.00	10.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.18	0.00	0.00
20.00	14.29	36.36	57.14	0.00	33.33	42.86	0.00	8.33	23.08
80.00	85.71	63.64	42.86	100.00	66.67	57.14	81.82	91.67	76.92

38.00	39.00	40.00	41.00	42.00	43.00	44.00	45.00	46.00	47.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	15.00	0.00	15.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00	0.00	0.00	5.00	15.00	5.00	15.00	15.00	35.00	35.00
0.00	25.00	35.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	5.00	0.00	0.00	0.00	0.00	10.00	0.00
0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00	30.00	30.00	55.00	50.00	15.00	5.00	5.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20.00	10.00	5.00	0.00	0.00	0.00	10.00	5.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	10.00	5.00
0.00	0.00	0.00	5.00	0.00	3.00	5.00	0.00	0.00	20.00
40.00	65.00	70.00	70.00	65.00	40.00	40.00	40.00	55.00	60.00
10.00	5.00	20.00	20.00	15.00	45.00	10.00	50.00	25.00	25.00
15.00	10.00	5.00	5.00	5.00	5.00	35.00	5.00	5.00	10.00
35.00	20.00	5.00	5.00	15.00	10.00	15.00	5.00	15.00	5.00
0.00	0.00	0.00	0.00	0.00	37.50	0.00	37.50	0.00	0.00
25.00	38.46	50.00	14.29	23.08	17.50	37.50	37.50	81.82	58.33
75.00	61.54	50.00	85.71	76.92	45.00	62.50	25.00	18.18	41.67

PLATEAU MINING
 Sowbelly Reference Area
 Exposure: Variable
 Slope: Variable
 Sample Date: 27-28 July 2005

48.00	49.00	50.00	Mean	SDev	Freq	
<hr/>						TREES & SHRUBS
0.00	0.00	0.00	0.14	0.98	2.00	<i>Artemisia tridentata</i>
0.00	0.00	0.00	0.80	3.22	6.00	<i>Atriplex canescens</i>
0.00	5.00	7.00	7.06	13.58	40.00	<i>Chrysothamnus nauseosus</i>
0.00	0.00	0.00	0.16	0.81	4.00	<i>Gutierrezia sarothrae</i>
<hr/>						FORBS
0.00	15.00	8.00	5.94	8.14	54.00	<i>Artemisia ludoviciana</i>
0.00	0.00	0.00	3.60	10.15	12.00	<i>Aster glaucodes</i>
0.00	0.00	0.00	0.40	1.69	6.00	<i>Medicago sativa</i>
0.00	0.00	0.00	0.40	1.69	6.00	<i>Penstemon palmeri</i>
0.00	0.00	0.00	0.44	1.70	8.00	<i>Sisymbium altissimum</i>
0.00	0.00	0.00	0.04	0.28	2.00	<i>Tragopogon dubius</i>
<hr/>						GRASSES
0.00	0.00	0.00	0.50	3.50	2.00	<i>Bromus inermis</i>
0.00	20.00	0.00	8.00	12.08	52.00	<i>Bromus tectorum</i>
0.00	0.00	0.00	1.10	5.32	6.00	<i>Dactylis glomerata</i>
0.00	0.00	0.00	3.00	7.55	18.00	<i>Elymus hispidus</i>
0.00	0.00	0.00	10.42	15.26	50.00	<i>Elymus lanceolatus</i>
0.00	0.00	0.00	1.10	7.02	4.00	<i>Elymus salinus</i>
70.00	0.00	25.00	4.66	11.78	28.00	<i>Elymus smithii</i>
0.00	0.00	0.00	1.24	3.42	18.00	<i>Stipa hymenoides</i>
<hr/>						COVER
70.00	40.00	40.00	49.00	12.88		Total Living Cover
15.00	5.00	5.00	15.20	11.53		Litter
5.00	15.00	5.00	11.28	9.33		Bareground
10.00	40.00	50.00	24.52	17.64		Rock
<hr/>						% COMPOSITION
0.00	12.50	17.50	17.56	24.27		Shrubs
0.00	37.50	20.00	21.21	20.33		Forbs
100.00	50.00	62.50	61.23	24.85		Grasses

APPENDIX C

Legal Financial, Compliance and Related Information

Annual Report of Officers
As submitted to the Utah Department of Commerce

Other change in ownership and control information
As required under R645-301-110

CONTENTS

OFFICERS AND DIRECTORS SUBMITTED AS CONFIDENTIAL

APPENDIX D

Mine Maps

As required under R645-302-525-270

CONTENTS
NONE

APPENDIX E

Other Information

In accordance with the requirements of R645-301 and R645-302

CONTENTS
OVERVIEW OF RECLAMATION AND PHASED BOND RELEASE ACTIVITY

CASTLE GATE MINE Permit Number C/007/004

The Castle Gate Mine permit area is located approximately 10 miles north of Price, Utah and in the Wasatch Plateau coal fields in Carbon County. The complex consists of various separate areas including: the Hardscrabble Canyon No.3 and 4 Mine facilities with 39.0 acres (Exhibit 3.3-23); the Sowbelly Gulch No.5 Mine facilities with 21.0 acres (Exhibit 3.2-13); and the Price Canyon Adit No.1 Mine with 3.0 acres (Exhibit 3.5-3A). The disturbed (bonded) area for the entire Castle Gate Mine complex is 63.0 acres. The permit area is 7,619 acres, more or less. The performance bond for the Castle Gate Mine is \$680,154. The permit was renewed on December 24, 2004 and expires on December 24, 2009.

This area has a history of various mining operations producing coal since the turn of the 1880's, when Teacum Pratt opened the first operation for house coal. Mining activities were consolidated in 1971 under the Braztah Corporation, which in turn became the Price River Coal Company in 1979, then Castle Gate Coal Company in 1986, Amax Coal Company in 1991, Amax Coal Holding Company in 1996, and Castle Gate Holding Company in 1998.

The Reclamation history of the various areas within the Castle Gate Mine Permit is as follows:

Hardscrabble Canyon

Hardscrabble reclamation began in 1984 with reclamation of the Goose Island refuse pile followed by reclamation of the No.3 and 4 Mine areas during the years of 1993 through 1999 and 2002. The road through the disturbed area was altered but left in place for the post mining land use. In 1997, AMAX Coal Company, Castle Gate Holding Company's predecessor, received an Earth Day Award from the Board of Oil, Gas and Mining for "outstanding final reclamation and site restoration". The company was commended for enhancing the post mining land use by restoring the canyon to a more natural configuration and paying particular attention to wildlife habitat while providing better downstream water quality. Phase I bond release was approved on February 14, 2001 for 37.1 acres. Phase II bond release of 37.1 acres was approved on June 5, 2003. In 2003, the Hardscrabble Canyon site was nominated by the Division of Oil, Gas and Mining for an "Excellence in Surface Coal Mining Reclamation Award" and was selected by the Department of Interior's Office of Surface Mining as one of the "National Award" winners and went on to win the "Best of the Best" award.

Reclamation work on 0.78 acres associated with the substation in Hardscrabble Canyon was completed in the fall of 2002. In September 2004 a Phase I bond release application was submitted for the substation area. On September 08, 2005 DOGM performed the phased bond release site inspection of the substation area and on October 11, 2005 issued a report stating that the site met the requirements for phase I bond release.

Sowbelly Gulch/Canyon

Sowbelly Gulch reclamation began in 1992 with all but the substation area being reclaimed by the end of 1995. Phase I bond release of 18.2 acres was approved on January 31, 1997 (excluding the substation). Phase II bond release of the 18.2 acres was approved on June 5, 2003. In 2004 year-9 vegetation monitoring was conducted and in 2005 year-10 vegetation monitoring was conducted to demonstrate vegetation success and sustainability in preparation for Phase III bond release of 18.2 acres in 2006.

Reclamation work on 1.84 acres associated with the substation in Sowbelly Canyon was completed in the fall of 2002. In September of 2004 a Phase I bond release application was submitted for the substation area. On September 08, 2005 DOGM performed the phased bond release site inspection of the substation area and on September 27, 2005 issued a report stating that the site met the requirements for phase I bond release.

Adit No. 1

Reclamation work on about 1.7 acres of disturbance at the Adit No. 1 was performed during the fall of 2002. In 2004 the Adit No.1 aerial survey was completed and in April of 2005 a Phase I bond release application was submitted. On September 08, 2005 DOGM performed the phased bond release site inspection and on September 27, 2005 issued a report stating that the site met the requirements for phase I bond release.