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CO-OP MINING COMPANY
ANNUAL REPORT 1996

Bear Canyon Mine
ACT/015/025

Trail Canyon Mine
ACT/015/021

RECEIVED
MAY 05 1997
DIV. OF OIL, GAS & MINING

Prepared by

Mangum Engineering Consultants
388 East Boynton Road
Kaysville, Utah 84037
(801) 547-9887

for

Co-Op Mining Company
P.O. Box 1245
Huntington, Utah 84528

Kimly C. Mangum, P.E.
Charles Reynolds, B.S

April 1996

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GENERAL INFORMATION

1. Permit Number	ACT/015/025
2. Mine Name	Bear Canyon Mine
3. Permittee Name	Co-Op Mining Company
4. Operator Name (if other than Permittee)	
5. Permit Expiration Date	November 2,2000
6. Company Representative, Title	Kimly C. Mangum
7. Phone Number	(801)687-2450
8. Fax Number	(801)687-5238
9. Mailing Address	Co-Op Mining Co.
	P.O. Box 1245
	Huntington Utah 84528
10.Resident Agent, Title	Mr. Wendell Owen
Mailing Address	P.O. Box 1245
	Huntington Utah 84528

IDENTIFICATION OF OTHER PERMITS

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

Permit Type	ID Number	Description	Expires on
1. MSHA Mine ID(s)	42-01697	Bear Canyon #1 Mine	N/A
	42-02095	Bear Canyon #2 Mine	N/A
2. MSHA Impoundment(s)		None	
3. NPDES/UPDES Permit(s) (water)	UTG040006	Minor Industrial	4/30/98
4. PSD (Air) Permit(s)	DAQE-487-96	Issued 5/2/96	N/A
5.			
6.			

CERTIFIED REPORTS

List the certified inspection reports as required by the rules and under the approved plan which must be periodically submitted to the Division. Specify whether the information is included as APPENDIX A to this Annual Report or currently ON FILE with the Division.

Certified Reports:	Reports Required?		INCLUDED or ON FILE w/DOGM?			Comments
	YES	NO	YES	NO	ON FILE	
1. Excess Spoil Piles		X		X		
2. Refuse Piles		X		X		
3. Impoundments	X		X			Ponds A, B, C
4.						
5.						

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 Annual Report or currently ON FILE with the Division.

Technical Data:	Reports Required?		INCLUDED or ON FILE w/DOGM?			Comments
	YES	NO	YES	NO	ON FILE	
1. Climatological Data	X		X			
2. Subsidence Monitoring Data	X		X			Subsidence Report 9/24/96
3. Vegetation Monitoring Data	X		X			
4. Soils Monitoring Data		X				
5. Water Monitoring Data	X				X	
First Quarter Report	X				X	
Second Quarter Report	X				X	
Third Quarter Report	X				X	
Fourth Quarter Report	X					
6. Geological/Geophysical Data		X				
7. Engineering Data		X				
8. Other Data						
Interim Vegetation seed mix		X	X			
Sediment material analyses		X	X			

LEGAL, FINANCIAL, COMPLIANCE AND RELATED INFORMATION

Changes in administration or corporate structure can often bring about necessary changes to information found in the mining and reclamation plan. The Division is requesting that each permittee review and update the legal, financial, compliance and related information in the plan as part of the Annual Report. Provide the Department of Commerce, Annual Report of Officers, or other equivalent information as necessary to ensure that the information provided in the plan is current. Provide any other changes as necessary regarding land ownership, lease acquisitions, legal results from appeals of violations, or other changes as necessary to update information required in the mining and reclamation plan. Include any certified financial statements, audits or worksheets which may be required to meet bonding requirements. Specify whether the information is currently ON FILE with the Division or included as APPENDIX C to this Annual Report.

Legal/Financial Data:	Report Required?		INCLUDED or ON FILE w/DOGM?			Comments
	YES	NO	YES	NO	ON FILE	
1. Department of Commerce, Annual Report of Officers	X		X			
2. Other						

MINE MAPS

Copies of mine maps, current and up-to-date through at least December 31, 1996, are to be provided to the Division as APPENDIX D to this Annual Report in accordance with the requirements of R645-301-525.270. These map copies shall be made in accordance with 30 CFR 75.1200, as required by MSHA. Upon request, mine maps shall be kept confidential by the Division.

Map Number(s)	Map Title / Description	Confidential?
3-4A	#1 Mine Blind Canyon Seam	no
3-4B	#1 Mine Seam Hiawatha	no
3-4C	#2 Mine Tank Seam	no
7-10A through 7-10C	Mine Water Surveys	no

OTHER INFORMATION

Please provide any comments or further information to be included as part of the Annual Report. Any other attachments are to be provided as APPENDIX E to this Annual Report.

Additional attachments to this report? ☒ No ☐ Yes

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GENERAL INFORMATION

1. Permit Number	ACT/015/021
2. Mine Name	Trail Canyon Mining Company
3. Permittee Name	Co-Op Mining Company
4. Operator Name (if other than Permittee)	
5. Permit Expiration Date	May 30,1999
6. Company Representative, Title	Kimly C. Mangum, P.E., M.E.C.
7. Phone Number	(801)687-2450
8. Fax Number	(801)687-5238
9. Mailing Address	Co-Op Mining Company
	P.O. Box 1245
	Huntington, Utah 84528
10.Resident Agent, Title	Mr. Wendell Owen
Mailing Address	P.O. Box 1245
	Huntington Utah 84528

IDENTIFICATION OF OTHER PERMITS

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

Permit Type	ID Number	Description	Expires on
1. MSHA Mine ID(s)	42-00081-0	Trail Canyon Mine	
2. MSHA Impoundment(s)	N/A		
3. NPDES/UPDES Permit(s) (water)	N/A		
4. PSD (Air) Permit(s)	N/A		
5.			
6.			

CERTIFIED REPORTS

List the certified inspection reports as required by the rules and under the approved plan which must be periodically submitted to the Division. Specify whether the information is included as APPENDIX A to this Annual Report or currently ON FILE with the Division.

Certified Reports:	Reports Required?		INCLUDED or ON FILE w/DOGM?			Comments
	YES	NO	YES	NO	ON FILE	
1. Excess Spoil Piles		X				
2. Refuse Piles		X				
3. Impoundments		X				
4.						
5.						

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 Annual Report or currently ON FILE with the Division.

Technical Data:	Reports Required?		INCLUDED or ON FILE w/DOGM?			Comments
	YES	NO	YES	NO	ON FILE	
1. Climatological Data	X		X			
2. Subsidence Monitoring Data	X		X			
3. Vegetation Monitoring Data	X		X			
4. Soils Monitoring Data		X				
5. Water Monitoring Data	X				X	
First Quarter Report		X				
Second Quarter Report	X				X	
Third Quarter Report		X				
Fourth Quarter Report	X				X	
6. Geological/Geophysical Data		X				
7. Engineering Data		X				
8. Other Data						

LEGAL, FINANCIAL, COMPLIANCE AND RELATED INFORMATION

Changes in administration or corporate structure can often bring about necessary changes to information found in the mining and reclamation plan. The Division is requesting that each permittee review and update the legal, financial, compliance and related information in the plan as part of the Annual Report. Provide the Department of Commerce, Annual Report of Officers, or other equivalent information as necessary to ensure that the information provided in the plan is current. Provide any other changes as necessary regarding land ownership, lease acquisitions, legal results from appeals of violations, or other changes as necessary to update information required in the mining and reclamation plan. Include any certified financial statements, audits or worksheets which may be required to meet bonding requirements. Specify whether the information is currently ON FILE with the Division or included as APPENDIX C to this Annual Report.

Legal/Financial Data:	Report Required?		INCLUDED or ON FILE w/DOGM?			Comments
	YES	NO	YES	NO	ON FILE	
1. Department of Commerce, Annual Report of Officers	X		X			Same as Bear Canyon
2. Other						

MINE MAPS

Copies of mine maps, current and up-to-date through at least December 31, 1996, are to be provided to the Division as APPENDIX D to this Annual Report in accordance with the requirements of R645-301-525.270. These map copies shall be made in accordance with 30 CFR 75.1200, as required by MSHA. Upon request, mine maps shall be kept confidential by the Division.

Map Number(s)	Map Title / Description	Confidential?

OTHER INFORMATION

Please provide any comments or further information to be included as part of the Annual Report. Any other attachments are to be provided as APPENDIX E to this Annual Report.

Additional attachments to this report? X No ☐ Yes

APPENDIX A

Certified Reports

Excess Spoil Piles
Refuse Piles
Impoundments

as required under R645-301-514

CONTENTS

Sediment pond "A" annual inspection report
Sediment pond "B" annual inspection report
Sediment pond "C" annual inspection report

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT			Page 1 of 3
Permit Number	ACT/015/025	**Report Date**	4/10/97
Mine Name	Bear Canyon Mine		
Company Name	Co-Op Mining Company		
Impoundment Identification	**Impoundment Name**	Sediment Pond "A"	
	Impoundment Number	002 A	
	UPDES Permit Number	UTG040006	
	MSHA ID Number	N/A	

IMPOUNDMENT INSPECTION

Inspection Date	September 2, 1996
Inspected By	Kimly C. Mangum
Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	Annual

1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.

The pond's dam appeared sound with no signs of instability or hazardous conditions.

Required for an impoundment which functions as a SEDIMENTATION POND.

2. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and, estimated average elevation of existing sediment.

Sediment storage capacity = 39,500 ft^3
60% sediment cleanout elevation = 7,086
100% sediment storage elevation = 7,087.9
Existing sediment elevation = 7,085.5

3. Principle and emergency spillway elevations.

Principle spillway elevation = 7,088
emergency spillway elevation = 7,094.5

4. Field Information. Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/instrumentation information, inlet/outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/repairs, monitoring information, vegetation on outslopes of embankments, etc.

Pond contains minimal standing water. No discharge has occurred in 1996. No water samples were taken. No erosion problems are apparent on the pond slopes.

5. Field Evaluation. Describe any changes in the geometry of the impounding structure, average and maximum depths and elevations of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period.

Sediment volume is 0.32 acre-feet. The existing storage capacity was 2.14 acre-feet, which is 0.57 acre-feet greater than the 1.57 acre-feet required by the approved plan.

Qualification Statement

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability.

Signature: Carlos Reynolds **Date:** 4-10-97

CERTIFIED REPORT

IMPOUNDMENT EVALUATION (If NO, explain under Comments)	YES	NO
1. Is impoundment designed and constructed in accordance with the approved plan?	X	
2. Is impoundment free of instability, structural weakness, or any other hazardous condition?	X	
3. Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	X	

COMMENTS AND OTHER INFORMATION

Certification Statement:

LICENSED PROFESSIONAL ENGINEER
No. 136686
KIMLY C. MANGUM
[PE Stamp]
STATE OF UTAH

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.

By: Kimly C. Mangum, P.E.
(Full Name and Title)

Signature: Kimly C Mangum **Date:** 4-10-97

P.E. Number & State: 136686 UT

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT			Page 1 of 3
Permit Number	ACT/015/025	**Report Date**	4/10/97
Mine Name	Bear Canyon Mine		
Company Name	Co-Op Mining Company		
Impoundment Identification	**Impoundment Name**	Sediment pond "B"	
	Impoundment Number	003A	
	UPDES Permit Number	UTG040006	
	MSHA ID Number	N/A	

IMPOUNDMENT INSPECTION

Inspection Date	September 2,1996
Inspected By	Kimly C. Mangum
Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	Annual

1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.

The pond's dam appeared sound with no signs of instability or hazardous conditions.

Required for an impoundment which functions as a SEDIMENTATION POND.

2. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and, estimated average elevation of existing sediment.

Sediment storage capacity = 3670
60% sediment cleanout elevation =7062.9
100% sediment storage elevation = 7063.4
existing storage elevation = 7062.2

3. Principle and emergency spillway elevations.

Principle spillway elevation =7064.9
emergency spillway elevation =7,068

4. Field Information. Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/instrumentation information, inlet/outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/repairs, monitoring information, vegetation on outslopes of embankments, etc.

Pond is dry. No discharge has occurred in 1996. No water samples were taken.

No erosion problems were observed on the pond slopes.

5. Field Evaluation. Describe any changes in the geometry of the impounding structure, average and maximum depths and elevations of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period.

The sediment volume is 0.32 acre-feet. The existing storage capacity was 0.38 acre-feet, which is 0.171 acre-feet greater than the 0.209 acre-feet required by the approved plan.

Qualification Statement

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability.

Signature: Louis Reynolds **Date:** 4-10-97

CERTIFIED REPORT

IMPOUNDMENT EVALUATION (If NO, explain under Comments)	YES	NO
1. Is impoundment designed and constructed in accordance with the approved plan?	X	
2. Is impoundment free of instability, structural weakness, or any other hazardous condition?	X	
3. Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	X	

COMMENTS AND OTHER INFORMATION

Certification Statement:

LICENSED PROFESSIONAL ENGINEER
No. 136686
KIMLY C. MANGUM
STATE OF UTAH
[PE Cert. Stamp]

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.

By: Kimly C Mangum, P.E.
(Full Name and Title)

Signature: Kimly C Mangum **Date:** 4-10-97

P.E. Number & State: 136686 UTAH

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT			Page 1 of 3
Permit Number	Act/015/025	**Report Date**	4/10/96
Mine Name	Bear Canyon Mine		
Company Name	Co-Op Mining Company		
Impoundment Identification	**Impoundment Name**	Sediment Pond	
	Impoundment Number	"C"	
	UPDES Permit Number	UTG040006-006	
	MSHA ID Number		

IMPOUNDMENT INSPECTION

Inspection Date	6/29/96
Inspected By	Kimly C. Mangum
Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	Annual

1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.

The pond has been constructed and maintained in accordance with the approved plan. The pond's dam appeared sound with no signs of instability or hazardous conditions.

Required for an impoundment which functions as a SEDIMENTATION POND.

2. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and, estimated average elevation of existing sediment.

Sediment storage capacity = 5,282
60% cleanout elevation = 7,030.3
100% sediment storage elevation = 7,031.4
existing sediment elevation = 7,027.2

3. Principle and emergency spillway elevations.

Principle spillway elevation = 7,0332.3
Emergency spillway elevation = 7,035.3

4. Field Information. Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/instrumentation information, inlet/outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/repairs, monitoring information, vegetation on outslopes of embankments, etc.

The pond is dry. No discharge has occurred in 1996. No water samples were taken. No erosion problems were observed on the pond bank. Sediment pond was cleaned out in June, 1996.

5. Field Evaluation. Describe any changes in the geometry of the impounding structure, average and maximum depths and elevations of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period.

The existing storage capacity was 5,122 cubic feet which is greater than the 126 cubic feet required by the approved plan.

Qualification Statement

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability.

Signature: Charles Reynolds **Date:** 4-10-97

CERTIFIED REPORT

IMPOUNDMENT EVALUATION (If NO, explain under Comments)	YES	NO
1. Is impoundment designed and constructed in accordance with the approved plan?	X	
2. Is impoundment free of instability, structural weakness, or any other hazardous condition?	X	
3. Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	X	

COMMENTS AND OTHER INFORMATION

Certification Statement:

LICENSED PROFESSIONAL ENGINEER
No. 136686
KIMLY C. MANGUM
STATE OF UTAH
[PE Cert. Stamp]

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.

By: Kimly C Mangum, P.E
(Full Name and Title)

Signature: Kimly C Mangum **Date:** 4-10-97

P.E. Number & State: 136686 UTAH

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 requirements of R645-301-130 and R645-301-140.

CONTENTS

Climatological Data
Subsidence Monitoring Data
Vegetation Monitoring Data
Bear Canyon Interim Vegetation Seed Mix
Sediment Pond "C" Cleanout Material Analyses

CLIMATOLOGICAL DATA

Precipitation - Bear Canyon

Date Date	Gauge Reading Reading	Precipitation Precipitation
01/01/96	0.00	
01/02/96	0.00	
01/03/96	0.01	snow
01/04/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
01/16/96	0.00	
01/17/96	0.80	8" snow
01/18/96	0.00	
01/19/96	0.50	6" snow
01/20/96	0.00	
01/21/96	0.00	Snow - Trace
01/22/96	0.05	1" Snow
01/23/96	0.00	
01/24/96	0.04	1" Snow
01/25/96	0.15	4" Snow
01/26/96	0.00	
01/27/96	0.01	Lt. Snow
01/28/96	0.00	
01/29/96	0.00	
01/30/96	0.15	2" Snow
01/31/96	0.00	Lt. Snow
02/01/96	0.00	
02/02/96	0.00	
02/03/96	0.07	lt. snow
02/04/96	0.00	
02/05/96	0.03	rain/snow mix
02/06/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
02/19/96	0.00	
02/20/96	0.32	rain
02/21/96	0.18	snow /rain
02/22/96	0.02	lt. snow
02/23/96	0.00	
02/24/96	0.00	
02/25/96	0.08	snow
02/26/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
03/04/96	0.00	
03/05/96	0.40	snow/rain
03/06/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
03/11/96	0.00	
03/12/96	0.04	rain

Date Date	Gauge Reading Reading	Precipitation Precipitation
03/13/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
03/24/96	0.00	
03/25/96	0.27	snow
03/26/96	0.00	
03/27/96	0.00	
03/28/96	0.03	lt. snow
03/29/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
04/08/96	0.00	
04/09/96	0.08	rain/sleet
04/10/96	0.00	
04/11/96	0.00	
04/12/96	0.02	lt. snow
04/13/96	0.00	
04/14/96	0.00	
04/15/96	0.00	
04/16/96	0.00	-
04/17/96	0.11	rain/snow
04/18/96	0.00	
04/19/96	0.04	rain
04/20/96	0.00	lt. rain/snow
04/21/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
05/21/96	0.00	
05/22/96	0.05	rain
05/23/96	0.08	rain/snow mix
05/24/96	0.11	rain/snow mix
05/25/96	0.58	rain/snow 1/2"
05/26/96	0.00	
05/27/96	0.29	rain
05/28/96	0.09	rain
05/29/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
06/10/96	0.00	
06/11/96	0.05	thunderstorm
06/12/96	0.02	thunderstorm
06/13/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
06/25/96	0.00	
06/26/96	0.21	rain

Precipitation - Bear Canyon

Date	Gauge Reading	Precipitation
06/27/96	0.09	rain
06/28/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
07/02/96	0.00	
07/03/96	0.00	trace of rain
07/04/96	0.00	
07/05/96	0.00	
07/06/96	0.00	
07/07/96	0.00	
07/08/96	0.03	thunderstorms
07/09/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
07/14/96	0.00	
07/15/96	0.00	trace of rain
07/16/96	0.07	showers
07/17/96	0.13	intermittent rain/hail
07/18/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
07/26/96	0.00	
07/27/96	0.00	trace of rain
07/28/96	0.07	shower
07/29/96	0.00	
07/30/96	0.00	
07/31/96	0.00	
08/01/96	0.06	showers
08/02/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
08/16/96	0.00	
08/17/96	0.01	rain
08/18/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
08/25/96	0.00	
08/26/96	0.15	rain
08/27/96	0.03	rain
08/28/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
09/02/96	0.00	
09/03/96	0.00	lt rain
09/04/96	0.02	lt rain

Date	Gauge Reading	Precipitation
09/05/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
09/10/96	0.00	
09/11/96	0.34	rain
09/12/96	0.10	rain
09/13/96	0.47	rain
09/14/96	0.42	rain
09/15/96	0.00	
09/16/96	0.07	rain
09/17/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
10/01/96	0.00	
10/02/96	0.07	rain
10/03/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
10/12/96	0.00	
10/13/96	0.00	trace of rain
10/14/96	0.00	
10/15/96	0.00	
10/16/96	0.04	lt. snow
10/17/96	0.00	
10/18/96	0.00	
10/19/96	0.01	lt. snow
10/20/96	0.00	
10/21/96	0.00	
10/22/96	0.00	
10/23/96	0.00	
10/24/96	0.17	snow
10/25/96	0.22	snow
10/26/96	0.09	snow
10/27/96	0.01	lt. snow
10/28/96	0.02	lt. snow
10/29/96	0.00	
10/30/96	0.00	
10/31/96	0.11	snow/rain mix
11/01/96	0.00	
11/02/96	0.00	
11/03/96	0.11	snow
11/04/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
11/14/96	0.00	
11/15/96	0.02	lt. snow
11/16/96	0.00	

Precipitation - Bear Canyon

Date	Gauge Reading	Precipitation	Date	Gauge Reading	Precipitation
11/17/96	0.42	snow 5"-6"	12/10/96	0.00	
11/18/96	0.00		12/11/96	0.20	snow
11/19/96	0.00		12/12/96	0.00	
11/20/96	0.00		12/13/96	0.00	
11/21/96	0.09	rain	12/14/96	0.00	
11/22/96	0.39	rain	12/15/96	0.00	
11/23/96	0.00		12/16/96	0.02	snow 1/2"
.	.	no precipitation	12/17/96	0.00	
.	.	during this	12/18/96	0.00	
.	.	period	12/19/96	0.00	
11/28/96	0.00		12/20/96	0.00	
11/29/96	0.08	snow 1"-2"	12/21/96	0.12	snow 3"
11/30/96	0.00		12/22/96	0.00	
12/01/96	0.00		12/23/96	0.00	
12/02/96	0.09	snow 1 1/2"	12/24/96	0.00	
12/03/96	0.00		12/25/96	0.00	lt. snow no accumilation
12/04/96	0.00		12/26/96	0.00	
12/05/96	0.44	snow	12/27/96	0.08	snow
12/06/96	0.00		12/28/96	0.00	
12/07/96	0.00		12/29/96	0.00	trace of snow
12/08/96	0.00		12/30/96	0.00	trace of snow
12/09/96	0.00		12/31/96	0.00	

Bear Canyon Total Precipitation: 9.74 inches

Precipitation - Trail Canyon

Date	Gauge Reading	Precipitation
01/01/96	0.00	
01/02/96	0.00	
01/03/96	0.01	evening snow
01/04/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
01/16/96	0.00	
01/17/96	0.88	snow 8"
01/18/96	0.00	
01/19/96	0.52	snow 6 1/2"
01/20/96	0.00	
01/21/96	0.00	lt. snow - trace
01/22/96	0.05	snow 1"
01/23/96	0.00	
01/24/96	0.07	snow 1"
01/25/96	0.18	snow 4"
01/26/96	0.00	
01/27/96	0.01	snow
01/28/96	0.00	
01/29/96	0.00	
01/30/96	0.15	snow 2"
01/31/96	0.05	lt. snow 1/2"
02/01/96	0.00	
02/02/96	0.00	
02/03/96	0.10	snow 1"
02/04/96	0.00	
02/05/96	0.06	rain snow mix
02/06/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
02/17/96	0.00	
02/18/96	0.07	lt. rain/snow
02/19/96	0.00	
02/20/96	0.46	rain
02/21/96	0.29	snow/rain
02/22/96	0.16	snow
02/23/96	0.00	
02/24/96	0.00	
02/25/96	0.19	snow
02/26/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
03/04/96	0.00	
03/05/96	0.55	snow/rain
03/06/96	0.00	
03/07/96	0.00	
03/08/96	0.00	
03/09/96	0.00	

Date	Gauge Reading	Precipitation
03/10/96	0.00	
03/11/96	0.00	
03/11/96	0.00	
03/12/96	0.05	rain
03/13/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
03/24/96	0.00	
03/25/96	0.35	snow
03/26/96	0.00	
03/27/96	0.00	
03/28/96	0.05	lt. snow
03/29/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
04/08/96	0.00	
04/09/96	0.22	rain/sleet
04/10/96	0.00	
04/11/96	0.00	
04/12/96	0.02	lt. snow
04/13/96	0.00	
04/14/96	0.00	
04/15/96	0.00	
04/16/96	0.00	
04/17/96	0.32	rain/snow
04/18/96	0.00	
04/19/96	0.15	rain
04/20/96	0.01	rain/snow
04/21/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
05/21/96	0.00	
05/22/96	0.08	rain
05/23/96	0.12	rain/snow mix
05/24/96	0.25	rain/snow mix
05/25/96	0.70	rain snow 1/2"
05/26/96	0.00	
05/27/96	0.42	rain
05/28/96	0.13	rain
05/29/96	0.00	
05/30/96	0.02	rain
05/31/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
06/10/96	0.00	
06/11/96	0.07	rain
06/12/96	0.03	rain

Missing Data —
Recieved Fax 6/4/97
NEED Hard Copy - Requested 6/4/97
Fax Came with illegible Sections

Precipitation - Trail Canyon

Date Date	Gauge Reading Reading	Precipitation Precipitation
01/01/96	0.00	
01/02/96	0.00	
01/03/96	0.01	evening snow
01/04/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
01/16/96	0.00	
01/17/96	0.88	snow 8"
01/18/96	0.00	
01/19/96	0.52	snow 6 1/2"
01/20/96	0.00	
01/21/96	0.00	lt. snow - trace
01/22/96	0.05	snow 1"
01/23/96	0.00	
01/24/96	0.07	snow 1"
01/25/96	0.18	snow 4"
01/26/96	0.00	
01/27/96	0.01	snow
01/28/96	0.00	
01/29/96	0.00	
01/30/96	0.15	snow 2"
01/31/96	0.05	lt. snow 1/2"
02/01/96	0.00	
02/02/96	0.00	
02/03/96	0.10	snow 1"
02/04/96	0.00	
02/05/96	0.06	rain snow mix
02/06/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
02/17/96	0.00	
02/18/96	0.07	lt. rain/snow
02/19/96	0.00	
02/20/96	0.46	rain
02/21/96	0.29	snow/rain
02/22/96	0.16	snow
02/23/96	0.00	
02/24/96	0.00	
02/25/96	0.19	snow
02/26/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
03/04/96	0.00	
03/05/96	0.55	snow/rain
03/06/96	0.00	
03/07/96	0.00	
03/08/96	0.00	
03/09/96	0.00	

Date Date	Gauge Reading Reading	Precipitation Precipitation
03/10/96	0.00	
03/11/96	0.00	
03/11/96	0.00	
03/12/96	0.05	rain
03/13/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
03/24/96	0.00	
03/25/96	0.35	snow
03/26/96	0.00	
03/27/96	0.00	
03/28/96	0.05	lt. snow
03/29/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
04/08/96	0.00	
04/09/96	0.22	rain/sleet
04/10/96	0.00	
04/11/96	0.00	
04/12/96	0.02	lt. snow
04/13/96	0.00	
04/14/96	0.00	
04/15/96	0.00	
04/16/96	0.00	
04/17/96	0.32	rain/snow
04/18/96	0.00	
04/19/96	0.15	rain
04/20/96	0.01	rain/snow
04/21/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
05/21/96	0.00	
05/22/96	0.08	rain
05/23/96	0.12	rain/snow mix
05/24/96	0.25	rain/snow mix
05/25/96	0.70	rain snow 1/2"
05/26/96	0.00	
05/27/96	0.42	rain
05/28/96	0.13	rain
05/29/96	0.00	
05/30/96	0.02	rain
05/31/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
06/10/96	0.00	
06/11/96	0.07	rain
06/12/96	0.03	rain

Precipitation - Trail Canyon

Date	Gauge Reading	Precipitation
06/13/96	0.00	
06/14/96	0.00	
06/15/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
06/25/96	0.00	
06/26/96	0.37	rain
06/27/96	0.40	rain
06/28/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
07/02/96	0.00	
07/03/96	0.00	trace of rain
07/04/96	0.00	trace of rain
07/05/96	0.00	
07/06/96	0.00	
07/07/96	0.00	
07/08/96	0.05	thunderstorm
07/09/96	0.00	
.	.	no precipit
.	.	during this
.	.	period
07/14/96	0.00	
07/15/96	0.00	trace of rain
07/16/96	0.11	showers
07/17/96	0.23	rain and some hail
07/18/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
07/26/96	0.00	
07/27/96	0.00	trace of rain
07/28/96	0.16	showers
07/29/96	0.00	
07/30/96	0.00	
07/31/96	0.00	
08/01/96	0.08	showers
08/02/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
08/16/96	0.00	
08/17/96	0.09	rain
08/18/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
08/25/96	0.00	
08/26/96	0.18	rain

Date	Gauge Reading	Precipitation
08/27/96	0.04	rain
08/28/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
09/02/96	0.00	
09/03/96	0.00	lt. evening rain
09/04/96	0.01	lt. evening rain
09/05/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
09/10/96	0.00	
11/96	0.42	rain
2/96	0.11	rain
6	0.55	rain/storm
	0.37	rain
	0.00	
	0.10	rain
	0.00	
	.	no precipitation
	.	during this
	.	period
96	0.00	
02/96	0.11	rain
10/03/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
10/12/96	0.00	
10/13/96	0.02	lt. evening rain
10/14/96	0.00	
10/15/96	0.00	
10/16/96	0.07	lt. snow
10/17/96	0.00	
10/18/96	0.00	
10/19/96	0.11	snow
10/20/96	0.00	
10/21/96	0.00	
10/22/96	0.00	
10/23/96	0.00	
10/24/96	0.20	snow
10/25/96	0.26	snow
10/26/96	0.11	snow
10/27/96	0.02	lt. snow
10/28/96	0.02	lt. snow
10/29/96	0.00	
10/30/96	0.00	
10/31/96	0.15	snow/rain mix
11/01/96	0.00	
11/02/96	0.00	

SLC
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Precipitation - Trail Canyon

Date	Gauge Reading	Precipitation
11/03/96	0.12	snow
11/04/96	0.00	
11/05/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
11/14/96	0.00	
11/15/96	0.03	lt. snow
11/16/96	0.00	
11/17/96	0.66	snow 8"
11/18/96	0.00	
11/19/96	0.00	
11/20/96	0.00	
11/21/96	0.15	rain
11/22/96	0.63	rain/lt. snow
11/23/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
11/28/96	0.00	
11/29/96	0.14	snow 2"
11/30/96	0.00	
12/01/96	0.00	
12/02/96	0.13	snow 2"
12/03/96	0.00	
12/04/96	0.00	
12/05/96	0.46	snow

Date	Gauge Reading	Precipitation
12/06/96	0.00	
12/07/96	0.00	
12/08/96	0.00	
12/09/96	0.00	
12/10/96	0.00	
12/11/96	0.14	snow
12/12/96	0.00	
12/13/96	0.00	
12/14/96	0.00	
12/15/96	0.00	
12/16/96	0.02	snow 1/2"
12/17/96	0.00	
12/18/96	0.00	
12/19/96	0.00	
12/20/96	0.00	
12/21/96	0.32	snow 4"
12/22/96	0.00	
12/23/96	0.00	
12/24/96	0.00	
12/25/96	0.00	lt. snow no accumulation
12/26/96	0.00	
12/27/96	0.12	snow
12/28/96	0.00	
12/29/96	0.00	trace of snow
12/30/96	0.00	trace of snow
12/31/96	0.00	

Trail Canyon Total Precipitation: 13.99 inches

SUBSIDENCE MONITORING DATA

REGISTERED PROFESSIONAL ENGINEER
DAN W. GUY
No. 154163
9/28/96
STATE OF UTAH

CO-OP MINING COMPANY
SUBSIDENCE MONITORING
TRAIL AND BEAR CANYON MINES

STATION	LOCATION	ELEVATION			Change	
		07/19/87	09/30/95	09/24/96	Last	Acc.
SMS-1	Trail/Bear Cyn.	9188.57	9187.94	9187.91	-0.03	-0.66
SMS-2	Bear Canyon	8542.60	8541.36	8542.09	0.73	-0.51
SMS-3	Trail Canyon	8769.06	8768.39	8768.24	-0.15	-0.82
SMS-4	Trail Canyon	8410.00	8409.82	8409.74	-0.08	-0.26
CON-5	Bear Canyon	9379.91	9379.91	-	-	-
CON-6	Bear Canyon	9491.62	9491.62	-	-	-
SMS-7	Bear Canyon	9398.78	9398.29	9398.05	-0.24	-0.73
SMS-8	McCadden	9062.15	9062.14	9062.20	0.06	0.05
SMS-9	Bear Canyon	9348.91	9348.45	9348.41	-0.04	-0.50
SMS-10	Bear Canyon	9331.62	9331.66	9331.58	-0.08	-0.04

Notes:

(1) CON-6 and SMS-7 through SMS-10 established 9/22/91.

(2) The area was walked between all stations. No visible movement,cracks or other subsidence effects were noted during the survey, other than those shown on Plate 3-3.

(3) A subsidence hole was reclaimed in the drainage above Birch Springs in Huntington Canyon in 1995.

VEGETATION MONITORING DATA

VEGETATION MONITORING
OF THE
TRAIL CANYON AREA

1996

FOR THE
CO-OP MINING COMPANY

Prepared by

MT. NEBO SCIENTIFIC, INC.
330 East 400 South, Suite 6
P.O. Box 337
Springville, Utah 84663
(801) 489-6937

for

CO-OP MINING COMPANY
P.O. Box 1245
Huntington, Utah 84528

Report: Patrick Collins, Ph.D.

Report Date: April 1997
Fieldwork Date: August 1996

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VEGETATION MONITORING
OF THE
TRAIL CANYON AREAS

1996

SCOPE

The purpose of this document is to provide vegetation monitoring data and summaries for several areas that have been previously reclaimed by the CO-OP Mining Company. The general sample areas included in this report were called: 1) *Reclaimed Slopes*, 2) *Reclaimed Pads*, 3) *Reclaimed Road*, and 4) *Reclaimed Sediment Pond*.

INTRODUCTION

General Site Description

As reported in previous years' monitoring reports, the study area is located in Trail Canyon, a branch of Huntington Canyon. Huntington Canyon is located west of the town of Huntington, Utah. Several previously disturbed areas have been reclaimed and reseeded in an effort to provide permanent, self-perpetuating vegetative cover. Elevations of the reseeded areas in Trail Canyon range from 6,925 ft to nearly 7,275 ft above sea level. Slopes that surround the canyon were primarily dominated by pinyon-juniper, Salina wildrye and mountain brush communities. Prior to disturbance and development, the canyon bottoms were probably composed chiefly of sagebrush/grass and riparian communities. The vegetation of the reclaimed areas in the canyon were all the result of disturbances caused by previous mining activities.

A *Reference Area* that was previously selected by the CO-OP Mining Company to be a standard for revegetation success is also located in Trail Canyon at approximately the same elevation as the reclaimed areas (see "Vegetation Sample Map"). The plant community of the *Reference Area* was pinyon-juniper/salina wildrye. The *Reference Area* was not sampled in 1996.

Data Compilation of Sample Areas

The areas that were sampled to estimate relative revegetation success were first divided into areas

in close proximity, disturbance type, or had other environmental variables in common. For example, most of the reclaimed "slopes" in Trail Canyon were sampled. Although the samples of the general areas (e.g. "Slopes") were combined to get results of the area as a whole, the raw data were labeled to enable one to separate each data sets into specific areas if desired.

METHODS

Quantitative and qualitative data were taken on the vegetation of the reclaimed and reference areas. Sampling was conducted early in August, 1996. Methodologies used herein were performed in accordance with the guidelines supplied by the State of Utah, Division of Oil, Gas and Mining (DOGM).

Study Area Divisions

As mentioned above, the study sites were divided into areas of close proximity and/or had similar environmental or physiognomic characteristics. These divisions were called: 1) *Reclaimed Slopes*, 2) *Reclaimed Pads*, 3) *Reclaimed Road*, and 4) *Reclaimed Sediment Pond Area*.

A sample map has been prepared to show the general location of each of the following sample areas. The area called *Reclaimed Slopes* included the following revegetated slopes in Trail Canyon study area:

Middle Slopes,

Slopes to Middle Pad,
Slopes near the Residents ,
Steep Slope Above Middle Pad.

The areas called *Reclaimed Pads* on the data sheets and summary tables included the following:

Lower Pad,
Middle Pad,
Slopes (nearby),
Picnic Area.

The *Reclaimed Road* included the following:

Reclaimed Road,
Substation Area.

The *Sediment Pond Area* included an area that was recently reclaimed and reseeded. This is the first year data from this area has been reported.

Transect and Quadrat Placement

Random/regular placement of sampling plots were designed as an attempt to provide unbiased accuracy of the data compiled. This was accomplished by establishing transect lines randomly placed on the *Reclaimed Slopes*, *Reclaimed Pads* and *Reclaimed Sediment Pond area*. These transect lines were placed over the entire study areas to adequately represent the site. Regular points on the transect lines were then marked. From these marks, the sample points were determined by random distance numbers at right angles to the transect lines.

Quadrats were placed at predetermined regular intervals for the entire length of the *Reclaimed*

Road. A random number was then chosen at each location.

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. 1993).

Woody Species Density

Density of woody plant species of the reclaimed areas were recorded using belt transects. These 5 ft by 25 ft belts were placed randomly throughout the study areas. Total number of individuals by species were counted in each of the belt transects. The average number was then calculated followed by the number of individuals per acre.

Sample Adequacy

As recommended by DOGM guidelines, sampling adequacy was recalculated using formulas from Cochran (1977), with the goal of 80% confidence level with a 10% change in mean . The formula used is 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

However, sample size was also influenced proportionately by the total area of each sample site within a given reclaimed area. In other words, the larger the revegetated area, the larger the sample size.

Photographs

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

Raw Data

The raw data were also submitted in the Appendix of this report which should facilitate future scrutiny of the data and further statistical testing if desired.

RESULTS

Site similarities and clarification rational warranted the reclaimed areas to be categorized into 4 general types called:

1) Reclaimed Slopes,
2) Reclaimed Pads,
3) Reclaimed Road,
4) Reclaimed Sediment Pond.

Reclaimed Slopes (*middle slopes, slope to middle pad, slope near residents, steep slope*)

Total living cover of these areas combined (see "Vegetation Sample Map") was estimated to be 48.17% (Table 1). Grasses dominated the site comprising 66.78%, followed by shrubs at 22.03% and forbs at 11.19%. The most common species by cover and frequencies were bluebunch wheatgrass (*Elymus spicatus*), rubber rabbitbrush (*Chrysothamnus nauseosus*) and thickspike wheatgrass (*Elymus lanceolatus*). For cover estimates for each plant species refer to Table 2.

Woody species density of the area was estimated at 4,716 individuals per acre. The most common woody species by far was rubber rabbitbrush (Table 3).

Reclaimed Pads (*lower pad and slopes, middle pad and picnic area*)

The *Reclaimed Pads* were areas that were relatively flat and presented a different array of

environmental variables including soil/moisture relationships. (see "Vegetation Sample Map").

Total living cover of these areas combined was estimated to be 52.50% (Table 4). Composition percentages of shrubs , grasses and forbs were fairly close. The shrubs represented 38.62%, forbs 27.54%, and grasses 33.84% of the total living cover (Table 4). The most common species by cover and frequencies were the same as those previously reported for the slopes, but rubber rabbitbrush lead the others with 17.50% cover (Table 5).

Total woody species density of these areas was high at 7,086 individuals per acre (Table 6). Besides rubber rabbitbrush , big sagebrush (*Artemisia tridentata*) was an important component of the density.

Reclaimed Road and Substation Area (combined)

The reclaimed road was relatively homogenous its entire length. Therefore, all of the data recorded were combined for a summary. The total living cover in this area was 42.00% (Table 7). Grasses represented nearly half of the living cover followed by forbs, then shrubs (7). Slightly different species were common on this road, but bluebunch wheatgrass (*Elymus spicatus*) and rubber rabbitbrush (*Chrysothamnus nauseosus*) continued to be common. The most common species this year was thickspike wheatgrass (*Elymus lanceolatus*). Alfalfa (*Medicago sativa*) and cicer milkvetch (*Astragalus cicer*) were the most common forbs. For cover by species refer to Table 8.

Total woody species density of the *Reclaimed Road* was 3,636 individuals per acre. Rubber rabbitbrush (*Chrysothamnus nauseosus*) was again the most common woody species, but unlike the other areas, Fremont's buckwheat (*Eriogonum corymbosum*) was also an important species (Table 9).

Reclaimed Sediment Pond

The sediment pond area is an area that has been recently reclaimed and seeded. It appeared that containerized woody species or transplants were also planted in the area. Total living cover for the new area was estimated to be 25.53% (Table 10). Forbs dominated the area (Table 10) with alfalfa (*Medicago sativa*), blue flax (*Linum lewisii*) and yellow sweetclover (*Melilotus officinalis*) being the most common desirable species. Russian thistle, a weedy species, was also common in the quadrats. Most common grass species were Indian ricegrass (*Stipa hymenoides*) and thickspike wheatgrass (*Elymus lanceolatus*). The only woody species encountered in quadrats at the sediment pond area was chokecherry (*Prunus virginiana*). For a list of the species by cover see Table 11. Woody species density was estimated at 627 individuals per acre (Table 12).

TABLE 1: Total cover and composition summary for the "Reclaimed Slopes" (*middle slopes, slope to middle pad, slope near residents, steep slope*) in Trail Canyon for the CO-OP Mining Company (see Sample Map).

TOTAL COVER	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZE
Living Cover	48.17	15.84	30
Litter	11.33	4.99	30
Bareground	19.00	13.25	30
Rock	21.50	13.97	30
COMPOSITION			
Shrubs	22.03	24.40	30
Forbs	11.19	24.07	30
Grasses	66.78	27.16	30

TABLE 2: Species cover and frequency summary for the "Reclaimed Slopes" (*middle slopes, slope to middle pad, slope near residents, steep slope*) in Trail Canyon for the CO-OP Mining Company (see Sample Map).

SPECIES	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZE	RELATIVE FREQUENCY
TREES & SHRUBS				
Artemisia tridentata	2.17	9.89	30	10.00
Chrysothamnus nauseosus	10.40	12.35	30	56.67
FORBS				
Achillea millefolium	0.17	0.90	30	3.33
Grindelia squarrosa	0.40	1.28	30	10.00
Linum lewisii	0.83	2.91	30	10.00
Melilotus officinalis	1.17	3.80	30	10.00
Penstemon palmeri	0.10	0.54	30	3.33
Salsola pestifer	0.33	1.80	30	3.33
Tragopogon dubius	0.17	0.90	30	3.33
GRASSES				
Agropyron cristatum	0.67	2.81	30	6.67
Elymus cinereus	1.77	4.53	30	16.67
Elymus junceus	1.17	4.78	30	6.67
Elymus lanceolatus	6.19	9.97	30	36.67
Elymus spicatus	21.00	17.29	30	76.67
Poa pratensis	0.33	1.80	30	3.33
Poa secunda	0.33	1.80	30	3.33
Stipa hymenoides	1.00	3.00	30	10.00

TABLE 3: Woody species densities of the "Reclaimed Slopes" (*middle slopes, slope to middle pad, slope near residents, steep slope*) in Trail Canyon for the CO-OP Mining Company (see Sample Map).

	NUMBER/ACRE	SAMPLE SIZE
Artemisia tridentata	255.55	30
Ceratoides lanata	23.23	30
Chrysothamnus nauseosus	4437.31	30
TOTAL	4716.10	30

TABLE 4: Total cover and composition summary for the "Reclaimed Pads" *(lower pad & slopes, middle pad, picnic area)* in Trail Canyon for the CO-OP Mining Company (see Sample Map).

TOTAL COVER	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZE
Living Cover	52.50	16.82	30
Litter	11.93	5.78	30
Bareground	17.73	12.52	30
Rock	17.83	14.63	30
COMPOSITION			
Shrubs	38.62	21.37	30
Forbs	27.54	22.22	30
Grasses	33.84	24.92	30

TABLE 5: Species cover and frequency summary for the "Reclaimed Pads"*(lower pad & slopes, middle pad, picnic area)* in Trail Canyon for the CO-OP Mining Company (see Sample Map).

SPECIES	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZE	RELATIVE FREQUENCY
TREES & SHRUBS				
Artemisia tridentata	3.17	6.52	30	23.33
Chrysothamnus nauseosus	17.50	15.10	30	86.67
FORBS				
Achillea millefolium	0.17	0.90	30	3.33
Grindelia squarrosa	0.33	1.25	30	6.67
Linum lewsii	2.00	4.40	30	23.33
Machaeranthera canescens	0.17	0.90	30	3.33
Machaeranthera grindelioides	0.17	0.90	30	3.33
Medicago sativa	2.00	9.09	30	6.67
Melilotus officinalis	6.00	6.51	30	56.67
Penstemon palmeri	1.33	3.64	30	13.33
Sanguisorba minor	0.50	2.69	30	3.33
GRASSES				
Agropyron cristatum	0.50	1.98	30	6.67
Bromus inermis	0.83	4.49	30	3.33
Elymus cinereus	0.17	0.90	30	3.33
Elymus lanceolatus	4.00	10.98	30	30.00
Elymus salinus	0.50	2.69	30	3.33
Elymus spicatus	10.50	12.47	30	56.67
Stipa hymenoides	2.67	5.12	30	26.67

TABLE 6: Woody species densities of the "Reclaimed Pads"*(lower pad & slopes, middle pad, picnic area)* in Trail Canyon for the CO-OP Mining Company (see Sample Map).

	NUMBER/ACRE	SAMPLE SIZE
Artemisia tridentata	1626.24	30
Ceratoides lanata	11.62	30
Chrysothamnus nauseosus	5424.67	30
Gutierrezia sarothrae	11.62	30
Pinus ponderosa	11.62	30
TOTAL	7085.76	30

TABLE 7: Total cover and composition summary for the "Reclaimed Road" *(reclaimed road & substation)* in Trail Canyon for the CO-OP Mining Company (see Sample Map).

TOTAL COVER	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZE
Living Cover	42.00	10.54	30
Litter	10.83	5.18	30
Bareground	21.33	14.20	30
Rock	25.83	16.28	30
COMPOSITION			
Shrubs	18.17	18.86	30
Forbs	30.89	24.71	30
Grasses	50.94	25.95	30

TABLE 8: Species cover and frequency summary for the "Reclaimed Road" *(reclaimed road & substation)* in Trail Canyon for the CO-OP Mining Company (see Sample Map).

SPECIES	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZE	RELATIVE FREQUENCY
TREES & SHRUBS				
Artemisia tridentata	1.67	4.71	30	20.00
Chrysothamnus nauseosus	5.50	6.63	30	53.33
Eriogonum corymbosum	0.67	2.81	30	6.67
FORBS				
Aster chilensis	0.67	2.13	30	10.00
Astragalus cicer	3.17	4.56	30	40.00
Linum lewsii	3.00	4.20	30	40.00
Machaeranthera canescens	0.33	1.25	30	6.67
Medicago sativa	5.17	6.64	30	43.33
Melilotus officinalis	0.50	1.98	30	6.67
Penstemon palmeri	0.17	0.90	30	3.33
GRASSES				
Elymus lanceolatus	8.83	11.31	30	53.33
Elymus smithii	0.67	3.59	30	3.33
Elymus spicatus	5.67	10.23	30	36.67
Poa pratensis	1.23	3.18	30	16.67
Poa secunda	4.27	7.68	30	33.33
Sitanion hystrix	0.33	1.80	30	3.33
Stipa hymenoides	0.17	0.90	30	3.33

TABLE 9: Woody species densities of the "Reclaimed Road" *(reclaimed road & substation)* in Trail Canyon for the CO-OP Mining Company (see Sample Map).

	NUMBER/ACRE	SAMPLE SIZE
Artemisia nova	116.16	30
Artemisia tridentata	278.78	30
Chrysothamnus nauseosus	2857.54	30
Eriogonum corymbosum	325.25	30
Gutierrezia sarothrae	34.85	30
Pinus ponderosa	23.23	30
TOTAL	3635.80	30

TABLE 10: Total cover and composition summary for the "Reclaimed Sediment Pond" *(new reclaimation site)* in Trail Canyon for the CO-OP Mining Company (see Sample Map).

TOTAL COVER	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZE
Living Cover	25.53	12.14	15
Litter	3.80	1.47	15
Bareground	62.00	13.14	15
Rock	8.67	6.29	15
COMPOSITION			
Shrubs	0.83	3.12	15
Forbs	72.03	18.79	15
Grasses	27.13	18.85	15

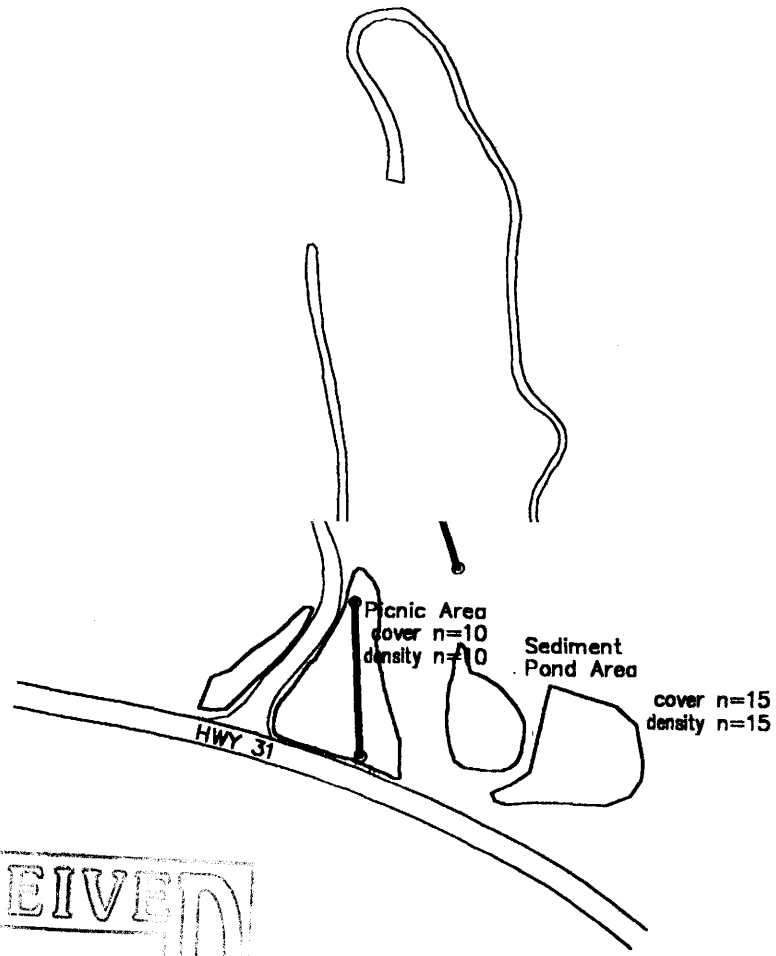
TABLE 11: Species cover and frequency summary for the "Reclaimed Sediment Pond" *(new reclaimation site)* in Trail Canyon for the CO-OP Mining Company (see Sample Map).

SPECIES	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZE	RELATIVE FREQUENCY
TREES & SHRUBS				
Prunus virginiana	0.33	1.25	15	6.67
FORBS				
Cynoglossum officinale	0.33	1.25	15	6.67
Erigeron sp.	0.33	1.25	15	6.67
Lactuca pulchella	0.33	1.25	15	6.67
Linum lewsii	4.80	4.81	15	80.00
Medicago sativa	5.00	5.48	15	66.67
Melilotus officinalis	1.93	3.00	15	33.33
Penstemon palmeri	0.13	0.50	15	6.67
Salsola pestifer	5.47	10.69	15	26.67
GRASSES				
Agropyron cristatum	0.33	1.25	15	6.67
Bromus tectorum	0.33	1.25	15	6.67
Elymus cinereus	0.67	2.49	15	6.67
Elymus lanceolatus	1.33	2.87	15	20.00
Elymus hispidus	0.20	0.75	15	6.67
Elymus smithii	0.87	2.28	15	13.33
Elymus spicatus	0.93	1.77	15	26.67
Poa secunda	0.33	1.25	15	6.67
Stipa hymenoides	1.87	2.96	15	33.33

TABLE 12: Woody species densities of the "Reclaimed Sediment Pond" *(new reclaimation site)* in Trail Canyon for the CO-OP Mining Company (see Sample Map).

	NUMBER/ACRE	SAMPLE SIZE
Artemisia nova		
Artemisia tridentata		
Cercocarpus montanus	46.46	15
Ceratoides lanata	23.23	15
Chrysothamnus nauseosus	325.25	15
Prunus virginiana	23.23	15
Purshia tridentata	92.92	15
Rhus trilobata	116.16	15
TOTAL	627.26	15

VEGETATION SAMPLE MAP



NORTH
SCALE 1"=300'

Sample Transect Line

VEGETATION SAMPLE MAP (1996)
FOR
TRAIL CANYON
CO-OP MINING COMPANY
(OWNER)

MT. NEBO SCIENTIFIC
RESEARCH AND CONSULTING

DRAWN	J. MAGENO
CHECKED	P. COLLINS
DATE	3-21-95
SCALE	1"=300'

CACO.DWG R13

RECEIVED
MAY 05 1997
OIL GAS & MINING

COLOR PHOTOGRAPHS

Reclaimed Road (1 of 3)

Reclaimed Road (2 of 3)

Reclaimed Road (3 of 3)

Reclaimed Sediment Pond

Slopes (Middle Slope)

Slopes (Slope to Middle Pad)

Slopes (Slope near Residents)

Slopes (Steep Slope near Middle Pad)

Pads (Lower Pad and Slope)

Pads (Middle Pad)

Pads (Picnic Area)

CO-OP MINE - TRAIL CANYON
Reclaimed Slopes
Middle Slopes, Slopes to Middle Pad & Slope near Residents, Steep Slope
Exposure: W
Slope: 5-37 deg
Area: 3.97 acres
Sample Date:28 Aug 1996

	Middle Slope (#'s 1-10)							
	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00
TREES & SHRUBS								
Chrysothamnus nauseosus	20.00	5.00	0.00	0.00	0.00	15.00	10.00	15.00
Artemisia tridentata	5.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00
FORBS								
Penstemon palmeri	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Melilotus officinalis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grindelia squarrosa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tragopogon dubius	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Linum lewsii	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Achillea millefolium	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Salsola pestifer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GRASSES								
Elymus lanceolatus	0.00	0.00	20.00	0.00	0.00	0.00	5.00	0.00
Stipa hymenoides	0.00	10.00	0.00	0.00	0.00	0.00	0.00	10.00
Elymus spicatus	50.00	25.00	20.00	45.00	10.00	35.00	35.00	35.00
Elymus cinereus	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00
Agropyron cristatum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00
Elymus junceus	0.00	0.00	0.00	0.00	25.00	10.00	0.00	0.00
Poa pratensis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Poa secunda	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
COVER								
Total Living Cover	75.00	40.00	40.00	45.00	35.00	60.00	60.00	65.00
Litter	5.00	10.00	15.00	15.00	10.00	15.00	10.00	10.00
Bareground	10.00	30.00	20.00	20.00	35.00	5.00	20.00	15.00
Rock	10.00	20.00	25.00	20.00	20.00	20.00	10.00	10.00
% COMPOSITION								
Shrubs	33.33	12.50	0.00	0.00	0.00	25.00	25.00	23.08
Forbs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grasses	66.67	87.50	100.00	100.00	100.00	75.00	75.00	76.92

Slope to Middle Pad (#'s 11-16) Slope near Resident

9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00	18.00
10.00	25.00	5.00	0.00	0.00	7.00	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	3.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	5.00	15.00	15.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	5.00	2.00	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	5.00	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	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	10.00	0.00	0.00	0.00	0.00	30.00	0.00	0.00
0.00	0.00	0.00	0.00	10.00	0.00	0.00	0.00	0.00	0.00
40.00	30.00	0.00	10.00	0.00	30.00	0.00	0.00	50.00	45.00
0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	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
50.00	55.00	30.00	35.00	30.00	40.00	30.00	35.00	50.00	75.00
10.00	10.00	5.00	20.00	10.00	10.00	5.00	10.00	10.00	15.00
15.00	20.00	25.00	5.00	10.00	10.00	5.00	15.00	35.00	5.00
25.00	15.00	40.00	40.00	50.00	40.00	60.00	40.00	5.00	5.00
20.00	45.45	16.67	0.00	0.00	17.50	0.00	0.00	0.00	40.00
0.00	0.00	50.00	71.43	66.67	0.00	66.67	14.29	0.00	0.00
80.00	54.55	33.33	28.57	33.33	82.50	33.33	85.71	100.00	60.00

(#'s 17-24) Steep Slope (#'s 25-30)

19.00	20.00	21.00	22.00	23.00	24.00	25.00	26.00	27.00	28.00
40.00	0.00	35.00	20.00	30.00	0.00	10.00	5.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	20.00	30.00	30.00	15.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15.00	55.00	15.00	10.00	15.00	15.00	20.00	5.00	20.00	0.00
15.00	0.00	15.00	0.00	15.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	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	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00
70.00	70.00	65.00	45.00	60.00	70.00	50.00	40.00	50.00	25.00
15.00	20.00	20.00	25.00	10.00	5.00	10.00	10.00	10.00	10.00
5.00	5.00	5.00	20.00	20.00	20.00	15.00	25.00	10.00	45.00
10.00	5.00	10.00	10.00	10.00	5.00	25.00	25.00	30.00	20.00
57.14	0.00	53.85	44.44	50.00	78.57	20.00	12.50	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
42.86	100.00	46.15	55.56	50.00	21.43	80.00	87.50	100.00	100.00

CO-OP MINE - TRAIL CANYO
Reclaimed Slopes
Middle Slopes, Slopes to Middl
Exposure: W
Slope: 5-37 deg
Area: 3.97 acres
Sample Date: 28 Aug 1996

29.00	30.00	Mean	SDev	Freq	
					TREES & SHRUBS
30.00	0.00	10.40	12.35	56.67	*Chrysothamnus nauseosus*
0.00	0.00	2.17	9.89	10.00	*Artemisia tridentata*
					FORBS
0.00	0.00	0.10	0.54	3.33	*Penstemon palmeri*
0.00	0.00	1.17	3.80	10.00	*Melilotus officinalis*
0.00	0.00	0.40	1.28	10.00	*Grindelia squarrosa*
0.00	0.00	0.17	0.90	3.33	*Tragopogon dubius*
0.00	0.00	0.83	2.91	10.00	*Linum lewsii*
0.00	0.00	0.17	0.90	3.33	*Achillea millefolium*
0.00	10.00	0.33	1.80	3.33	*Salsola pestifer*
					GRASSES
5.00	5.00	6.17	9.97	36.67	*Elymus lanceolatus*
0.00	0.00	1.00	3.00	10.00	*Stipa hymenoides*
0.00	0.00	21.00	17.29	76.67	*Elymus spicatus*
0.00	0.00	1.77	4.53	16.67	*Elymus cinereus*
0.00	0.00	0.67	2.81	6.67	*Agropyron cristatum*
0.00	0.00	1.17	4.78	6.67	*Elymus junceus*
0.00	0.00	0.33	1.80	3.33	*Poa pratensis*
0.00	0.00	0.33	1.80	3.33	*Poa secunda*
					COVER
35.00	15.00	48.17	15.84		Total Living Cover
5.00	5.00	11.33	4.99		Litter
40.00	60.00	19.00	13.25		Bareground
20.00	20.00	21.50	13.97		Rock
					% COMPOSITION
85.71	0.00	22.03	24.40		Shrubs
0.00	66.67	11.19	24.07		Forbs
14.29	33.33	66.78	27.16		Grasses

CO-OP MINE - TRAIL CANYON
Reclaimed Pads
Lower Pad, Middle Pad and Picnic Area
Exposure: Variable
Slope: 1-5 deg
Area: 3.49 acre
Date: 29 Aug 1996

	Lower Pad & Slopes (#'s 1-15)							
	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00
TREES & SHRUBS								
Chrysothamnus nauseosus	35.00	45.00	60.00	55.00	20.00	0.00	0.00	10.00
Artemisia tridentata	0.00	0.00	15.00	0.00	10.00	0.00	0.00	25.00
FORBS								
Machaeranthera canescens	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Linum lewsii	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00
Achillea millefolium	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Penstemon palmeri	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Melilotus officinalis	0.00	0.00	0.00	0.00	5.00	0.00	0.00	10.00
Sanguisorba minor	0.00	0.00	0.00	0.00	0.00	15.00	0.00	0.00
Grindelia squarrosa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medicago sativa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Machaeranthera grindelioide	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GRASSES								
Bromus inermis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agropyron cristatum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Elymus lanceolatus	10.00	0.00	0.00	10.00	0.00	10.00	5.00	0.00
Stipa hymenoides	0.00	0.00	0.00	0.00	5.00	10.00	0.00	0.00
Elymus salinus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Elymus cinereus	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00
Elymus spicatus	25.00	25.00	15.00	10.00	30.00	20.00	40.00	10.00
COVER								
Total Living Cover	70.00	70.00	90.00	75.00	70.00	55.00	50.00	65.00
Litter	10.00	10.00	5.00	15.00	18.00	20.00	15.00	15.00
Bareground	18.00	10.00	4.00	5.00	10.00	20.00	20.00	5.00
Rock	2.00	10.00	1.00	5.00	2.00	5.00	15.00	15.00
% COMPOSITION								
Shrubs	50.00	64.29	83.33	73.33	42.86	0.00	0.00	53.85
Forbs	0.00	0.00	0.00	0.00	7.14	27.27	0.00	30.77
Grasses	50.00	35.71	16.67	26.67	50.00	72.73	100.00	15.38

Middle Pad (#'s 16-2

9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00	18.00
20.00	10.00	15.00	5.00	25.00	15.00	5.00	15.00	15.00	5.00
0.00	10.00	5.00	0.00	0.00	0.00	20.00	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
5.00	20.00	0.00	0.00	10.00	0.00	0.00	5.00	5.00	5.00
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	10.00	0.00	5.00	0.00	0.00	0.00	0.00
5.00	0.00	15.00	5.00	0.00	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
5.00	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	0.00	0.00	0.00	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	10.00	0.00	0.00	0.00	5.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	20.00	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	0.00	0.00	0.00	0.00	0.00
0.00	5.00	40.00	15.00	25.00	15.00	0.00	5.00	5.00	0.00
40.00	55.00	75.00	35.00	70.00	50.00	55.00	35.00	35.00	40.00
5.00	20.00	10.00	10.00	15.00	10.00	5.00	10.00	5.00	10.00
30.00	20.00	5.00	5.00	10.00	5.00	10.00	20.00	10.00	40.00
25.00	5.00	10.00	50.00	5.00	35.00	30.00	35.00	50.00	10.00
50.00	36.36	26.67	14.29	35.71	30.00	45.45	42.86	42.86	37.50
37.50	54.55	20.00	42.86	14.29	40.00	18.18	28.57	14.29	12.50
12.50	9.09	53.33	42.86	50.00	30.00	36.36	28.57	42.86	50.00

)

Picnic Area (#'s 21-30

19.00	20.00	21.00	22.00	23.00	24.00	25.00	26.00	27.00	28.00
25.00	10.00	10.00	30.00	20.00	30.00	10.00	15.00	10.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	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	15.00	0.00	0.00	0.00
0.00	10.00	20.00	10.00	20.00	5.00	15.00	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	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	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	0.00	0.00
5.00	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	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
5.00	25.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45.00	50.00	35.00	50.00	40.00	60.00	40.00	45.00	15.00	25.00
10.00	10.00	5.00	10.00	10.00	30.00	10.00	10.00	5.00	10.00
20.00	30.00	35.00	30.00	25.00	5.00	20.00	25.00	30.00	55.00
25.00	10.00	25.00	10.00	25.00	5.00	30.00	20.00	50.00	10.00
55.56	20.00	28.57	60.00	50.00	50.00	25.00	33.33	66.67	40.00
0.00	30.00	57.14	40.00	50.00	8.33	75.00	33.33	33.33	60.00
44.44	50.00	14.29	0.00	0.00	41.67	0.00	33.33	0.00	0.00

CO-OP MINE - TRAIL CANYON
Reclaimed Pads
Lower Pad, Middle Pad and Picnic Area
Exposure: Variable
Slope: 1-5 deg
Area: 3.49 acre
Date: 29 Aug 1996

29.00	30.00	Mean	SDev	Freq	
					TREES & SHRUBS
0.00	0.00	17.50	15.10	86.67	*Chrysothamnus nauseosus*
0.00	0.00	3.17	6.52	23.33	*Artemisia tridentata*
					FORBS
0.00	0.00	0.17	0.90	3.33	*Machaeranthera canescens*
0.00	0.00	2.00	4.40	23.33	*Linum lewsii*
0.00	0.00	0.17	0.90	3.33	*Achillea millefolium*
0.00	0.00	1.33	3.64	13.33	*Penstemon palmeri*
0.00	10.00	6.00	6.51	56.67	*Melilotus officinalis*
0.00	0.00	0.50	2.69	3.33	*Sanguisorba minor*
0.00	0.00	0.33	1.25	6.67	*Grindelia squarrosa*
50.00	0.00	2.00	9.09	6.67	*Medicago sativa*
0.00	0.00	0.17	0.90	3.33	*Machaeranthera grindelioides*
					GRASSES
0.00	0.00	0.83	4.49	3.33	*Bromus inermis*
0.00	0.00	0.50	1.98	6.67	*Agropyron cristatum*
0.00	60.00	4.00	10.98	30.00	*Elymus lanceolatus*
0.00	0.00	2.67	5.12	26.67	*Stipa hymenoides*
15.00	0.00	0.50	2.69	3.33	*Elymus salinus*
0.00	0.00	0.17	0.90	3.33	*Elymus cinereus*
0.00	0.00	10.50	12.47	56.67	*Elymus spicatus*
					COVER
65.00	70.00	52.50	16.82		Total Living Cover
20.00	20.00	11.93	5.78		Litter
5.00	5.00	17.73	12.52		Bareground
10.00	5.00	17.83	14.63		Rock
					% COMPOSITION
0.00	0.00	38.62	21.37		Shrubs
76.92	14.29	27.54	22.22		Forbs
23.08	85.71	33.84	24.92		Grasses

CO-OP MINE - TRAIL CANYON
Reclaimed Area
Reclaimed Road & Substation
Exposure: Variable
Slope: Variable
Area: 2.09 acres
Date: 30 Aug 1996

	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00
TREES & SHRUBS								
Chrysothamnus nauseosus	15.00	5.00	10.00	10.00	0.00	5.00	20.00	5.00
Artemisia tridentata	5.00	0.00	5.00	0.00	0.00	0.00	0.00	0.00
Eriogonum corymbosum	0.00	0.00	0.00	0.00	0.00	15.00	0.00	5.00
FORBS								
Machaeranthera canescens	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Linum lewsii	5.00	0.00	10.00	10.00	0.00	5.00	0.00	0.00
Aster chilensis	0.00	0.00	0.00	0.00	5.00	0.00	0.00	0.00
Penstemon palmeri	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00
Melilotus officinalis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Astragalus cicer	0.00	5.00	0.00	5.00	0.00	0.00	0.00	5.00
Medicago sativa	15.00	15.00	10.00	15.00	0.00	0.00	10.00	10.00
GRASSES								
Elymus smithii	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Poa pratensis	0.00	15.00	5.00	0.00	7.00	0.00	0.00	0.00
Elymus lanceolatus	0.00	0.00	0.00	10.00	0.00	0.00	0.00	0.00
Poa secunda	15.00	0.00	0.00	0.00	8.00	5.00	30.00	10.00
Stipa hymenoides	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sitanion hystrix	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Elymus spicatus	0.00	5.00	0.00	0.00	10.00	0.00	0.00	0.00
COVER								
Total Living Cover	55.00	45.00	40.00	50.00	30.00	30.00	60.00	40.00
Litter	20.00	25.00	10.00	10.00	5.00	5.00	15.00	10.00
Bareground	10.00	15.00	35.00	10.00	15.00	20.00	15.00	30.00
Rock	15.00	15.00	15.00	30.00	50.00	45.00	10.00	20.00
% COMPOSITION								
Shrubs	36.36	11.11	37.50	20.00	0.00	66.67	33.33	25.00
Forbs	36.36	44.44	50.00	60.00	16.67	16.67	16.67	50.00
Grasses	27.27	44.44	12.50	20.00	83.33	16.67	50.00	25.00

9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00	18.00	19.00
5.00	0.00	20.00	0.00	0.00	0.00	10.00	0.00	20.00	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	5.00	0.00	0.00	0.00	0.00	5.00
5.00	0.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00
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	0.00	0.00	0.00	0.00
0.00	10.00	5.00	5.00	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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	25.00	0.00	0.00	20.00	20.00	10.00	35.00	20.00
5.00	5.00	25.00	0.00	10.00	15.00	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	10.00	0.00	0.00
0.00	50.00	0.00	0.00	20.00	0.00	10.00	10.00	0.00	0.00	0.00
25.00	65.00	65.00	45.00	40.00	25.00	40.00	30.00	40.00	35.00	35.00
5.00	15.00	10.00	15.00	10.00	10.00	10.00	5.00	10.00	5.00	5.00
50.00	5.00	20.00	25.00	10.00	20.00	5.00	15.00	40.00	50.00	25.00
20.00	15.00	5.00	15.00	40.00	45.00	45.00	50.00	10.00	10.00	35.00
40.00	0.00	30.77	0.00	0.00	0.00	25.00	0.00	50.00	0.00	14.29
20.00	15.38	30.77	33.33	25.00	40.00	0.00	0.00	0.00	0.00	28.57
40.00	84.62	38.46	66.67	75.00	60.00	75.00	100.00	50.00	100.00	57.14

20.00	21.00	22.00	23.00	24.00	25.00	26.00	27.00	28.00	29.00	30.00
10.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	5.00	15.00
5.00	25.00	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
15.00	0.00	0.00	0.00	5.00	5.00	10.00	0.00	5.00	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	10.00	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	15.00	10.00	15.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	20.00	10.00	20.00	10.00	10.00	5.00	0.00
20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	5.00	0.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	15.00	10.00	45.00	5.00	0.00	0.00	10.00	10.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	0.00	15.00	10.00	10.00
50.00	55.00	35.00	50.00	40.00	50.00	40.00	35.00	40.00	35.00	35.00
25.00	10.00	10.00	10.00	10.00	5.00	10.00	15.00	10.00	10.00	10.00
15.00	25.00	50.00	35.00	5.00	5.00	30.00	40.00	5.00	10.00	5.00
10.00	10.00	5.00	5.00	45.00	40.00	20.00	10.00	45.00	45.00	50.00
30.00	45.45	0.00	0.00	12.50	10.00	0.00	0.00	0.00	14.29	42.86
30.00	0.00	57.14	10.00	62.50	60.00	100.00	71.43	37.50	14.29	0.00
40.00	54.55	42.86	90.00	25.00	30.00	0.00	28.57	62.50	71.43	57.14

CO-OP MINE - TRAIL CANYO
Reclaimed Area
Reclaimed Road & Substation
Exposure: Variable
Slope: Variable
Area: 2.09 acres
Date: 30 Aug 1996

Mean	SDev	Freq	
			TREES & SHRUBS
5.50	6.63	53.33	*Chrysothamnus nauseosus*
1.67	4.71	20.00	*Artemisia tridentata*
0.67	2.81	6.67	*Eriogonum corymbosum*
			FORBS
0.33	1.25	6.67	*Machaeranthera canescens*
3.00	4.20	40.00	*Linum lewsii*
0.67	2.13	10.00	*Aster chilensis*
0.17	0.90	3.33	*Penstemon palmeri*
0.50	1.98	6.67	*Melilotus officinalis*
3.17	4.56	40.00	*Astragalus cicer*
5.17	6.64	43.33	*Medicago sativa*
			GRASSES
0.67	3.59	3.33	*Elymus smithii*
1.23	3.18	16.67	*Poa pratensis*
8.83	11.31	53.33	*Elymus lanceolatus*
4.27	7.68	33.33	*Poa secunda*
0.17	0.90	3.33	*Stipa hymenoides*
0.33	1.80	3.33	*Sitanion hystrix*
5.67	10.23	36.67	*Elymus spicatus*

			COVER
42.00	10.54		Total Living Cover
10.83	5.18		Litter
21.33	14.20		Bareground
25.83	16.28		Rock
			% COMPOSITION
18.17	18.86		Shrubs
30.89	24.71		Forbs
50.94	25.95		Grasses

BEAR CANYON INTERIM VEGETATION SEED MIX

CUSTOMER: CO-OP MINING CO.
MIXTURE NAME: INTERIM MIX
P.O. NUMBER: 00189

LOT: #11796

PURITY	MIXTURE CONTENTS	ORIGIN	GERM/HARD
34.44%	SECAR BLUEBUNCH WHEATGRASS	WASHIN	92%
25.28%	THICKSPICK WHEATGRASS	WASHIN	94%
13.19%	INDIAN RICEGRASS	COLORA	90%
8.79%	ALFALFA	S.D.	90%
8.43%	SAND DROPSEED	COLORA	47% + 47%
6.91%	GREAT BASIN WILDRYE	UTAH	86%

0.13% CROP 2.53% INERT OLDEST TEST DATE: 12/95
0.30% WEED NO NOXIOUS WEED FOUND

NET WEIGHT 50.51 LBS.

SHIP TO: CO-OP MINING CO.
BOX 1245
HUNTINGTON, UT 84528-

SEDIMENT POND "C" CLEANOUT MATERIAL ANALYSES

Inter-Mountain Laboratories, Inc.

2506 West Main Street Farmington, New Mexico 87401 Tel. (505) 326-4737

CO-OP MINING CO
Huntington, Utah

DATE REPORTED: July 18, 1996

Lab No.	Location	Depths	pH	EC mmhos/cm @ 25°C	Saturation %	Calcium meq/l	Magnesium meq/l	Sodium meq/l	SAR	Coarse Fragments %	Sand %	Silt %	Clay %	Texture
48248	Pond C 1		7.7	1.60	27.4	6.76	7.35	2.68	1.01	12.1	57.0	28.0	15.0	SANDY LOAM
48249	Pond C 2		7.8	1.84	31.9	7.39	7.69	4.22	1.54	9.3	49.0	32.0	19.0	LOAM

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, Exch= Exchangeable, Avail= Available

JB

Inter-Mountain Laboratories, Inc.

2506 West Main Street Farmington, New Mexico 87401 Tel. (505) 326-4737

CO-OP MINING CO
Huntington, Utah

DATE REPORTED: July 18, 1996

Lab No.	Location	Depths	Organic Matter %	Total Sulfur %	T.S. AB t/1000t	Neut. Pot. t/1000t	T.S. ABP t/1000t	Sulfate Sulfur %	Pyritic Sulfur %	Organic Sulfur %	PyrS AB t/1000t	PyrS ABP t/1000t
48248	Pond C 1		0.3	0.03	0.91	144.	143.					
48249	Pond C 2		1.5	0.01	0.46	131.	130.					

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neut. Pot.= Neutralization Potential

SB

Inter-Mountain Laboratories, Inc.

2506 West Main Street Farmington, New Mexico 87401 Tel. (505) 326-4737

CO-OP MINING CO
Huntington, Utah

DATE REPORTED: July 18, 1996

Lab No.	Location	Depths	Nitrate-Nitrogen ppm	Boron ppm	Bulk Density	Total Kjeldahl Nitrogen %	1/3 bar	15 bar	H2O Sol Selenium ppm
48248	Pond C 1		4.14	0.40	1.93	0.07	14.0	4.7	<0.02
48249	Pond C 2		3.18	0.43	1.60	0.09	16.0	5.4	<0.02

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble,ABPTA= Ammonium Bicarbonate-DPTA, AAO= Acid Ammonium Oxalate

JB

APPENDIX C

Legal, Financial, Compliance and Related Information

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

and other changes in ownership and control information
as required under R645-301-110.

CONTENTS

Annual Report Of Officers

STATE OF UTAH
DEPARTMENT OF COMMERCE
DIVISION OF CORPORATIONS AND COMMERCIAL CODE

PROFIT CORPORATION ANNUAL REPORT

The following information is on file in this office. All profit corporations must file their annual reports and corrections within the month of their anniversary date. Failure to do so will result in Delinquency, Suspension, then Revocation or Involuntary Dissolution of the corporate charter.

THIS BOX MUST BE COMPLETED

CORPORATE NAME, REGISTERED AGENT, REGISTERED OFFICE, CITY, STATE & ZIP

CORPORATION # 104145

D 06/10/83

1. C. W. MINING COMPANY
2. CARL E. KINGSTON
3. 53 W ANGELO AVE
4. SALT LAKE CITY UT 84115

MAKE ALL CORRECTIONS IN THIS COLUMN

(Print New Agent Name) NEW AGENT MUST SIGN ABOVE

NEW REGISTERED STREET ADDRESS REQUIRED

(New City) REGISTERED AGENT MUST BE IN UTAH UTAH (Zip)

WHEN CHANGING THE REGISTERED AGENT THE NEW AGENT MUST SIGN.

5. INCORPORATED IN THE STATE AND UNDER THE LAWS OF: UTAH

6. ADDRESS OF THE PRINCIPAL OFFICE IN THE HOME STATE.

(Street Address) (State or Country)

(City) (ZIP)

7. BUSINESS PURPOSE: BITUMINOUS COAL & LIGNITE(SURFACE)

DOMESTIC, PROFIT CORPORATIONS ARE REQUIRED TO LIST A CORPORATE OFFICER.

OFFICERS

8. PRESIDENT B.W. STODDARD
   ADDRESS PO BOX 300
   CITY, STATE & ZIP HUNTINGTON UT 84528
9. VICE PRESIDENT J.A. GUSTAFSON
   ADDRESS 1815 S 1100 W
   CITY, STATE & ZIP WOODS CROSS UT 84087
10. SECRETARY D.J. SANDERS
    ADDRESS 53 W ANGELO AVE
    CITY, STATE & ZIP SALT LAKE CITY UT 84115
11. TREASURER D.J. SANDERS
    ADDRESS 53 W ANGELO AVE
    CITY, STATE & ZIP SALT LAKE CITY UT 84115

IF YOU HAVE LESS THEN 3 SHAREHOLDERS YOU MAY LIST LESS THAN 3 DIRECTORS. IF YOU HAVE NO DIRECTORS DUE TO SECTION 16-10A-732 YOU MUST STATE SO IN THE BOX BELOW

DIRECTORS

12. DIRECTOR B.W. STODDARD
    ADDRESS PO BOX 300
    CITY, STATE & ZIP HUNTINGTON UT 84528
13. DIRECTOR J.A. GUSTAFSON
    ADDRESS 1815 S 1100 W
    CITY, STATE & ZIP WOODS CROSS UT 84087
14. DIRECTOR D.J. SANDERS
    ADDRESS 53 W ANGELO AVE
    CITY, STATE & ZIP SALT LAKE CITY UT 84115

Under penalties of perjury and as an authorized officer, I declare that this annual report and, if applicable, the statement change of registered office and/or agent, has been examined by me and is, to the best of my knowledge and belief, true, correct, and complete.

15. BY (MUST BE SIGNED BY A CORPORATE OFFICER)

16. (Title or Position)

17. (Date) June 1996

IF THERE ARE NO CHANGES FROM THE PREVIOUS YEAR, AND YOU HAVE ALL CORPORATE REQUIREMENTS FILLED PERTAINING TO OFFICER AND DIRECTOR INFORMATION YOU MAY DETACH THE COUPON BELOW, AND RETURN IT IN THE ENCLOSED ENVELOPE WITH YOUR PAYMENT. YOU MAY KEEP THE ABOVE REPORT FOR YOUR RECORDS.

MAKE ALL CORRECTIONS ON THE FORM ABOVE.

FORM NO8231

APPENDIX D

Mine Maps

as required under R645-301-525.270.

CONTENTS

3-4A	#1 Mine Blind Canyon Seam
3-4B	#1 Mine Seam Hiawatha
3-4C	#2 Mine Tank Seam
7-10A Through 7-10C	Mine Water Surveys

C. W. MINING COMPANY

P.O. Box 1245
Huntington, Utah 84528

Office (801) 687-2450
FAX (801) 687-5238

FAX COVER SHEET

From: Charles Reynolds

To: Sharon Falvey

Company: Division of Oil, Gas & Mining

Fax Number: (801) 359-3940

Date: 6/04/97 **Time:** 8:45 a.m.

Number of pages: (including cover page) 2

Comments:

Please insert page into 1996 Annual Report.

Precipitation - Trail Canyon

Date	Gauge Reading	Precipitation
06/13/96	0.00	
06/14/96	0.00	
06/15/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
06/25/96	0.00	
06/26/96	0.37	rain
06/27/96	0.40	rain
06/28/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
07/02/96	0.00	
07/03/96	0.00	trace of rain
07/04/96	0.00	trace of rain
07/05/96	0.00	
07/06/96	0.00	
07/07/96	0.00	
07/08/96	0.05	thunderstorm
07/09/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
07/14/96	0.00	
07/15/96	0.00	trace of rain
07/16/96	0.11	showers
07/17/96	0.23	rain and some hail
07/18/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
07/26/96	0.00	
07/27/96	0.00	trace of rain
07/28/96	0.16	showers
07/29/96	0.00	
07/30/96	0.00	
07/31/96	0.00	
08/01/96	0.08	showers
08/02/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
08/16/96	0.00	
08/17/96	0.00	rain
08/18/96	0.00	
.	.	no precipitation
.	.	during this
08/25/96	0.00	
08/26/96	0.18	rain

Date	Gauge Reading	Precipitation
08/27/96	0.04	rain
08/28/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
09/02/96	0.00	
09/03/96	0.00	lt. evening rain
09/04/96	0.01	lt. evening rain
09/05/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
09/10/96	0.00	
09/11/96	0.42	rain
09/12/96	0.11	rain
09/13/96	0.55	rain/storm
09/14/96	0.37	rain
09/15/96	0.00	
09/16/96	0.10	rain
09/17/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
10/01/96	0.00	
10/02/96	0.11	rain
10/03/96	0.00	
.	.	no precipitation
.	.	during this
.	.	period
10/12/96	0.00	
10/13/96	0.02	lt. evening rain
10/14/96	0.00	
10/15/96	0.00	
10/16/96	0.07	lt. snow
10/17/96	0.00	
10/18/96	0.00	
10/19/96	0.11	snow
10/20/96	0.00	
10/21/96	0.00	
10/22/96	0.00	
10/23/96	0.00	
10/24/96	0.20	snow
10/25/96	0.26	snow
10/26/96	0.11	snow
10/27/96	0.02	lt. snow
10/28/96	0.02	lt. snow
10/29/96	0.00	
10/30/96	0.00	
[illegible]	[illegible]	[illegible]
11/01/96	0.00	
11/02/96	0.00	