CO-OP MINING COMPANY
ANNUAL REPORT 1990

Bear Canyon Mine
ACT/015/025

Trail Canyon Mine
ACT/015/021

RECEIVED
MAY 30 1991
DIVISION OF
OIL GAS & MINING

COAL MINING AND RECLAMATION OPERATIONS FOR 1990

(Must be submitted to the Division by March 31, 1991)

State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
3 Triad Centter, Suite 350
355 West North Temple
Salt Lake City, Utah 84180-1203

(801) 538-5340

Permittee: Co-Op Mining Company

Mine Name: Bear Canyon Mine / Trail Canyon Mine

Mailing Address: 53 West Angelo Ave. Salt Lake City, Utah 84115

Company Representative: Kimly C. Mangum, P.E., M.E.C.

Resident Agent: Mr. Wendell Owen, Co-Op Mining Co.
~~P.O.Box 1245 Huntington, Utah 84528~~

Permit Number: ACT/015/025 & ACT/015/021

Date of Initial Permanent Program Permit: Nov. 1, 1985 / May 30, 1989

Date of Permit Renewal: Nov. 1, 1990*/ May 30, 1989

Quantity of Coal Mined (tonnage) 1990: 528,645 tons

*Pending resolution of public concerns, see CO #C90-26-1-1

Attach Updated Mine Sequence Map.

All monitoring activities during the report period must be submitted with this report (including, but not limited to):

A. Summarized Water Monitoring Data

B. Precipitation or Other Climatological Data

C. Subsidence Monitoring Report

D. Vegetation Data (test plots) or Revegetation Success Monitoring (includes interim and final)

E. Annual Impoundment Inspection

F. Permit Stipulation Status, if applicable. Status of Division Orders, if applicable.

jbe
A:/Annual

A. WATER MONITORING

All water monitoring data for 1990 has been submitted to the Division in quarterly submittal. Copies of the summary pages for the year are included in Appendix A.

No discharge was noted during 1990. See Co-Op Mining Company permit number UTG040006, Utah General Permit for Coal Mining, covering 5 discharge points. Issued by the Bureau of Water Pollution Control, Utah Department of Health, 8 May 1989. A copy of the permit can be found as Appendix 7-B in the Bear Canyon Mine PAP.

Copies of the 1990 Mine Water Surveys can also be found in Appendix A of this report.

B. CLIMATOLOGICAL DATA

No data was summarized for 1990.

C. SUBSIDENCE MONITORING

Subsidence monitoring was performed in 1990 using the professional services of Blackhawk Engineering. The results of the survey follows.

STATION/LOCATION	ELEVATION				CHANGE	
	original 7/19/87	10/1/88	9/30/89	11/4/90	latest	accum
SMS-1/Trail-Bear	9188.57	9188.55	9188.10	9188.37	+0.27	-0.20
SMS-2/Bear Cyn	8542.60	8542.42	8542.49	8542.43	-0.06	-0.17
SMS-3/Trail Cyn	8769.06	8769.05	8769.12	8768.99	-0.13	-0.07
SMS-4/Trail Cyn	8410.00	8410.00	8409.92	8410.19	+0.19	+0.27
CON-5/Bear Cyn (CONTROL POINT)	9379.91	9379.91	9379.91	9379.91	0	0

NOTES: 1. 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 of the PAP.

Monitoring locations are located on Plate 3-3.

D. VEGETATION MONITORING

Bear Canyon Mine

The Ball Park Topsoil Storage Pile in Bear Canyon was reseeded in 1990. The down-slope side of the Portal Access road required reseeding due to the poor germination from the 1989 seeding efforts. This area includes the Test Plot implemented in 1989 near the Hiawatha Portal. Quantitative measurements of the Test Plot will begin in 1992.

Trail Canyon Mine

Reclaimed areas were visited and evaluated in August 1990 with representatives of the Division and Co-Op. The results of the evaluation were positive and were incorporated in Appendix 3-G of the MRP. A few minor areas received supplemental seeding following recommendations from the Division. Quantitative measurements will be made in 1991.

E. ANNUAL IMPOUNDMENT INSPECTION

Copies of the Annual Sediment Pond Inspection Reports are attached with this report in Appendix C.

F. PERMIT STIPULATION STATUS

Permit renewal is on hold but there are no open stipulations from the latest permit.

APPENDIX A
WATER MONITORING DATA

Co-Op Mining Company
Bear Canyon Mine

1990 Total Water Usage

Coal Handling "dust suppressant"		510,000 gal
Road watering "dust suppressant"		270,600 gal
Bathhouse		176,000 gal
Residential Use		38,000 gal
	TOTAL	994,600 gal
		3.052 acre ft

All water was generated underground. Meters are in place and are being logged for 1991 water usage (See Plate 7-10A).

BEAR CANYON MINE
1990
WATER MONITORING DATA

5-30-90
501501 U
field only

WATER MONITORING REPORT

Co-Op Mining Co.
Annual Report 1990
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Property: Co-Op
Station: BC-1
Location: Upper Bear
Type: Stream
Frequency: Quarterly - Field: June, July, Aug., Sept.

241501 U 9004313 t (20) 741501 U (20) 901501 U 9005458 t

Field Measurements	Date Sampled 02/14/90	05/30/90	06/12/90	07/04/90	08/28/90	09/30/90	11/27/90	MEAN
					9004871 t			
Flow [gpm]	FROZEN	29	30	62	37	14	22	32.3
PH		8.1	8.0	8	8.1	8.2	8	8.1
Sp.Con. [ohms]		1400	960	790	690	900	3610	1392
Temp [C]		4	6	5	8	5	2	5
Diss. O. [ppm]		10	9	9	9	9	9	9

Lab. Meas. [mg/l]	Date Sampled 02/14/90	05/30/90	08/28/90	11/27/90	Mean
TDS		436	448	3200	1361
TSS		4980	102	228	1770
O & G		<5	N/A	<5	<5
Al CaCO3		191	210	277	226
Hd CaCO3		401.6	390	2280	1024
Ac CaCO3		0	0	0	0
HCO3		233	237	338	269.3
CO3		0	9.3	0	3.1
Cl		8.4	6.3	55.1	23.3
SO4		216.9	197	2030	814.7
Ca		56.2	48.2	386	163.5
Mg		63.6	65.5	320	149.7
K		5.4	5.44	28.7	13.18
Na		10.8	10.4	51.3	23.9
Cat/An		.38	.01	.78	.36
Fe		10.83	.33	1.2	4.12
Mn		.63	<.02	.06	.24

WATER MONITORING REPORT

Co-Op Mining Co.
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Property: Co-Op
Station: BC-2
Location: Lower Bear
Type: Stream
Frequency: Quarterly - Field: June, July, Aug., Sept.

Field Measurements	Date Sampled 02/27/90	05/30/90	06/12/90	07/04/90	08/28/90	09/30/90	11/27/90	Mean
Flow [gpm]	42	36	29	79	37	14.7	67	43.53
PH	8.1	8.4	8.1	8.1	8.0	8.4	8.1	8.2
Sp.Con. [ohms]	940	900	700	910	900	930	2910	1170
Temp [C]	1	4	6	6	8	8	2	5
Diss. O. [ppm]	7	9	9	9	9	9	8	8.75

Lab. Meas. [mg/l]	Date Sampled 02/27/90	05/30/90	08/28/90	11/27/90	Mean
TDS	312	504	326	3120	1065.5
TSS	1136	5385	61	265	1712
O & G	<5	<5	240	<5	60
Al CaCO3	160.44	213.92	221.56	291	221.74
Hd CaCO3	265.26	461.84	377.34	2330	858.6
Ac CaCO3	0	0	0	0	0
HCO3	195.74	242.3	270.3	354	265.6
CO3	0	9.2	0	0	2.3
Cl	6.42	8.4	6.3	53.1	18.6
SO4	108.22	256.4	114.8	2100	644.9
Ca	67.38	68.3	57.8	365	139.6
Mg	23.63	70.9	47	345	121.6
K	3.37	5.5	3.7	29.1	10.42
Na	7.10	11.5	7.2	56.3	20.53
Cat/An	.49	.11	1.08	1.26	.74
Fe	3.56	9.45	.03	2.17	3.81
Mn	.52	.84	<.02	.05	.36

WATER MONITORING REPORT

Co-Op Mining Co.
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Property: Co-Op
Station: BC-3
Location: Rt. Fork Bear
Type: Stream
Frequency: Quarterly - Field: June, July, Aug., Sept.

Field Measurements	Date Sampled 02/14/90	05/30/90	06/12/90	07/04/90	08/28/90	09/30/90	11/27/90	12/24/90	Mean
Flow [gpm]	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
PH									
Sp.Con. [ohms]									
Temp [C]									
Diss. O. [ppm]									

Lab. Meas. [mg/l]	Date Sampled 02/14/90	05/30/90	00/00/90	00/00/90	MEAN
TDS					
TSS					
O & G					
CaCO3					
Hd CaCO3					
Ac CaCO3					
HCO3					
CO3					
Cl					
SO4					
Ca					
Mg					
K					
Na					
Cat/An					
Fe					

WATER MONITORING REPORT

Co-Op Mining Co.
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Property: Co-Op
Station: SBC-2
Location: Portal
Type: Well
Frequency: Quarterly

Field Measurements	Date Sampled 02/14/90	05/30/90	08/28/90	11/27/90	Mean
Flow [gpm]					
PH	See Field Notes				
Sp. Cond. [ohms]	Well caved in and lost				
Temp. [C]					
Diss. O [ppm]					
Lab. Meas. [mg/l]					
TDS					
TSS					
O & G					
Al CaCO3					
Hd CaCO3					
Ac CaCO3					
HCO3					
CO3					
Cl					
SO4					
Ca					
Mg					
K					
Na					
Cat/An					
Fe					
Mn					

WATER MONITORING REPORT

Property: Co-Op
Station: SBC-3
Location: Creekwell
Type: Well
Frequency: Quarterly

Field Measurements	Date Sampled 02/27/90	05/30/90	11/27/90	12/24/90	Mean
Flow (FS)	27'	28'	28	29	28
PH	7.5	7.8	7.8	7.8	7.7
Sp. Cond. [ohms]	3000	2450	2555	2180	2546
Temp. [C]	4	3	6	4	4.25
Diss. O [ppm]	N/R	N/R	N/R	N/R	N/R
Lab. Meas. [mg/l]					
TDS	2769	1886	1870	1990	1929
TSS	1188	884	416	440	732
O & G	N/R	N/R	N/R	N/R	N/R
Al CaCO3	498.51	408.74	410	376	423.5
Hd CaCO3	2151.51	1365.44	1440	1510	1616.74
Ac CaCO3	0	0	0	0	0
HCO3	608.18	498.7	501	459	516.7
CO3	0	0	0	0	0
Cl	77.08	37.8	44.9	49	52.2
SO4	1651.76	1023	1080	1180	1233.8
Ca	298.98	76.3	205	209	197.3
Mg	341.83	285.4	225	240	273
K	20.93	13.2	15.4	14.3	15.95
Na	79.1	53.2	54.7	63.1	42.9
Cat/An	.48	.98	.84	.37	.67
Fe	5.11	6.77	7.14	10.2	7.31
Mn	.48	.14	.33	.46	.35

WATER MONITORING REPORT

Co-Op Mining Co.
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Property: Co-Op
Station: SBC-4
Location: Huntington Spring
Type: Spring
Frequency: Quarterly

Field Measurements	Date Sampled 02/27/90	05/30/90	08/28/90	11/27/90	Mean
Flow [gpm]	7.5	18	6.2	6.2	9.48
PH	7.9	8.1	8	8	8
Sp. Cond. [ohms]	310	400	600	810	530
Temp. [C]	2	3	5	3	3.25
Diss. O [ppm]	N/R	N/R	N/R	N/R	N/R
Lab. Meas. [mg/l]					
TDS	323	324	282	574	376
TSS	3	41	12	15	18
O & G	N/R	N/R	N/R	N/R	N/R
Al CaCO3	275.04	278.86	275.04	294	281
Hd CaCO3	319.99	331.32	321.8	512	371
Ac CaCO3	0	0	0	0	0
HCO3	335.55	340.2	335.5	359	343
CO3	0	0	0	0	0
Cl	4.28	6.3	6.3	16.3	8.3
SO4	37.04	45.7	41.6	217	85.34
Ca	84.22	64.3	80.3	120	87.21
Mg	26.72	41.6	29.4	51.4	37.28
K	1.14	1.5	1.8	3.09	1.88
Na	4.30	4.6	4.8	9.5	5.8
Cat/An	1.71	1.16	1.03	.59	1.12
Fe	<.04	1.28	<.04	.07	.36
Mn	<.02	.03	<.02	<.02	<.02

WATER MONITORING REPORT

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Property: Co-Op
Station: SBC-5
Location: Birch Spring
Type: Spring
Frequency: Quarterly

Field Measurements	Date Sampled 02/14/90	05/28/90	08/28/90	11/27/90	MEAN
Flow [gpm]	DRY	DRY	DRY	DRY	DRY
PH					
Sp. Cond. [ohms]					
Temp. [C]					
Diss. O [ppm]					
Lab. Meas. [mg/l]					
TDS					
TSS					
O & G					
Al CaCO3					
Hd CaCO3					
Ac CaCO3					
HCO3					
CO3					
Cl					
SO4					
Ca					
Mg					
K					
Na					
Cat/An					
Fe					
Mn					

WATER MONITORING REPORT

Co-Op Mining Co.
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Property: Co-Op
Station: SBC-6
Location: Co-Op Dev. Spring
Type: Spring
Frequency: Quarterly

Field Measurements	Date Sampled 02/14/90	05/30/90	08/28/90	11/27/90	Mean
Flow [gpm]	DRY	DRY	DRY	DRY	DRY
PH					
Sp. Cond. [ohms]					
Temp. [C]					
Diss. O [ppm]					
Lab. Meas. [mg/l]					
TDS					
TSS					
O & G					
Al CaCO3					
Hd CaCO3					
Ac CaCO3					
HCO3					
CO3					
Cl					
SO4					
Ca					
Mg					
K					
Na					
Cat/An					
Fe					
Mn					

WATER MONITORING REPORT

Co-Op Mining Co.
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Property: Co-Op
Station: SBC-7
Location: #33 West
Type: Spring
Frequency: Quarterly

Field Measurements	Date Sampled 02/14/90	05/30/90	08/28/90	11/27/90	Mean
Flow [gpm]	1	DRY	DRY	.2	.6
PH	7.9				7.9
Sp. Cond. [ohms]	410				410
Temp. [C]	6				6
Diss. O [ppm]	N/A				N/A

Lab. Meas. [mg/l]	See Lab Sheet Baseline
TDS	
TSS	
O & G	
Al CaCO3	
Hd CaCO3	
Ac CaCO3	
HCO3	
CO3	
Cl	
SO4	
Ca	
Mg	
K	
Na	
Cat/An	
Fe	
Mn	

WATER MONITORING REPORT

Property: Co-Op
Station: SBC-8
Location: #30 East
Type: Spring
Frequency: Quarterly

Field Measurements	Date Sampled 02/27/90	05/30/90	08/28/90	11/27/90	Mean
Flow [gpm]	<1	<1	.8	19.6	5.1
PH	7.9	8.0	7.9	7.9	7.9
Sp. Cond. [ohms]	410	520	420	910	565
Temp. [C]	6	4	6	6	5.5
Diss. O [ppm]	N/R	N/R	N/R	N/R	N/R

Lab. Meas. [mg/l] Lab Measurements Transfered to SBC9

TDS
TSS
O & G
Al CaCO3
Hd CaCO3
Ac CaCO3
HCO3
CO3
Cl
SO4
Ca
Mg
K
Na
Cat/An
Fe
Mn

WATER MONITORING REPORT

Property: Co-Op
Station: SBC-9
Location: Underground
Type: Spring
Frequency: Quarterly

Field Measurements	Date Sampled 02/27/90	05/30/90	08/28/90	11/27/90	Mean
Flow [gpm]	120	120	120	97	114.25
PH	7.9	8.0	7.9	7.8	7.9
Sp. Cond. [ohms]	600	600	400	900	625
Temp. [C]	4	4	6	6	5
Diss. O [ppm]	N/R	N/R	N/R	N/R	N/R

Lab. Meas. [mg/l]	See Lab Sheet Baseline
TDS	
TSS	
O & G	
Al CaCO3	
Hd CaCO3	
Ac CaCO3	
HCO3	
CO3	
Cl	
SO4	
Ca	
Mg	
K	
Na	
Cat/An	
Fe	
Mn	

TRAIL CANYON MINE
1990
WATER MONITORING DATA

WATER MONITORING REPORT

Co-Op Mining Co.
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Property: Co-Op
Station: Ut-1
Location: Upper Trail Creek
Type: Stream
Frequency: Bi-Annual

Field Measurements	Date Sampled 05/28/90	11/27/90	Mean
Flow [gpm]	DRY	DRY	DRY
PH			
Sp. Cond. [ohms]			
Temp. [C]			
Diss. O [ppm]			
Lab. Meas. [mg/l]			
TDS			
TSS			
O & G			
Al CaCO3			
Hd CaCO3			
Ac CaCO3			
HCO3			
CO3			
Cl			
SO4			
Ca			
Mg			
K			
Na			
Cat/An			
Fe			
Mn			

WATER MONITORING REPORT

Property: Co-Op
Station: LT-2
Location: Lower Trail
Type: Stream
Frequency: Bi-Annual

Field Measurements	Date Sampled 05/28/90	11/27/90	Mean
Flow [gpm]	29	37	33
PH	8.1	8	8.05
Sp. Cond. [ohms]	940	770	855
Temp. [C]	3	2	2.5
Diss. O [ppm]	10	8	9
Lab. Meas. [mg/l]			
TDS	472	480	476
TSS	6	13	9.5
O & G	<5	<5	<5
Al CaCO3	355.26	376	365.6
Hd CaCO3	411.64	452	431.8
Ac CaCO3	0	0	0
HCO3	433.4	459	446.2
CO3	0	0	0
Cl	14.7	24.5	19.6
SO4	88.5	81.5	85
Ca	72.3	92.4	82.4
Mg	56.2	53.8	55
K	3.9	5.54	4.72
Na	17.6	19.9	18.75
Cat/An	1.43	.65	1.04
Fe	.32	.08	.2
Mn	<.02	<.02	<.02

WATER MONITORING REPORT

Co-Op Mining Co.
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Property: Co-Op
Station: PS-1
Location: Portal Spring
Type: Spring
Frequency: Bi-Annual

Field Measurements	Date Sampled 05/28/90	11/27/90	Mean
Flow [gpm]	DRY	DRY	DRY
PH			
Sp. Cond. [ohms]			
Temp. [C]			
Diss. O [ppm]			
Lab. Meas. [mg/l]			
TDS			
TSS			
O & G			
Al CaCO3			
Hd CaCO3			
Ac CaCO3			
HCO3			
CO3			
Cl			
SO4			
Ca			
Mg			
K			
Na			
Cat/An			
Fe			
Mn			

WATER MONITORING REPORT

Property: Co-Op
Station: TS-1
Location: Trail Canyon Spring
Type: Spring
Frequency: Bi-Annual

Field Measurements	Date Sampled 05/28/90	11/27/90	Mean
Flow [gpm]	.5	18.2	9.35
PH	8.1	7.8	7.9
Sp. Cond. [ohms]	850	777	813.5
Temp. [C]	3	6	4.5
Diss. O [ppm]	N/R	N/R	N/R
Lab. Meas. [mg/l]			
TDS	410	432	421
TSS	1	38	19.5
O & G	N/R	N/R	N/R
Al CaCO3	286.5	376	331
Hd CaCO3	381.52	452	417
Ac CaCO3	0	0	0
HCO3	349.5	459	404.5
CO3	0	0	0
Cl	16.8	14.3	15.6
SO4	84.4	73.2	78.8
Ca	72.3	104	88.2
Mg	48.9	46.5	47.5
K	3.2	3.06	3.13
Na	12.3	11.9	12.15
Cat/An	1.76	.94	1.35
Fe	.13	.9	.52
Mn	<.02	.04	.02

WATER MONITORING REPORT

Property: Co-Op
Station: CS-1
Location: Trail Co-Op S
Type: Spring
Frequency: Bi-Annual

Field Measurements	Date Sampled 05/28/90	11/27/90	Mean
Flow [gpm]	UNK	UNK	UNK
PH	8	7.8	7.9
Sp. Cond. [ohms]	490	711	600.5
Temp. [C]	3	6	4.5
Diss. O [ppm]	N/R	N/R	N/R
Lab. Meas. [mg/l]			
TDS	402	376	389
TSS	4	12	8
O & G	N/R	N/R	N/R
Al CaCO3	336.16	342	339.08
Hd CaCO3	391.56	402	396.78
Ac CaCO3	0	0	0
HCO3	410.1	417	413.55
CO3	0	0	0
Cl	10.5	6.13	8.4
SO4	60.5	56.8	58.65
Ca	76.3	100	88.15
Mg	48.1	36.7	42.4
K	3	2.7	2.85
Na	5	5	5
Cat/An	.94	.74	.84
Fe	.09	.12	.10
Mn	<.02	<.02	<.02

WATER MONITORING REPORT

Co-Op Mining Co.
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Property: Co-Op
Station: BP-1
Location: Field
Type: Spring
Frequency: Bi-Annual

Field Measurements	Date Sampled 05/28/90	11/27/90	Mean
Flow [gpm]	.15	.25	.20
PH	8.1	7.6	7.85
Sp. Cond. [ohms]	980	790	885
Temp. [C]	3	2	2.5
Diss. O [ppm]	N/R	N/R	N/R
Lab. Meas. [mg/l]			
TDS	402	424	413
TSS	11	1920	965/5
O & G	N/R	N/R	N/R
Al CaCO3	301.78	373	338
Hd CaCO3	381.52	407	394.3
Ac CaCO3	0	0	0
HCO3	368.2	455	411.6
CO3	0	0	0
Cl	12.6	14.3	13.45
SO4	81.9	58.4	70.15
Ca	68.3	104	86.2
Mg	51.4	35.6	44
K	3.3	3.05	3.15
Na	12.7	11.7	12.2
Cat/An	1.04	1.99	1.5
Fe	.07	26.2	13.13
Mn	<.02	.66	.33

See Bear Canyon Mine, 1990, Water Monitoring Data for sampling from SBC-5, Birch Spring.

WATER MONITORING REPORT

Co-Op Mining Co.
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Property: Co-Op
Station: SP-1
Location: Sed Pond Inlet
Type: Discharge
Frequency: Bi-Annual

Field Measurements	Date Sampled 05/28/90	11/27/90	Mean
Flow [gpm]	DRY	DRY	DRY
PH			
Sp. Cond. [ohms]			
Temp. [C]			
Diss. O [ppm]			
Lab. Meas. [mg/l]			
TDS			
TSS			
O & G			
Al CaCO3			
Hd CaCO3			
Ac CaCO3			
HCO3			
CO3			
Cl			
SO4			
Ca			
Mg			
K			
Na			
Cat/An			
Fe			
Mn			

No discharges occurred at monitoring point CO-1, Culvert TCC-6 Outlet, during 1990.

No discharges occurred at monitoring point Sealed Mine Entries and Access during 1990.

APPENDIX B
SUBSIDENCE MONITORING

Co-Op Mining Co.
Subsidence Monitoring
Trail and Bear Cyn. Mines

Station	Location	Elevation				Change		Remark
		Original 7/19/87	10/1/88	9/30/89	11/4/90	Latest	Acc.	
SMS-1	Trail/Bear	9188.57	9188.55	9188.10	9188.37	+0.27	-0.20	No visible movement
SMS-2	Bear Cyn.	8542.60	8542.42	8542.49	8542.43	-0.06	-0.17	"
SMS-3	Trail Cyn.	8769.06	8769.05	8769.12	8768.99	-0.13	-0.07	"
SMS-4	Trail Cyn.	8410.00	8410.00	8409.92	8410.19	+0.19	+0.27	"
CON-5	Bear Cyn.	9379.91	9379.91	9379.91	9379.91	—	—	Control P

Note: 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 of the M.R.P.

APPENDIX C
IMPOUNDMENT INSPECTION

CO-OP MINING CO.

1990 ANNUAL

POND INSPECTION REPORT

POND: Sediment Pond "A" LOCATION: Bear Canyon

ITEM	REMARKS
(1) Potential Safety Hazards	No Safety Hazards Noted.
(2) Slope Stability	Slopes appear stable. Outer slopes vegetated.
(3) Erosion	No erosion evident.
(4) Construction and Maintenance Performance Standards	Pond cleaned and resurveyed. Present Sediment Level - 91.90 Sediment Cleanout Level- 94.38
(5) Recommendations/Comments	Pond capacity is adequate based on sediment level and "As-Built" measurements.

I have performed the above inspection on this pond and do hereby certify it to be a true and accurate representation of the pond at this time.

REGISTERED PROFESSIONAL ENGINEER
No. 4548
DAN W. GUY
STATE OF UTAH

Dan W. Guy

10/12/90
Date

CO-OP MINING CO.

1990 ANNUAL

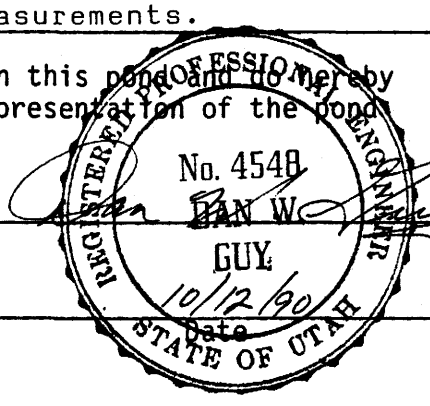
POND INSPECTION REPORT

POND: Sediment Pond "B"

LOCATION: Bear Canyon

ITEM	REMARKS
(1) Potential Safety Hazards	No Safety Hazards Noted.
(2) Slope Stability	Slopes appear stable; vegetated.
(3) Erosion	No erosion evident. Inlet and outlet rip-rapped.
(4) Construction and Maintenance Performance Standards	Present Sediment Level - 94.12 Sediment Cleanout Level- 95.72 Pond contained 6" of water.
(5) Recommendations/Comments	Pond capacity is adequate based on sediment level and "As-Built" measurements.

I have performed the above inspection on this pond and do hereby certify it to be a true and accurate representation of the pond at this time.



10/12/90
Date

CO-OP MINING CO.

1990 ANNUAL

POND INSPECTION REPORT

POND: Trail Canyon Sed. Pond LOCATION: Trail Canyon

ITEM	REMARKS
(1) Potential Safety Hazards	No Safety Hazards Noted.
(2) Slope Stability	Slopes appear stable; vegetated.
(3) Erosion	No erosion evident.
(4) Construction and Maintenance Performance Standards	Present Sediment Level - 91.50 Sediment Cleanout Level- 93.00 Pond was dry at time of inspection.
(5) Recommendations/Comments	Pond capacity is adequate based on sediment level and "As-Built" measurements.

I have performed the above inspection on this pond and do hereby certify it to be a true and accurate representation of the pond at this time.

REGISTERED PROFESSIONAL ENGINEER
No. 4548
DAN W. GUY
STATE OF UTAH

10/12/90
Date

COAL MINING AND RECLAMATION OPERATIONS FOR 1990

(Must be submitted to the Division by March 31, 1991)

State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
3 Triad Centter, Suite 350
355 West North Temple
Salt Lake City, Utah 84180-1203

(801) 538-5340

Permittee: Co-Op Mining Company

Mine Name: Bear Canyon Mine / Trail Canyon Mine

Mailing Address: 53 West Angelo Ave. Salt Lake City, Utah 84115

Company Representative: Kimly C. Mangum, P.E., M.E.C.

Resident Agent: Mr. Wendell Owen, Co-Op Mining Co. ~~P.O.Box 1245 Huntington, Utah 84528~~

Permit Number: ACT/015/025 & ACT/015/021

Date of Initial Permanent Program Permit: Nov. 1, 1985 / May 30, 1989

Date of Permit Renewal: Nov. 1, 1990*/ May 30, 1989

Quantity of Coal Mined (tonnage) 1990: 528,645 ton

*Pending resolution of public concerns, see CO #C90-26-1-1

Attach Updated Mine Sequence Map.

All monitoring activities during the report period must be submitted with this report (including, but not limited to):

A. Summarized Water Monitoring Data

B. Precipitation or Other Climatological Data

C. Subsidence Monitoring Report

D. Vegetation Data (test plots) or Revegetation Success Monitoring (includes interim and final)

E. Annual Impoundment Inspection

F. Permit Stipulation Status, if applicable. Status of Division Orders, if applicable.

jbe
A:/Annual

CO-OP MINING COMPANY
ANNUAL REPORT 1990

Bear Canyon Mine
ACT/015/025

Trail Canyon Mine
ACT/015/021

A. WATER MONITORING

All water monitoring data for 1990 has been submitted to the Division in quarterly submittal. Copies of the summary pages for the year are included in Appendix A.

No discharge was noted during 1990. See Co-Op Mining Company permit number UTG040006, Utah General Permit for Coal Mining, covering 5 discharge points. Issued by the Bureau of Water Pollution Control, Utah Department of Health, 8 May 1989. A copy of the permit can be found as Appendix 7-B in the Bear Canyon Mine PAP.

Copies of the 1990 Mine Water Surveys can also be found in Appendix A of this report.

B. CLIMATOLOGICAL DATA

No data was summarized for 1990.

C. SUBSIDENCE MONITORING

Subsidence monitoring was performed in 1990 using the professional services of Blackhawk Engineering. The results of the survey follows.

STATION/LOCATION	ELEVATION				CHANGE	
	original 7/19/87	10/1/88	9/30/89	11/4/90	latest	accum
SMS-1/Trail-Bear	9188.57	9188.55	9188.10	9188.37	+0.27	-0.20
SMS-2/Bear Cyn	8542.60	8542.42	8542.49	8542.43	-0.06	-0.17
SMS-3/Trail Cyn	8769.06	8769.05	8769.12	8768.99	-0.13	-0.07
SMS-4/Trail Cyn	8410.00	8410.00	8409.92	8410.19	+0.19	+0.27
CON-5/Bear Cyn (CONTROL POINT)	9379.91	9379.91	9379.91	9379.91	0	0

NOTES: 1. 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 of the PAP.

Monitoring locations are located on Plate 3-3.

D. VEGETATION MONITORING

Bear Canyon Mine

The Ball Park Topsoil Storage Pile in Bear Canyon was reseeded in 1990. The down-slope side of the Portal Access road required reseeding due to the poor germination from the 1989 seeding efforts. This area includes the Test Plot implemented in 1989 near the Hiawatha Portal. Quantitative measurements of the Test Plot will begin in 1992.

Trail Canyon Mine

Reclaimed areas were visited and evaluated in August 1990 with representatives of the Division and Co-Op. The results of the evaluation were positive and were incorporated in Appendix 3-G of the MRP. A few minor areas received supplemental seeding following recommendations from the Division. Quantitative measurements will be made in 1991.

E. ANNUAL IMPOUNDMENT INSPECTION

Copies of the Annual Sediment Pond Inspection Reports are attached with this report in Appendix C.

F. PERMIT STIPULATION STATUS

Permit renewal is on hold but there are no open stipulations from the latest permit.

APPENDIX A
WATER MONITORING DATA

APPENDIX B
SUBSIDENCE MONITORING

Co-Op Mining Co.
Subsidence Monitoring
Trail and Bear Cyn. Mines

Station	Location	Elevation				Change		Remar.
		Original 7/19/87	10/1/88	9/30/89	11/4/90	Latest	Acc.	
SMS-1	Trail/Bear	9188.57	9188.55	9188.10	9188.37	+0.27	-0.20	No visible movement
SMS-2	Bear Cyn.	8542.60	8542.42	8542.49	8542.43	-0.06	-0.17	"
SMS-3	Trail Cyn.	8769.06	8769.05	8769.12	8768.99	-0.13	-0.07	"
SMS-4	Trail Cyn.	8410.00	8410.00	8409.92	8410.19	+0.19	+0.27	"
CON-5	Bear Cyn.	9379.91	9379.91	9379.91	9379.91	—	—	Control

Note: 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 of the M.R.P.

APPENDIX C
IMPOUNDMENT INSPECTION

CO-OP MINING CO.

1990 ANNUAL

POND INSPECTION REPORT

POND: Sediment Pond "A" LOCATION: Bear Canyon

ITEM	REMARKS
(1) Potential Safety Hazards	No Safety Hazards Noted.
(2) Slope Stability	Slopes appear stable. Outer slopes vegetated.
(3) Erosion	No erosion evident.
(4) Construction and Maintenance Performance Standards	Pond cleaned and resurveyed. Present Sediment Level - 91.90 Sediment Cleanout Level- 94.38
(5) Recommendations/Comments	Pond capacity is adequate based on sediment level and "As-Built" measurements.

I have performed the above inspection on this pond and do hereby certify it to be a true and accurate representation of the pond at this time.

REGISTERED PROFESSIONAL ENGINEER
No. 4548
DAN W. GUY
STATE OF UTAH

Dan W. Guy

10/12/90
Date

CO-OP MINING CO.

1990 ANNUAL

POND INSPECTION REPORT

POND: Sediment Pond "B"

LOCATION: Bear Canyon

ITEM	REMARKS
(1) Potential Safety Hazards	No Safety Hazards Noted.
(2) Slope Stability	Slopes appear stable; vegetated.
(3) Erosion	No erosion evident. Inlet and outlet rip-rapped.
(4) Construction and Maintenance Performance Standards	Present Sediment Level - 94.12 Sediment Cleanout Level- 95.72 Pond contained 6" of water.
(5) Recommendations/Comments	Pond capacity is adequate based on sediment level and "As-Built" measurements.

I have performed the above inspection on this pond and do hereby certify it to be a true and accurate representation of the pond at this time.

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No. 4548
DAN W. GUY
STATE OF UTAH

DAN W. GUY

10/12/90
Date

CO-OP MINING CO.

1990 ANNUAL

POND INSPECTION REPORT

POND: Trail Canyon Sed. Pond LOCATION: Trail Canyon

ITEM	REMARKS
(1) Potential Safety Hazards	No Safety Hazards Noted.
(2) Slope Stability	Slopes appear stable; vegetated.
(3) Erosion	No erosion evident.
(4) Construction and Maintenance Performance Standards	Present Sediment Level - 91.50 Sediment Cleanout Level- 93.00 Pond was dry at time of inspection.
(5) Recommendations/Comments	Pond capacity is adequate based on sediment level and "As-Built" measurements.

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10/12/90
Date
STATE OF UTAH