

POLLUTION SOURCES

At the time of writing this report there were nineteen (19) active operations, eight (8) of which were operating and producing coal. The others maintained leases and had equipment intact at the sites but were not producing coal or pumping water.

There were nineteen (19) abandoned operations, three (3) of which were in the Lorberry Basin and the remainder in the Lower Rausch Creek Basin.

The following are the listings of the active and abandoned operators at the time of the study:

ACTIVE (Producing at time of study)

<u>Source</u>	<u>Name</u>	<u>Vein</u>	<u>Basin</u>
S-61 (1)	Junior Harner Coal Co.	Harner Drift	Lorberry
S-62	Harner Coal Co.	Primrose Slope	Lorberry
S-121	P. & M. Coal Co.	Orchard Slope	Rausch
S-231 (2)	Madenford Coal Co.	#1 Vein Slope	Rausch
S-336 (3)	M.W.S. Coal Co.	Holmes Slope	Rausch
S-342	Marlin Zimmerman Coal Co.	Buck Mtn. Slope	Lorberry
S-343	Spancake & Herring Coal Co.	Buck Mtn. Slope	Lorberry
S-345	H.G.S. Coal Co.	L.V. 1-1/2 - Vein Slope	Lorberry

Since the study three (3) of the above listed have ceased operations:

- (1) S-61 - collapsed drift - January 1971
- (2) S-231 - finished operating - 30 September, 1971
- (3) S-336 - finished operating - November 1971

The other in the "stagnated" category of active operators are as follows:

S-57	Panther Head Coal Co.	Buck Mtn. Drift	Lorberry
S-71	B. & H. Coal Co.	Bottom Split Slope	Lorberry
S-123	Buck Coal Co.	Buck Mtn. Slope	Rausch
S-224 ⁽¹⁾	Hornberger Coal Co.	Buck Mtn. Slope	Lorberry
S-226	Faust Coal Co.	Faust Slope Tracy Slope Orchard Slope	Rausch
S-229	J. & C. Coal Co.	No. 1 Vein Slope	Wiconisco
S-323 ⁽²⁾	Wolfgang-Marlin Coal Co.	No. 1-1/2 Vein Slope	Rausch
S-324 ⁽³⁾	J. & C. Coal Co.	S. Dip Skidmore Slope	Wiconisco
S-325	Fireside Mining Co.	No. 1 Vein Slope	Rausch
S-346	Kintzel Bros. Coal Co.	L.V. #6 Slope	Lorberry
S-347 ⁽⁴⁾	Mervin Lehman Coal Co.	L.V. #6 Slope	Lorberry

During and since the study, four (4) of the above listed have ceased operations:

- (1) S-224 closed April 1969
- (2) S-323 closed August 1970
- (3) S-324 closed August 1971
- (4) S-347 closed April 1969

Description of major source areas and measuring stations:

Measuring Stations:

1. M.S. #1 - Swatara Creek (before its confluence with Lorberry and Lower Rausch Creek)

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow (gpd)	162,198,090	6,907,971	28,366,547
pH	4.50	3.20	4.01
iron (mg/l)	4.60	0.54	1.36
sulfates (mg/l)	240.0	55.0	124.0
acidity (mg/l)	71.50	17.50	35.24
acid load (lbs./day)	13,672.74	3,788.08	8,323.99

2. M.S. #2 - Lorberry Creek Culvert
(includes M.S. 4, 9 and 10)

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow	36,234,342	1,523,383	7,684,419
pH	6.3	4.0	5.17
iron	15.6	5.0	9.69
sulfates	120.0	60.0	80.0
acidity	44.0	17.0	27.29
acid load (lbs./day)	1,762.58	681.00	1,746.0

3. M.S. #3 - Lower Rausch Creek
(includes M.S. 5, 6, 7, 8, 11 and 12)

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow	27,596.625	1,081,392	5,636,108
pH	6.6	4.2	5.94
iron	20.5	3.4	8.77
sulfates	320.0	65.0	159.0
acidity	49.0	10.0	25.91
acid load (lbs./day)	2,749.17	691.02	1,216.0

4. M.S. #4 - Rowe Tunnel
(includes S-342, S-343 and S-345)

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow	15,805,409	1,308,870	4,227,758
pH	6.0	3.4	4.63
iron	28.0	5.2	16.70
sulfates	160.0	90.0	118.0
acidity	127.0	40.5	64.49
acid load (lbs./day)	11,602.74	476.60	2,270.0

5. M.S. #5 - Orchard Drift

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow	434,372	34,296	152,843
pH	7.0	6.2	6.61
iron	1.76	0.05	0.38
sulfates	140.0	75.0	107.0
acidity	39.5	8.0	18.50
acid load (lbs./day)	81.00	7.67	23.54

6. M.S. #6 - Holmes Drift

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow	555,785	96,611	196,327
pH	6.9	6.4	6.56
iron	16.0	4.0	7.59
sulfates	500.0	150.0	302.0
acidity	63.0	18.0	38.35
acid load (lbs./day)	275.16	26.49	62.69

7. M.S. #7 - Rausch Creek Tunnel

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow	2,679,586	684,714	1,216,891
pH	4.2	3.3	3.80
iron	37.0	20.0	28.43
sulfates	360.0	150.0	281.0
acidity	213.0	112.0	160.22
acid load (lbs./day)	2463.64	864.77	1,623.5

8. M.S. #8 - New Lincoln Drainage Tunnel

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow	2,420,899	85,094	492,818
pH	6.2	5.2	5.80
iron	6.0	0.50	3.79
sulfates	35.0	35.0	35.0
acidity	46.0	7.0	23.62
acid load (lbs./day)	133.13	8.40	96.93

9. M. S. #9 - Stream From Game Lands

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow	5,913,237	4,300	808,376
pH	5.90	4.60	5.08
iron	1.10	0.08	0.31
sulfates	35.0	35.0	35.0
acidity	25.0	3.50	8.80
acid load (lbs./day)	93.20	13.05	59.23

10. M.S. #10 - Junior Harner Drift

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow	155,298	4,300	27,371.
pH	2.80	1.80	2.62
iron	1000.	260.0	552.26
sulfates	2000.	320.0	1102.0
acidity	2500.	350.0	1325.27
acid load (lbs./day)	713.87	35.40	302.05

11. M.S. #11 - Culvert beneath U.S. 209 at Intersection
with Interstate Highway 81

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow	4,979,071	4,300	1,470,097
pH	6.50	4.60	5.68
iron	17.60	0.02	1.76
sulfates	350.0	70.0	139.0
acidity	44.0	4.0	17.86
acid load (lbs./day)	396.69	11.36	218.63

12. M.S. #12 - Haldeman - Diamond Drift

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow	47,880	4,300	11,256
pH	3.60	2.60	3.50
iron	10.80	3.00	6.42
sulfates	95.0	65.00	79.00
acidity	75.0	34.00	50.33
acid load (lbs./day)	13.92	2.51	4.72

Active Operations:

1. S-62 - Ray Harner Coal Co.

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow (gpd)			2,400
pH	7.1	2.9	3.0
iron (mg/l)	64	0.20	42.0
sulfates (mg/l)	400	200	350.0
acidity (mg/l)	336	8.0	260
acid load (lbs./day)	6.72	0.16	5.20
percent contribution to Lagoon Complex I (%)			0.20

2. S-121 - P. & M. Coal Co.

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow (gpd)			36,000
pH	3.4	3.1	3.2
iron	20	15	17.0
sulfates	300	120	240
acidity	250	48	126.50
acid load (lbs./day)	74.93	14.39	37.92
percent contribution to Lagoon Complex III (%)			2.16

3. S-231 - Madenford Coal Co.

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow (gpd)			36,000
pH	4.3	3.7	4.1
iron	3.4	3.1	3.2
sulfates	100	60	70
acidity	69.0	24.0	30.50
acid load (lbs./day)	20.68	7.19	9.14
percent contribution to Lagoon Complex II (%)			1.03

4. S-336 - M. W. S. Coal Co.

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow (gpd)			48,000
pH	7.2	6.8	6.9
iron	1.8	1.0	1.0
sulfates	100	50	100
acidity	20	20	20
acid load (lbs./day)	7.99	7.99	7.99
percent contribution to Lagoon Complex III (%)			0.45

5. S-342 - Marlin Zimmerman Coal Co.

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow (gpd)			72,000
pH	3.1	2.9	2.9
iron	3.5	25	25
sulfates	300	160	300
acidity	184.0	149.0	184.0
acid load (lbs./day)	110.32	89.32	110.32
percent contribution to Lagoon Complex I (%)			4.27

6. S-343 - Spancake & Herring Coal Co.

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow (gpd)			72,000
pH	3.2	3.0	3.0
iron	30.0	15.0	16.8
sulfates	250	150	210
acidity	171.0	156.0	166.0
acid load (lbs./day)	102.51	93.52	99.52
percent contribution to Lagoon Complex I (%)			3.86

7. S-345 - H. G. S. Coal Co.

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow (gpd)			7,200
pH	3.7	3.4	3.6
iron	1.50	0.60	1.20
sulfates	110	80	90
acidity	52.0	30.0	41.0
acid load (lbs./day)	3.12	1.80	2.46
percent contribution to Lagoon Complex I (%)			0.09

8. S-61 - Junior Harner Coal Co.

See M.S. #10

percent contribution to Lagoon Complex I (%) 11.71

These mining operations constitute seven (7) of the nineteen (19) total Active Mining Operations. The remaining twelve (12) operations are idle and like results are not presented for the following reasons:

S-57 Drift collapsed, water seeps into ground at wash line

S-71, S-123 These operators do not pump from their
S-224, S-226 workings when idle
S-323, S-347
S-229, S-324

S-325 Although the water flows by gravity from this mine to S-63, the water is not discharged to the surface because S-63 no longer operates

S-346 Water flows by gravity to S-58 but volume and analyses are not obtainable due to the present state of the operation.

Abandoned Operations:

1. S-58 - Rowe Tunnel
See M.S. #4 excluding S-342, S-343, S-345
percent contribution to Lagoon Complex I (%) 79.87

2. S-72 - Rausch Creek Tunnel
See M.S. #7
percent contribution to Lagoon Complex III (%) 92.55

3. S-73 - Haldeman Diamond Drift
See M.S. #12
percent contribution to Lagoon Complex III (%) 0.26

4. S-77 - New Lincoln Drainage Tunnel
See M.S. #8 excluding S-231
percent contribution to Lagoon Complex II (%) 9.95

5. S-75 - East Primrose Drift

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow (gpd)			7,200
pH	6.4	4.9	6.4
iron (mg/l)	10.0	3.0	9.4
sulfates (mg/l)	45	35	35
acidity (mg/l)	52.5	8.0	40.0
acid load (lbs./day)	3.15	0.48	2.40
percent contribution to Lagoon Complex III (%)			0.13

6. S-320 - Joliett Water Co. Deep Well Pump

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow (gpd)			7,200
pH	5.4	4.0	5.4
iron	0.01	0.00	0.01
sulfates	35	35	35
acidity	28.0	16.0	26.0
acid load (lbs./day)	1.68	0.96	1.60
percent contribution to Lagoon Complex II (%)			0.17

7. S-335 - Orchard Drift

See M.S. #5 excludes S-336

percent contribution to Lagoon Complex III (%) 0.88

8. S-327 - Westwood Deep Well Pump

	<u>High</u>	<u>Low</u>	<u>Mean</u>
flow (gpd)			720,000
pH	6.3	4.0	6.0
iron	50	0.20	28.0
sulfates	300	35	140.0
acidity	144	35	131.0
acid load (lbs./day)	863.24	209.82	785.40
percent contribution to Lagoon Complex II (%)			88.85

9. S-332 - Holmes Drift

See M.S. #6

percent contribution to Lagoon Complex III (%) 3.57

These abandoned mine operations represent nine (9) of the total nineteen (19) sources. The remaining ten (10) abandoned operations have not been recorded and analyzed for the following reasons.

S-63	No longer operating - pumped formerly.
S-74, S-334	Sealed during construction of I-81; flow goes underground exuding as leachate.
S-76	Gravitates underground to S-75; no access.
S-225, S-333 S-339, S-340	Collapsed - flow permeates. Underground exuding as leachate.
S-338, S-326	Seeps into ground at wash line gravitates to S-63 (not operating).

RECAPITULATION

Pollution Source's Contribution to Lagoon Complexes

Lagoon Complex I - Lorberry Basin

	<u>Pollution Source No.</u>	<u>Source Name</u>	<u>Percent Contribution</u>
abandoned	S-58	Rowe Tunnel	79.87
active	S-61	Jr. Harner Coal Co.	11.71
active	S-62	Ray Harner Coal Co.	0.20
active	S-342	Marlin Zimmerman Coal Co.	4.27
active	S-343	Spancake & Herring Coal Co.	3.86
active	S-345	H. G. S. Coal Co.	0.09

Lagoon Complex II - Lower Rausch Creek - Located immediately
downstream of New Lincoln Drainage Tunnel
(M.S. 8)

	<u>Pollution Source No.</u>	<u>Source Name</u>	<u>Percent Contribution</u>
abandoned	S-77	New Lincoln Drainage Tunnel	9.95
abandoned	S-320	Joliett Water Company Deep Well Pump	0.17
abandoned	S-327	Westwood Deep Well Pump	88.85
active	S-231*	Madenford Coal Co.	1.03

Lagoon Complex III - Lower Rausch Creek Basin - Located
immediately downstream of Haldeman
Diamond Drift (M.S. 12)

	<u>Pollution Source No.</u>	<u>Source Name</u>	<u>Percent Contribution</u>
abandoned	S-72	Rausch Creek Tunnel	92.55
abandoned	S-73	Haldeman Diamond Drift	0.26
abandoned	S-75	East Primrose Drift	0.13
abandoned	S-332	Holmes Drift	3.57
abandoned	S-335	Orchard Drift	0.88
active	S-121	P. & M. Coal Co.	2.16
active	S-336**	M. W. S. Coal Co.	0.45

*finished operating 30 September, 1971

**closed November 1971