

TABLE I

ERNEST MINE COMPLEX  
SUMMARY OF CONSTRUCTION COSTS  
(Through August 1971)

ITEM	AREA DESCRIPTION	ESTIMATED COST	ACTUAL COST <sup>(1)</sup>
A	Cummings Shaft	\$ 30,150.00	\$ 31,215.00
B	E-1 Mine Entry	3,170.00	3,270.00
C	Remove Barrier	1,000.00	0
D	E-2 Mine Entries	28,520.00	27,814.00
E	Transfer Pipe	42,440.00	43,220.00
F	E-3 Mine Entries	19,510.00	25,700.00
G	DDH-44 Borehole	11,100.00	314.53
H	Crooked Creek Boreholes	20,000.00	19,801.48
I	E-4 Boreholes	59,000.00	57,170.00
J	Fulton Shafts	104,350.00	61,848.20
K	Piezometer Installation	27,325.00	26,902.41
	TOTALS	\$346,565.00	\$297,255.62

Actual Cost = 85 Percent of Estimated Cost.

- (1) Actual cost is based on lump sum or unit price items contained in the bid documents or agreed to in subsequent change orders, and as determined from actual quantities and work performed. See Appendix F for a detailed breakdown of costs.

TABLE II

ERNEST MINE COMPLEX  
CONCRETE COMPRESSIVE STRENGTH  
TEST RESULTS  
FOR 3000 PSI DESIGN STRENGTH CONCRETE

TEST NO	DATE CONCRETE PLACED	LOCATION	DATE TESTED	COMPRESSIVE STRENGTHS 7-DAY (PSI)	COMPRESSIVE STRENGTHS 28-DAY (PSI)	REMARKS
1	-	-	-	-	-	No Data Available
2	-	-	-	-	-	No Data Available
3	Jan 19, 1971	Fulton B	Feb 17, 1971	-	5588	
4	Jan 19, 1971	Fulton B	Feb 17, 1971	-	5624	
5	Jan 22, 1971	Fulton A	-	3280	-	
6	Jan 22, 1971	Fulton A	-	3323	-	
7	Jan 22, 1971	Fulton A	Feb 19, 1971	-	4633	
8	Jan 22, 1971	Fulton A	Feb 19, 1971	-	4722	
9	Feb 26, 1971	Cummings (1st Lift)	Mar 5, 1971	3130	-	
10	Feb 26, 1971	Cummings (1st Lift)	Mar 5, 1971	3148	-	
11	Feb 26, 1971	Cummings (1st Lift)	Apr 1, 1971	-	4120	
12	Feb 26, 1971	Cummings (1st Lift)	Apr 1, 1971	-	4333	
13	Mar 10, 1971	Cummings (2nd Lift)	Mar 17, 1971	3218	-	
14	Mar 10, 1971	Cummings (2nd Lift)	Mar 17, 1971	2971	-	
15	Mar 10, 1971	Cummings (2nd Lift)	Apr 13, 1971	-	4527	
16	Mar 10, 1971	Cummings (2nd Lift)	Apr 13, 1971	-	4280	
17	-	Cummings (3rd Lift)	Mar 22, 1971	-	-	Poor Sample for 7-Day
18	-	Cummings (3rd Lift)	Mar 22, 1971	3360	-	
19	-	-	-	-	-	No Data Available
20	-	-	-	-	-	No Data Available
21	Apr 9, 1971	E-3 Barrier	Apr 16, 1971	3342	-	
22	Apr 9, 1971	E-3 Barrier	Apr 16, 1971	3165	-	

\* Test conducted by A. F. Moreau & Sons, Inc., General Contractors, Indiana, Pennsylvania

TABLE III

ERNEST MINE COMPLEX  
PIEZOMETER INSTALLATION DETAILS

Borehole No.	Soil Boring (ft)	NX Coring (ft)	Pressure Testing (hrs)	Depth of Hole Grouted	Elev. of Wellpoint Tip
P1*	20.2	92.8	5.0	103.0	----
P3	11.5	30.0	6.0	39.9	1054.94
P4	8.7	26.4	1.5	31.8	1049.21
P5	13.5	29.0	1.5	38.0	1047.98
P6 <sup>(2)</sup>	≈ 20.0	≈ 126.0	0.0	≈ 143.0	≈ 935.00
P7	35.5	104.5	9.5	138.0	921.53
P8*	15.9	89.1	9.0	105.0	None
P9	27.5	83.5	0.0	105.0	913.12
P10	25.5	88.5	4.5	113.0	928.44
P11	26.0	57.5	4.0	80.0	976.49
TOTALS	204.3	727.3	41.0	896.7	----

\* No piezometer installed, mine void was not encountered and borehole was grouted from bottom to top.

NOTES:

1. Since the water elevation at E-1 can be observed at the entry, Piezometer P-2, planned for the E-1 mine entry, was eliminated.
2. Piezometer P6 (near DDH-44 Borehole) was drilled without coring and pressure testing.

SUMMARY  
 PIEZOMETER MONITORING PROGRAM  
 ERNEST MINE COMPLEX

Piezometer:	Elevation of Pool in Mine											
	Date	1971 7/July	29/July	30/July	6/Aug	13/Aug	20/Aug	23/Aug	25/Aug	27/Aug	30/Aug	
1. P-1/Cummings		1067.07	1061.97	--	1061.97	1062.07	1062.0	1062.02	1062.37	1062.02	1061.97	
2. P-3/E-2		1067.84	1062.74	--	1062.34	1062.74	1062.8	1062.79	1062.91	1062.54	1062.74	
3. P-4/E-3		1047.61	1042.21	--	1047.51	1046.91	1046.6	1047.61	1047.51	1048.51	1047.16	
4. P-5/E-3 (collapsed shaft)		NO WATER										
5. P-6/Creekside			1048.50	--	1042.28	1048.48	1048.4	1048.48	1048.28	1048.38	1048.38	
6. P-7/Crooked Creek			NOT IN-STALLED	--	1023.90	1023.40	1023.5	1023.60	1026.10	1027.30	1028.15	
7. P-9/E-4		1015.83	1022.53	--	1024.33	1023.83	1024.0	1024.03	1026.58	1027.83	1028.93	
8. P-10/Fulton A		1015.72	1022.88	--	1024.23	1024.00	1024.24	1024.24	1027.70	1028.85	1028.85	
9. P-11/Fulton B		1015.74	1022.74	--	1024.34	1023.84	1024.2	1024.34	1026.89	1028.09	1028.94	
Treatment Plant:		1015.59	1022.59	--	1024.19	1024.29	1024.1	1024.09	1026.74	1027.79	1029.09	
10. T-1		*1028.40	--	1023.10	--	1016.70	1027.0	1027.45	1028.20	1028.85	1029.55	
11. T-2		*1019.06	--	1022.26	--	1016.76	1026.0	1026.15	1026.75	1027.45	1028.90	
12. T-3		*1018.42	--	1022.62	--	1016.42	1025.9	1025.85	1026.98	1027.70	1029.35	

\* From Pennsylvania Drilling Test Boring Logs

Installing Valves at E-4

Breakout at Crooked Creek below P-7 El. 1022

E-4 Valves Closed August 23, 1971 11:00 A.M.

TABLE IV (Continued)

EDCE PROJECT NO.: 70-108  
STATE PROJECT NO.: SL-107-2

E. D'APPOLONIA CONSULTING ENGINEERS, INC.  
SUMMARY

PIEZOMETER MONITORING PROGRAM  
ERNEST MINE COMPLEX

Piezometer:	Date	Elevation of Pool in Mine												
		1971 1/Sept	3/Sept	8/Sept	15/Sept	22/Sept	29/Sept	6/Oct	13/Oct	20/Oct				
1. P-1/Cummings		1061.67	1061.97	1061.62	1061.82	1061.77	1061.92	1061.92	1061.92	1061.97	1061.92	1061.92	1061.92	
2. P-3/E-2		1062.64	1062.74	1062.54	1062.09	NO READING	1062.64	1062.64	1062.64	1062.64	1062.64	1062.64	1062.64	
3. P-4/E-3		1047.36	1047.36	1047.56	1047.36	1047.41	1047.41	1047.41	1047.41	1048.11	1047.41	1047.81		
4. P-5/E-3 (collapsed shaft)		1048.23	1048.18	1048.28	1048.28	1048.18	1048.18	1048.43	1048.43	1048.28	1048.28	1048.33		
5. P-6/Creekside		1029.10	1029.75	1030.75	1033.70	1034.00	1035.10	1036.55	1037.80	1037.80	1038.23	1039.13		
6. P-7/Crooked Creek		1029.33	1029.98	1031.28	1033.13	1034.53	1035.78	1036.93	1038.23	1038.23	1038.23	1039.13		
7. P-9/E-4		1030.01	1031.07	1032.87	1032.87	1036.27	1038.07	1042.27	1042.67	1042.67	1042.67	1043.27		
8. P-10/Fulton A		1029.69	1030.14	1031.44	1033.19	1034.54	1035.64	1037.24	1038.24	1038.24	1038.24	1039.24		
9. P-11/Fulton B		1029.74	1030.29	1031.49	1032.84	1034.59	1035.79	1037.24	1038.29	1038.29	1038.29	1039.04		
<u>Treatment Plant:</u>														
10. T-1		NO READING	1030.34	1031.29	1033.09	1033.64	1033.64	1033.64	1033.64	1033.64	1033.64	1033.64	1033.64	
11. T-2		NO READING	1030.37	1031.44	1033.24	1033.69	1035.89	1037.09	1038.49	1038.49	1038.49	1039.80		
12. T-3		NO READING	1030.22	1031.57	1033.27	1034.57	1036.12	1037.37	1038.37	1038.37	1038.37	1040.56		

Water Seepage  
Observed at  
Treatment Plant  
Site

TABLE IV (Continued)

EDGE PROJECT NO.: 70-108  
STATE PROJECT NO.: SL-107-2

E. D'APPOLONIA CONSULTING ENGINEERS, INC.  
SUMMARY

PIEZOMETER MONITORING PROGRAM  
ERNEST MINE COMPLEX

Piezometer:	Date	Elevation of Pool in Mine													
		1971 27/Oct	2/Nov	9/Nov	16/Nov	23/Nov	30/Nov	7/Dec	14/Dec	21/Dec					
1. P-1/Cummings		1061.87	1061.87	1061.97	1061.97	1061.97	1061.97	1061.97	1061.97	1061.97	1061.97	1061.97	1061.97	1061.97	
2. P-3/E-2		1062.64	1062.69	1062.69	1062.59	1062.49	1062.59	1062.69	1062.69	1062.54	1062.69	1062.69	1062.54	1062.64	
3. P-4/E-3		1047.46	1047.51	1047.41	1047.46	1047.16	1047.46	1047.46	1047.46	1047.41	1047.31	1047.31	1047.41	1047.51	
4. P-5/E-3 (collapsed shaft)		1048.28	1048.33	1048.23	1048.28	1048.28	1048.28	1048.28	1048.28	1048.28	1048.28	1047.98	1048.28	1048.23	
5. P-6/Creekside		1039.70	1040.40	1041.30	1042.10	1042.90	1043.85	1044.80	1044.80	1045.90	1044.80	1044.80	1045.90	1047.10	
6. P-7/Crooked Creek		1040.18	1041.03	1041.78	1042.68	1043.53	1044.33	1045.33	1045.33	1046.53	1045.33	1045.33	1046.53	1047.83	
7. P-9/E-4		1043.27	1043.87	1045.07	1045.17	1045.17	1045.57	1046.67	1046.67	1047.91	1046.67	1046.67	1047.91	1048.97	
8. P-10/Fulton A		1040.24	1041.04	1042.14	1042.49	1043.29	1043.99	1045.04	1045.04	1046.44	1045.04	1045.04	1046.44	1047.64	
9. P-11/Fulton B		1040.29	1040.99	1041.84	1042.69	1043.49	1044.29	1045.29	1045.29	1046.49	1045.29	1045.29	1046.49	1047.69	
Treatment Plant:															
10. T-1		1041.37	1043.80	1044.95	1045.99	1044.38	1045.07	1046.69	1046.69	1047.84	1045.07	1046.69	1047.84	1049.49	
11. T-2		1043.27	1043.85	1045.00	1046.04	1044.43	1045.12	1046.74	1046.74	1047.89	1045.12	1046.74	1047.89	1049.54	
12. T-3		1043.57	1044.61	1045.77	1046.81	1045.19	1045.88	1047.04	1047.04	1048.19	1045.88	1047.04	1048.19	1049.42	

SUMMARY  
 PIEZOMETER MONITORING PROGRAM  
 ERNEST MINE COMPLEX

Piezometer:	Elevation of Water in Mine											
	Date	1971 28/Dec	1972 4/Jan	11/Jan	18/Jan	25/Jan	1/Feb	8/Feb	15/Feb	1972 15/Feb		
1. P-1/Cummings		1061.97	1061.97	1062.22	1062.22	1062.20	1062.57	1063.27	1063.62			
2. P-3/E-2		1062.64	1062.84	1062.84	1062.94	1062.64	1062.29	1062.29	1062.29			
3. P-4/E-3		1048.21	1048.91	1050.91	1048.56	1049.36	1049.36	1049.36	1049.36			
4. P-5/E-3 (collapsed shaft)		1048.28	1049.48	1049.28	1049.53	1049.18	1049.38	1049.36	1049.43			
5. P-6/Creekside		1048.25	1049.40	1049.50	1049.45	1049.35	1049.30	1049.30	1049.30			
6. P-7/Crooked Creek		1048.93	1049.98	1049.88	1050.03	1049.83	1049.83	1049.83	1050.08			
7. P-9/E-4		1050.37	1051.28	1051.61	No Reading	1051.37	1051.38	1051.38	1051.49			
8. P-10/Fulton A		1050.44	1051.60	1051.60	No Reading	1051.60	1052.18	1051.60	No Reading			
9. P-11/Fulton B		1048.84	1049.99	1050.04	1050.04	1049.94	1049.94	1049.94	1049.94			
Treatment Plant:												
10. T-1		1050.09	1050.61	1050.96	1050.73	1050.15	1050.15	1050.15	1050.61			
11. T-2		1050.14	1050.66	1051.01	1050.78	1050.78	1051.36	1051.59	1051.12			
12. T-3		1050.12	1051.54	1051.54	1051.54	1051.06	1051.06	1051.06	1051.06			

Flow Discharging From E-3 Entry

Cummings Valve Closed

## SUMMARY

PIEZOMETER MONITORING PROGRAM  
ERNEST MINE COMPLEX

Piezometer:	Date	Elevation of Water in Mine									
		1972 23/Feb	29/Feb	7/March	14/March	21/March	28/March	4/April	11/April	1972 11/April	
1. P-1/Cummings		1066.47	1067.17	1067.87	1067.67	1067.84	1067.67	1067.52	1067.72		
2. P-3/E-2		1062.84	1062.44	1062.39	1062.64	1062.99	1062.49	1062.74	1062.94		
3. P-4/E-3		1049.41	1049.58	1049.61	1049.86	1049.81	1049.76	1049.81	1049.86		
4. P-5/E-3 (collapsed shaft)											
5. P-6/Creekside		1049.43	1049.58	1049.58	1049.73	1049.88	1049.48	1049.53	1049.53		
6. P-7/Crooked Creek		1048.85	1049.35	1049.90	1049.60	1049.75	1049.55	1049.50	1049.60		
7. P-9/E-4		1050.13	1050.03	1050.38	1050.23	1050.23	1050.08	1050.13	1049.93		
8. P-10/Fulton A		1051.95	1051.95	1052.53	1051.96	1051.96	1051.96	1051.96	1052.21		
9. P-11/Fulton B		NO READING	1052.17	1052.75	1052.45	1052.20	1052.20	1052.20	1052.20		
<u>Treatment Plant:</u>		1049.94	1050.09	1050.54	1050.39	1050.29	1050.14	1049.89	1050.19		
10. T-1		1050.73	1050.73	1050.73	1050.73	1050.73	1050.73	1050.73	1050.96		
11. T-2		1050.78	1051.35	1050.78	1050.78	1051.36	1051.36	1051.36	1051.61		
12. T-3		1051.06	1051.54	1051.66	1051.66	1052.24	1052.24	1052.24	1052.49		

Discharge  
From E-1



SUMMARY  
PIEZOMETER MONITORING PROGRAM  
ERNEST MINE COMPLEX

Piezometer:	Date	Elevation of Water in Mine										
		1972 18/April	2/May	16/May	2/June	13/June	27/June	11/July	1972 18/July			
1. P-1/Cummings		1068.02	1067.72	1067.57	1067.47	1067.17	1068.02	1066.17	1062.57			
2. P-3/E-2		1063.09	1062.94	1062.39	1062.74	1062.74	1063.29	1063.09	1062.94			
3. P-4/E-3		1049.81	1049.71	1049.86	1049.56	1049.61	1049.76	1049.81	1047.71			
4. P-5/E-3 (collapsed shaft)		1049.58	1049.63	1049.78	1049.63	1049.63	1049.88	1049.98	1048.38			
5. P-6/Creekside		1049.85	1049.60	1049.65	1049.45	1049.45	1049.75	1049.80	1044.55			
6. P-7/Crooked Creek		1050.33	1050.08	1050.28	1050.13	1050.08	1050.13	1050.33	1044.98			
7. P-9/E-4		1051.67	1051.97	1051.97	1052.30	1052.30	1052.42	1052.66	1047.34			
8. P-10/Fulton A		1051.60	1051.60	1052.87	1053.10	1053.33	1053.68	1053.68	1048.13			
9. P-11/Fulton B		1050.39	1050.24	1050.39	1050.14	1050.09	1050.49	1050.34	1045.04			
<u>Treatment Plant:</u>												
10. T-1		1050.73	1050.15	1051.07	1051.42	1051.65	1052.49	1053.46	1047.26			
11. T-2		1051.36	1051.36	1051.70	1052.51	1052.86	1052.86	1052.86	1047.89			
12. T-3		1052.24	1052.24	1052.24	1053.39	1053.74	1052.86	1052.70	1047.84			

↑ Cummings Valve Opened      Cummings E-4 Valves Opened

E. D'APPOLONIA CONSULTING ENGINEERS, INC.

EDCE PROJECT NO.: 70-108  
 STATE PROJECT NO.: SL-107-2

SUMMARY  
 PIEZOMETER MONITORING PROGRAM  
 ERNEST MINE COMPLEX

Piezometer:	Date	Elevation of Water in Mine									
		1972 21/July	25/July	1/Aug	8/Aug	15/Aug	22/Aug	30/Aug	11/Sept	1972 19/Sept	
1. P-1/Cummings		1062.67	1062.47	1063.17	1063.22	1063.07	1062.92	1062.87	1062.72	1062.67	
2. P-3/E-2		1062.59	1062.84	1062.64	1062.69	1062.54	1062.79	1062.74	1062.64	1062.79	
3. P-4/E-3		1047.36	1047.46	1047.51	1047.51	1047.46	1047.21	1047.91	1047.86	1047.96	
4. P-5/E-3 (collapsed shaft)		1047.88	1048.08	1047.63	1048.13	1048.03	1048.33	1048.38	1048.33	1048.43	
5. P-6/Creekside		1041.80	1039.05	1034.60	1030.40	1027.70	1026.00	1025.30	1024.60	1024.50	
6. P-7/Crooked Creek		1042.23	1039.53	1035.03	1031.03	1028.33	1026.53	1025.73	1025.53	1024.98	
7. P-9/E-4		1042.72	1042.14	1037.89	1033.82	1031.19	1029.66	1028.51	1028.05	1028.05	
8. P-10/Fulton A		1041.44	1039.64	1034.64	1030.84	1028.24	1026.44	1025.64	1024.89	1025.09	
9. P-11/Fulton B		1042.54	1039.69	1034.69	1030.89	1028.04	1026.39	1025.64	1024.94	1024.89	
<u>Treatment Plant:</u>											
10. T-1		1045.18	1044.72	1040.10	1033.64	1031.04	1028.04	1027.79	1026.54	1027.24	
11. T-2		1045.34	1044.91	1040.29	1032.89	1029.84	1027.94	1026.94	1026.29	1026.89	
12. T-3		1045.54	1044.40	1042.88	1033.17	1030.07	1028.02	1026.87	1026.57	1027.12	

↑  
 Mine Water  
 Elevation Near  
 E-4 Began to Level

SUMMARY  
PIEZOMETER MONITORING PROGRAM  
ERNEST MINE COMPLEX

Piezometer:	Date	Elevation of Water in Mine									
		1972 19/Sept	26/Sept								
1. P-1/Cummings		1062.67	1063.22								
2. P-3/E-2		1062.79	1062.84								
3. P-4/E-3		1047.96	1048.06								
4. P-5/E-3 (collapsed shaft)		1048.43	1048.63								
5. P-6/Creekside		1024.50	1024.65								
6. P-7/Crooked Creek		1024.98	1025.03								
7. P-9/E-4		1028.05	1028.05								
8. P-10/Fulton A		1025.09	1025.29								
9. P-11/Fulton B		1024.89	1025.19								
<u>Treatment Plant:</u>											
10. T-1		1027.24	1027.44								
11. T-2		1026.89	1027.29								
12. T-3		1027.12	1027.42								

End of Piezometer  
Monitoring Program